A CASE FOR MOVEMENT

by

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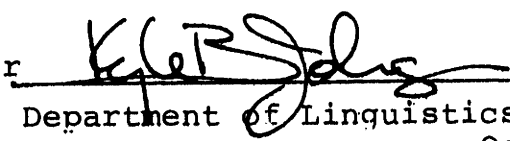
Signature of Author 
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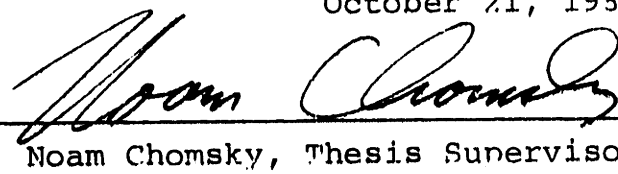
Certified by 
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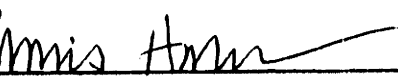
Accepted by 
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ABSTRACT

This thesis defends the position that the syntactic level of D structure has an existence autonomous from S structure. It does this by showing that Movement a relation between D and S structure. is constrained at intermediate levels. Two constraints on Movement are investigated One Subjacency is argued to make reference to the syntax of thematic role assignment. The second the Empty Category Principle, is held to make reference to the syntax of Case assignment. The first holds at intermediate levels in the Syntax the second at S structure and Logical Form. Subjacency is shown to constrain rightward movement as well as leftward movement. The Empty Category Principle is factored into independent principles one holding of chains, the other holding of empty categories. The asymmetrical boundedness of leftward and rightward movement is argued to stem from this version of the Empty Category Principle. A short account of psi predicates is included

Thesis Supervisor Noam Chomsky

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Table of Contents

Chapter 1

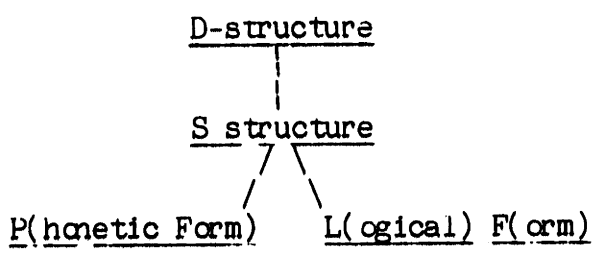
Introduction

Discovering the principles that govern constructions like that in (1) has played a central role in transformational grammar.

1 Who did you see t

In (1), the phrase who is related to the position marked with t by Movement. The Movement-relation, or Move-α, is governed by a number of principles, many still obscure. We examine a number of these principles in the chapters that follow

That the sentence "Who did you see" has a representation like that in (1) stems from a battery of principles, some of which we spell out here. We presuppose that version of Extended Standard Theory sometimes called Government-Binding (GB) Theory (cf. Chomsky (1981, 1982) and references cited there.) Under this theory, the grammar is organized as follows



Each level is related by Move α. We shall call the

D structure to S structure component "Syntax." the S-structure to PF component "the Stylistic component" or PF. The S-structure to Logical Form branch is called, simply. LF. PF and LF are defined as the levels at which rules of phonetic and semantic (respectively) interpretation are applied. D-structure is the level at which Thematic Roles (theta roles) (e.g., "agent," "patient," etc.) are mapped onto Grammatical Functions (i.e., subject, object, etc.). At D-structure, every argument rests in a theta-marked position (cf. Chomsky (1981 1984) We may further assume that X bar Theory holds at D structure, in the manner described by Stowell (1981) with the modification introduced in 3.1 In particular we shall follow Schein (1982) and assume that (I) holds at D structure

I i) For every X^o, there is an X^{max} which is the projection of X^o, and
ii) A node X^i is the projection of a unique category
(Schein 1982 1 (3))

S structure has been sometimes defined as that level at which Binding Theory applies (Chomsky (1981)), and/or the level at which structural Case (see Chapter 2) is assigned. We speculate that S structure is the level at which structurally Case-marked chains are evaluated see Chapter 4.

Move α gives rise to chains (cf. Chomsky (1981)). A chain is an n-tuple containing the moved constituent and all of the positions through which it moved. In (1), for example, the chain formed by Movement may be represented with =(who, t). In(1), we call who the "head," and t the "tail."[1]

1 We shall assume that chains are derivative from Movement.

A central tenet of GB is the Principle of Full Interpretation (PFI) (cf. Chomsky (1984). which guarantees that every constituent in a syntactic representation is "licensed" through some means. One sub principle of the PFI is the Theta Criterion [2]

II. Theta Criterion
For every chain $=(\alpha_1, \ldots, \alpha_n)$,
if α_i is an argument then there is exactly
one α_j, α_j a theta-position. and
if α_i is a theta position then there is
exactly one α_j, α_j an argument

We shall assume that theta-assigners (verbs, some nouns and prepositions) assign a theta role to positions occupied by their arguments under sisterhood at D structure Arguments in subject position are assigned a theta-role compositionally by the VP (see Marantz (1984)). Theta-assignment in this situation is mediated by Predication (see Williams (1980)). A number of companion notions to (II) are introduced in Chapter 2.

Another tenet of the PFI requires that "operators" be related to a variable. We take "operators" to be wh phrases and quantified expressions.[3] We adopt (III) following essentially Chomsky (1984) [4]

2. See Freiden (1978) for a early version of (II) See Chomsky (1981 335 (19)) for a more precise definition of (II), and Chomsky (1984 Ch 3).

3. See Taraldsen (1984)

4 See Koopman and Sportiche (1982) for a strengthened version.

III. No Vacuous Quantification
An operator must c-command a variable at LF.

C command is defined in (IV)

IV. α c commands β iff the first branching node dominating α dominates β, and α does not dominate β.

See Reinhart (1976 Ch 2) and Giorgi (1985) for an extensive defense of this definition. See Kuno (forthcoming) for some problems. The definition of "variable" is a more difficult matter. We may understand "variable" to be defined informally as that position from which the operator receives its interpretation; the tail in a chain. In (2), for example t, but not t is a variable associated with why [5]

2 Why did you say [t [Mary left t]]

A licensing condition of a different sort comes from Case Theory (cf. Vergnaud (1978) and Chomsky (1980)). Case Theory requires that categories of a certain type be related to Case marked positions. Case marked positions are argument positions governed by a verb, preposition, AGR, or noun. We adopt a version of the Case Filter in (V).

5. This does not permit bound pronouns (cf. Higginbotham (1980)) to be considered variables.

V. Case Filter
In a chain $=(\alpha_1, \ldots, \alpha_n)$.
if α_i is an argument then there is exactly one α_j, α_j a Case-marked position, and
if α_i is a Case-marked position then there is exactly one α_j, α_j an argument position

(V) requires that every argument chain contain exactly one Case marked position: see, for example, Manzini (1983) and Massam (1985) We take PRO to be intrinsically Case-bearing, following Chomsky (1984)

We take "government" to be defined as in (VI) following an idea of Kayne s (1984b) [6]

VI. Government
α governs β iff no more than one maximal projection dominates β but not α

As Kayne remarks. this formulation of government will account for the following distribution of facts

3.
a) I believe [$_S$Mary to be intelligent]
b) I want [$_S$for [$_S$Mary to be intelligent]]
c)*I believe [$_S$ [$_S$Mary to be intelligent] to be obvious
d)*I want [$_S$for [$_S$ [$_S$Mary to be intelligent] to be obvious]]

In (3a) the Exceptional Case Marking verb believe governs and assigns Case to Mary only one maximal projection, S, dominates Mary but not believe.

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6. (VI) is probably too permissive: see Chomsky (1985) for a stricter definition.

Similarly, in (3b) for governs and assigns Case to Mary for only one maximal projection dominates Mary and not for. But in (3c,d), two maximal projections separate the argument Mary from a Case-marker; hence (V) is violated.

A large role is played in GB by the Projection Principle (cf. Chomsky (1981 38 (6)), which can be informally stated as:

> Representations at each syntactic level (i.e LF, and D- and S structure) are projected from the lexicon, in that they observe the subcategorization properties of lexical items.
> (Chomsky 1981 29 (38))

Pesetsky (1982) argues that the "subcategorization property" that is represented at each syntactic level is the semantic type that the lexical item selects for.[7] The verb believe, for example, selects as complement a proposition. Hence, by the Projection Principle at every syntactic level, believe must be in a "subcategorization" relation to a proposition. We shall assume that the Aspects notion of "subcategorization" is subsumed by Theta Theory. Hence the Projection Principle can be defined as (VII).

VII. Projection Principle
If α, α an argument, is sister to a theta-assigner X^0 at D structure, then some α in $\gamma=(\alpha_1 \ldots \alpha_n)$ must be sister to X^0.

(VII) prohibits moving arguments by substitution into object position (Raising to Object), and requires that movement from an object position leaves a trace.

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7 See also Grimshaw (1979).

The Projection Principle says nothing about subject position. The subject position of clauses is obligatory (cf. Chomsky (1981)). as (4) demonstrates.

4. *seems that Mary has left

We shall simply stipulate this descriptive truth

VIII. Clauses must have a subject position

(VIII) arguably follows from the PFI, if predicates are licensed by subjects See Rothstein (1983) and Chomsky (1984).

We are primarily concerned with investigating the constraints that Subjacency and the Empty Category Principle place on Move-α. We turn to these principles in Chapter 3 and 4. A role will be played by "ordering" effects between movement to an argument position (A-position) and movement to a non-argument position (A bar position). In particular, we shall argue that certain puzzling facts concerning parasitic gaps and Extraposition from noun phrases can be understood if movement of a phrase to an A bar position is permitted to occur before a hosting phrase is moved to an A position. We begin, then with a discussion of some cases of movement to an A-position.

Chapter 2

Subjects and Theta-Theory

2.1 Introduction

A theory of grammar must have a means for expressing the relationship between predicates and their arguments. Two of these relations that have played a central role in recent research on the properties of clauses are what may be called, following Pesetsky (1982) (c)ategory selection and (s)emantic-selection. By c selection, we mean the information concerning the categorial status of a verb's complement. Some verbs require nominal complements, others one of a variety of sentential ones, and so on. By s selection is meant the relationship that concerns the semantic relationship of the verb to its arguments. Some verbs select a complement that refers to an animate entity, a property, and so on. We shall assume that the relation of selection is couched at least in part in the vocabulary of thematic (or theta) relations (cf. Gruber (1965) Jackendoff (1972), and also Fillmore (1968) for a similar theory). Verbs specify the theta-relations (or theta-roles) that their arguments bear. For example, the verb pat requires that its subject bear an agent theta-role and its direct object a patient theta-role. Whisper, on the other hand, combines with a subject bearing an agent theta role and a direct object bearing a theme theta role. The definition of each

theta role is a notoriously difficult matter. We will be primarily concerned with agent theme and experiencer The definition of experiencer will be postponed until 2.4.1. For agent and theme we may take the following definitions. An argument bearing an agent theta role denotes an entity which is at least partially responsible for, and is physically involved in, the property described by the verb. An argument bearing a theme theta-role denotes an entity that the property described by the verb is about, but is not an active causer of.[8] We shall use the convention of placing in upper case letters the names of theta roles.

Verbs do more than specify which theta roles their arguments bear. They also specify how their theta roles are assigned In particular, they specify the relation between theta role assignment and Case assignment One of the goals of this chapter is to discover some of the ways in which this information is represented.

We shall adopt the formalism of the theta-grid introduced by Stowell (1981), to express the assignment of theta roles by a predicate to its arguments The lexical representation of a predicate includes a theta-grid which lists the theta roles that its arguments will bear. To each entry on the theta grid is an annotation specifying the syntactic category of the argument that realizes the theta role in this way c-selection is

8. This does not distinguish theme from patient. A plausible distinguishing feature of theme and patient I believe, is Affectedness, in the sense of Anderson (1979) and Fiengo (1980) By "active causer," I mean to exclude the sense in which "Reagan" can be said to be a causer in "Someone finally jailed Reagan."

encoded.[9] Additionally a list of Cases assigned by the predicate is included in the lexical representation of a verb. The normal situation is for a Case specification to be an annotation on an entry in the theta grid this is what goes by the name of "inherent Case." or "semantic Case" (cf. Marantz (1984) Levin (1983)). In this situation, the assignment of Case is tied to the assignment of the theta role. A different situation arises with "structural Case " which, for us, occurs when a Case is listed in a verb's lexical representation without being linked to an entry in the theta grid. In English accusative Case is (normally) structural; its assignment is not tied to the assignment of a particular entry on the theta grid.

An argument moved into an argument position from a theta-position forms a "A-chain" (cf. Chomsky (1981 Ch. 6), Rizzi (1982b), Sportiche (1983), Brody (1984) and Lasnik (1985)) A chains are subject to the following constraint.

I $C=(\alpha_1,\ldots,\alpha_n)$ is a well formed Chain iff
1) Only α_1 is an argument in a Case marked position and
2) Every α_i locally A-binds α_{i+1}

By "locally binds." we mean that α_i c commands α_{i+1}, is in the governing

---

9. Pesetsky (1982) argues that c-selection is derivative from s-selection. This promising idea has a number of syntactic difficulties that I know of. One is that partitioning the class of verbs selecting sentential gerunds - so-called acc-ing gerunds (cf Reuland (1982)) -- appears to be strictly a matter of c-selection So also with the distinction between control and raising predicates. Although these problems may be solvable, I shall continue to assume c-selection distinct from s-selection, in accordance with Grimshaw (1979).

category for α_{i+1}, in the sense appropriate for antecedents and anaphors. is coindexed with α_{i+1}. and there is no α_j such that α_{i+1} c commands and is coindexed with α_j and α_j c commands and is coindexed with α_i. See especially Sportiche (1983). Brody (1984) and Lasnik (1985).

2.2 Theta roles and Events

Marantz (1984) observes that the mapping of agent and theme or patient theta roles onto grammatical relations (e.g., subject, object) exhibits regularity See Pesetsky (1982) and Levin (1983) for extensive discussion. A predicate that is intransitive may assign either THEME or AGENT to its subject position. as in (1). A transitive predicate may also assign either THEME or AGENT to its subject, but it may never assign AGENT as an internal theta role. cf (2).[10]

1 a) The horse sat.
  b) The rock fell.

2.a) Jones patted the rock
  b) The trees surround the house.
  c)*The rock patted Jones (synonymous with (a))

From these facts we may formulate (II)

-

10. A class of counterexamples to this last claim are the "transitive" version of active intransitives, e.g. "John walked the dog." "Mary jumped the horse," etc Arguably the objects of these sentences are just as agentive as they are when they are subjects of the intransitive counterpart Hale & Keyser (1985) argue that the transitive use of these active intransitives comes about as a result of a lexical causativization rule. This rule is language specific. for the same alternation is not found in Italian.

II. If a predicate has AGENT in its theta grid, then AGENT is external.[11]

I think more can be said about the distribution of AGENT. Whether a subject of a predicate is AGENT or not can be determined by other properties of the predicates involved We shall make a short digression at this point to discuss these properties.

Two classes of English verbs can be identified; those which describe a state or property of their subject argument, and those which describe an action of their subject argument Davidson (1966) has argued that this latter class, action verbs, involve a hidden event argument. Under this view, there is implicit in (3) reference to an event a kissing

3. Mary kissed the man.

That there is an event argument implicit here is suggested by our ability to add phrases which appear to modify this argument. In particular, events can be located in space and therefore (3) can be made more specific with (4).

4 Mary kissed the man in the Smith's house

See Davidson (1966), and references cited there.

This is not a feature of verbs which unambiguously describe a state or property. (5a) cannot be made more specific by adding a locative PP, as can (3).

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11 (II) is a trivial rewording of a condition in Pesetsky (1982 p. 21)

5 a) John fears the man.
  b) John fears the man in the Smith's house

In (5b) the locative PPs must modify the man The difference between (4) and (5b) is explained if locative PPs are required to modify syntactically present arguments, and there is an argument present in (4) that is not present in (5) an event argument [12] This follows from the Principle of Full Interpretation if locatives are licensed by arguments, as seems natural.

Higginbotham (1985) has given this event argument a syntactic home by suggesting that it is an entry in a verb s theta-grid. In the framework we are adopting the head of S is an abstract bundle of features: INFL. Higginbotham suggests that INFL is matched with the "EVENT" entry on the theta grid For concreteness, we may assume that INFL can host an argument and that it may receive an EVENT theta role.

Eventive predicates which are dyadic always assign AGENT to their subject. This is illustrated by the ambiguity involved in (6) and (7).

6 a) Mary has proved that at least one Latvian is blue-eyed.
  b) John kept the dog
  c) The wall surrounded Mary

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12 This differs from Higginbotham (1985 p 15) who wishes to place event arguments with stative and other verbs as well. The issue is an unclear one, since with verbs such as fear the event takes place "in" the subject, fear might be taken to be a psychological event. There may be different species of events one corresponding to states or properties.

7.a) Mary has proved that at least one Latvian is blue-eyed in my office.
b) John kept the dog in his kitchen
c)#The wall surrounded Mary in the yard

The examples in (6) have a meaning that those in (7) do not have. In (6) the verbs may describe a property or state of the subject argument, but not an event In (6a) for example, if Mary is a blue eyed Latvian, then Mary may receive THEME and the sentence can state that the proposition that at least one Latvian is blue eyed is proven by Mary s existence. In (7a), however, Mary must receive an AGENT theta-role (i e. Mary must be the prover) since the locative PP if taken to specify where the action took place, forces prove to be eventive. A parallel, if more subtle, difference exists for (6b)/(7b) and (6c)/(7c)

Our claim may appear to be untrue of eventive intransitive predicates compare (8) with (9).

8. John patted, kissed etc Mary
9. The rock fell, rolled, dropped, etc.

In both (8) and (9) an event is described We may say John patted something in the garden, and the rock fell in space and specify where the event took place. As we have understood AGENT and THEME, the subject of (8) is an AGENT but the subject of (9) is most likely THEME.

However, it is likely that the subjects of (9) are not in a theta marked position these verbs may be of the unaccusative or ergative class (cf. Perlmutter (1978), Burzio (1981), Levin (1983)). Predicates of this class assign an internal theta role but do not assign accusative Case, forcing the argument to be in the Case marked subject position. Since the

Theta-Criterion requires that there be only one theta-position in a chain. The result is that unaccusative predicates do not assign a theta-role to their subject position. If this is the case for (9), then the correlation between AGENT and eventive predicate stated above is true of both transitive and intransitive predicates.

The Italian verbs corresponding to those in (9) have been convincingly argued to be unaccusative by Burzio (1981). There are a number of diagnostics for unaccusatives in Italian that are not available in English. Among the few tests in English, Burzio (1981) suggests one that employs properties of the presentational _there_ construction. Following an analysis of _there_ Insertion by Stowell (1978) we may assume that one way an indefinite NP may be related to _there_ is if the NP remains in its theta position forms a chain _there_ in Case-marked subject position. Another derivation of a _there_-construction involves extraposing the NP rightward from subject position and inserting _there_ in the vacated position. In the second case, which only occurs with unergative predicates, the post-verbal NP must be external to all other constituents of the VP, under the assumption that moved constituents are Chomsky-adjoined to maximal projections, a position we defend in the following chapter. As a result, only unaccusative monadic predicates should allow presentational _there_ constructions where the indefinite NP precedes other VP internal constituents.

Monadic predicates which involve an AGENT subject are systematically unable to host that subject within the VP, and monadic predicates which combine with a non-agentive subject are. This is shown by the contrast

between (10) and (11).[13]

10 *There went jumped walked bounced etc a kangaroo into the garden.

11.a) There arose, ensued began etc a riot in the courtyard.
b) There arrived, appeared, etc. a man in the chimney
c)??There fell dropped rolled a rock onto the table.

See Burzio (1981) for discussion. These data confirm the claim that the verbs in (9) (=11c) are unaccusative and therefore do not assign a theta role to their subject position. The judgements concerning (11c) are somewhat less clear than those in (11a-b). We shall develop a test for unaccusatives in English in section 2.3.3 which confirms the status of fell drop, etc as unaccusatives. I have no explanation for the marginality of (11c).

If all cases where eventive intransitive predicates appear to have non-agentive subjects are unaccusatives, then our observation concerning the correlation between EVENT and AGENT may be strengthened.

III. An argument that is in a theta-marked subject position of an eventive predicate is AGENT

(III) allows AGENT to be a derivative notion. It is no longer a distinct theta-role assigned by a predicate, but instead arises in a certain structural relationship to an eventive predicate.

It may appear that a verb's ability to assign AGENT must be independent of whether the verb is eventive, because of cases like (12).

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13 See Milsark (1974) where these contrasts were originally noticed.

12. *John fell the rock

If AGENT is assigned structurally then John in (12) should receive an AGENT theta-role by virtue of the eventiveness of fell (12) might then be expected to be grammatical. However, the ungrammaticality of (12) arises for a different reason. Fell does not assign Accusative Case, and therefore the rock is a member of a chain whose head, namely the rock itself, is not in a Case marked position. This violates (I).[14]

If AGENT and EVENT are linked, then (III) may be further strengthened to (IV).

IV. An argument bears an AGENT theta role if and only if it is in subject position of an eventive predicate.

(IV) provides a means for theta-marking an argument in subject position when certain conditions are met. It allows for the possibility of a sentence containing an argument in subject position that is not theta-marked by the verb. This possibility is realized by psi-predicates as we shall see in sections 4 and 5

The validity of (IV) rests in part with the claim that eventive monadic predicates like fell are unaccusative. In the following section we develop a test which substantiates this claim, and which provides independent evidence for (IV).

14. The analysis here is similar in many respects to Hale & Keyser (1985).

2.3 Reanalyzing verbs

In this section I shall argue that English and French harbor a class of Reanalyzing verbs. Although similar in some respects to the process of Restructuring found in Italian, cf. Rizzi (1982a, Ch. 1) in the sense that both operations form a complex predicate from the triggering verb and its complement, the operation induced by Reanalyzing verbs differs in important respects. One of these differing properties is that the Reanalyzing operation cannot take place when the complement hosts a theta-marked subject position. As a result, Reanalyzing predicates provide a test for unaccusatives, since unaccusatives are the only monadic predicates which have this property.

2.3.1 The phenomenon

The class of verbs that we shall argue are Reanalyzing include, in English, threaten, promise and marginally, begs, dares, menaces and deserves. In French, the class includes menacer, risquer, promettre, exiger and mériter. We shall refer to this class as the threaten-class, and draw primarily on English and French facts, although similar phenomena exist in Italian. These verbs in one use are simple transitive predicates as in "John threatened me." They may also function as control verbs, taking an infinitival complement that contains PRO in subject position, as in "John threatened to kiss the horse." Finally, they may be employed in another, slightly marked form, as in "This rock threatens to fall." In this use, the meaning of threaten, for example, might be paraphrased as "events are

in motion such that X is imminent.[15] It is this latter version, the Reanalyzing version that we limit our discussion to

Ruwet (1972) and Zubizarreta (1982) note that in certain respects, the threaten class displays properties associated with raising verbs. First when transitive these predicates assign an agentive theta role to their subject position, but under their Reanalyzed guise their subject bears a theta role determined by the lower predicate, cf. (13). Second, the threaten class may host in their subject position idioms associated with object position cf. (14)

13.a)*Que Jean parte menace l'équilibre de la famille
(That John leaves threatens the equilibrium of the family)
b) Que Jean parte menace de t'ennuyer
(That John leaves threatens to bother you)
(Zubizarreta 1982 75 (64))

14. Parti menace/exige d'être tiré de cette situation
(Advantage threatens/demands to be taken of this situation)
(Zubizarreta 1982 74 (61b))

Finally -en cliticization, a property characteristic of derived subjects, is possible from subjects of Reanalyzed verbs, as in (15).[16]

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15 My thanks to Jim Higginbotham for making clear to me the difference in meaning these verbs have. I am guided throughout this section by his comments and suggestions.

16. See Kayne (1975) and Couquaux (1981). For some speakers (15b) is ungrammatical and (15a) only slightly better. A slight improvement is achieved if the subject cannot have an agentive interpretation, as in "?La photo menace d'en être circulée "

15.a) Le chef menace d'en être impitoyable
(The chief threatens to be unforgiving)

b) Le chef promet d'en être magnanime
(The chief promises to be magnanamous)
(Zubizarreta, 1982 74 (63a-b))

These facts suggest that members of the threaten-class are optionally raising verbs, that (13b), for example, has the structure in (16).

16 [That John leaves]$_i$ threatens [t_i to bother you]

However Zubizarreta, following Rouveret & Vergnaud (1980), notes that in certain respects these verbs do not act like raising predicates. They do not permit an expletive it in subject position, a characteristic of raising predicates consider the contrast in (17).[17]

17 a) Il semble falloir partir
(It seems necessary to leave)

b)*Il promet/exige de s'avérer que Jean est idiot
(It promises/demands to turn out that John is an idiot)
(Zubizarreta, 1982 76 (66a),(67b))

They also fail to display a characteristic property of raising predicates noted by May (1977). May observes that raising predicates allow a quantificational subject to have narrow scope with respect to the predicate This is a diagnostic for a raising predicate as the contrast with a control predicate shows, consider (18).

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17. Zubizarreta reports "il exige d'être arrêté un grand nombre d'hommes" as ungrammatical (76 (67d)). My informant finds it much better than (17b).

18.a) Nobody tried [PRO to leave]
b) Nobody tried to leave but somebody tried to leave

c) Nobody$_i$ seemed [t_i to leave]
d) Nobody seems to have left but somebody seems to have left

The difference between (18a) and (18c) is illustrated by the fact that although (18b) is a contradiction, (18d) need not be. Unlike raising predicates, the threaten class does not allow a quantificational subject to have narrow scope.

19. Personne ne mérite/menace de venir, mais quelqu'un mérite/menace de venir
(Nobody deserves/threatens to come, but somebody deserves/threatens to come)
(Zubizarreta 1982 76 (68b))

(19) constitutes a contradiction.[18]

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18 A related distinguishing property of raising predicates that Zubizarreta discusses concerns the interpretation of each in One N each constructions. Burzio (1981) notes that this construction may be employed to link two NPs in raising constructions, but not in control constructions cf. the contrast in (i).

i.a) One interpreter each seems to have been assigned to the diplomats.
b)*One interpreter each tried to be assigned to the diplomats.

See Burzio (1981) and Zubizarreta (1983) for two accounts. Zubizarreta claims that, like control predicates, Reanalyzing predicates do not tolerate this interpretation:

ii.*Un interprète chacun promet/exige d'être assigné aux diplomates
(One interpreter each promises/demands to be assigned to the diplomats)
(Zubizarreta 77 (69b))

Although marginal with exige, the above example with promet does not sound significanty different than a raising predicate to my informant. Nor do the English correlates appear ungrammatical to me.

Finally the verbs of the threaten class, unlike raising predicates do not tolerate objects that intervene between the triggering verb and the clausal complement. Consider the contrast in (20).

20.a) John$_i$ seems to me [t_i to like fruit]

b) *Justice promet aux révoltés d'être rendue
(Justice promises the insurgents to be made)
(Zubizarreta 1982 79 (73b))

The threaten-class also displays properties absent in standard raising predicates concerning the theta-roles borne by the raised argument. They are unable to host a subject which bears an EXPERIENCER or CAUSER theta role.[19]

21 a)*Mary threatens to desire John
b)*My aunt promises to want a watch
c)*The hammer threatens to crush the can
d)*John threatens to fear the tornado
e)*He threatens to believe that Mary has left
f)??This treatment promises to cure the patient
g)??This idea promises to enlighten John

We may assume that EXPERIENCER is assigned to the subject position in (21a-e) and CAUSER to subject position in (21f-g). Nor may the subject bear an AGENT theta-role, in some cases; cf. (22).

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iii. One problem each threatens to annoy the students

Judgements are admittedly delicate for these examples if ungrammatical, these examples are problematic for the account of Reanalyzing predicates to be offered in 2.3.2 under an analysis of each interpretation like that in Burzio (1981).

19. We are not interested in the control interpretation of these sentences. Throughout this paper, we restrict our discussion to the reanalyzed interpretation.

22.a)*Mary threatens to slap Bill
b)*Bill promises to kiss Mary
c)*Gary promises to hit Mary intentionally
d)*Terry threatens to try to leave
e)*Randy promises to decide to take the job
f)*Sue threatens to persuade me to leave

It may be, therefore, that the correct statement of this condition on the threaten-class is that the matrix subject may not bear the theta-role assigned to the subject position of the lower predicate. This hypothesis would be strengthened if "raising" were blocked under a member of the threaten-class predicates from a verb which assigns a theta-role different from AGENT CAUSER or EXPERIENCER This seems to be the case, as (23) demonstrates.

23.a)*The wall threatens to surround Mary
b)*The tank promises to hold all the water
c)*Your idea promises to deserve praise

This point will be taken up in greater detail in the following section Let us say here simply that the subject of the threaten-verb may not bear the theta role assigned by the lower predicate to its subject position [20]

A problem with this hypothesis is presented by (24).

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20. The examples in (23) argue against the analysis for these predicates advanced by Zubizarreta. Zubizarreta's claim, if I understand it correctly, is that a threaten-verb assigns THEME to its subject position and that, in other respects, these predicates are raising verbs. Hence, the subjects of a threaten-verb must be related to a position assigned a THEME theta-role to avoid a theta-role conflict. However, as we have defined THEME, the verbs surround, hold and deserve assign THEME to their subject position, and yet (23) is ungrammatical. Zubizarreta may reasonably counterargue that surroud, etc. do not assign THEME. I am unable to imagine what other theta-relation the subjects surround, deserve, etc. bear, however

24.a)?The rock threatens to hit Mr. Jacober
b)?That rider threatens to crush the horse
c)??This chevy promises to beat any car on the road
d)?That guy threatens to talk forever

I find these examples very much better than those in (22). Although the verbs in the complement in (24) appear to be similar to those in (22), the theta-role borne by their subjects is not. In (22), the subjects of hit slap, etc. denote individuals that are not only agents of the action, but also bear some cognitive state with respect to that action; they, in some vague sense, "will" the action of the verb. This is not true of the objects denoted by the subject NPs in (24). These objects merely carry out the action of the verb. Let's separate these two notions, calling the former AGENT and the latter ACTOR

2.3.2 An account

The account for these phenomena that we shall explore is that a member of the threaten-class is able to join with a predicate in its complement clause and form a complex predicate. Informally, this process allows a threaten-verb to take (25) as input and give as output (26). We give merely give a description of the process here.

25. [... [$_{VP}$threaten [$_{S'}$[$_{S}$ [$_{INFL}$ to[$_{VP}$V* (NP)]]]]]]] -->

26. [... [$_{VP}$threaten to-V*] (NP)]

where V* does not assign a theta-role to subject position

A crucial property of (26) is that V* may not assign a theta-role to subject position We call the process in (26) "reanalysis," and assume it to be obligatory for verbs of the threaten-class when they receive that

interpretation.

If (26) is the correct representation for these examples then the inability of quantificational subjects to have narrow scope is explained. A relevant example is:

27. Nobody threatens to bother Mary

In (27) unlike raising predicates, "nobody" may not have narrow scope with respect to threaten, (27) cannot have the meaning paraphrased by "It is threatening that nobody bothers Mary." For this reading to be able to arise, however, entails that nobody has scope only over bother, and not threaten. See May (1977, 1985). This is impossible if (27) has the structure given by (26), for threaten and bother necessarily have the same scope.

Support for our hypothesis is also given by facts concerning scope of temporal adverbials. In biclausal sentences, post-verbal temporal adverbs are ambiguously construed either with matrix or complement clause. In (28), for example, on Tuesday may tell when the activity described by either the matrix verb or the embedded verb takes place.

28.a) John seemed likely to marry Sarah on Tuesday
b) John was believed to want cake on Tuesday
c) John wanted to leave town on Tuesday

This ambiguity reflects the ability of on Tuesday to be attached to either the matrix S or to the complement S. There is no such ambiguity present in reanalyzed constructions.

29.a) This idea threatened to bother Mary on Tuesday
b) That idea promised to be remembered on Tuesday
c) A riot threatened to break out on Tuesday

The unambiguity of (29) is accounted for by the monoclausality imposed by (26).[21]

We are now also in a position to account for the thematic restrictions that hold of the subject of a threaten-verb. We saw above that the subject of a threaten-verb may not bear the theta role assigned externally by the lower predicate. Hence the ungrammaticality of (30), where the lower predicate assigns an external theta-role.

30.a)*Mary threatens to hit John
b)*John threatens to fear the tornado
c)*The horse promises to jump the fence
d)*The wall threatens to surround the troops
e)*Your idea promises to deserve praise

These examples contrast with ones where the lower predicate assigns an internal theta-role, but no theta-role to subject position, as in (30).[22]

31 a) That car promises to be purchased soon
b) This toy promises to be enjoyed
c) Advantage threatens to be taken of you

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21. In this respect, reanalysis differs from the process of restructuring argued for by Rizzi (1982a, Ch.1).

22. We assume that passive predicates assign no external theta-role to their subject position. They do, however, assign an external theta-role which is manifested by the argument in a by-phrase: "The car was purchased by John," or by the passive morphology "-en". See Jaeggli (1984). In this respect the "se"-passive differs crucially for, as Zubizarreta observes Reanalysis is incompatible with a "se"-passive:

i.*Ces vêtements promettent de se laver fréquemment
(These clothes promise to be washed frequently)
(Zubizarreta 105 (116a))

The difference is simply that in the passive, the external theta-role may be borne by the passive morpheme "-en" which is within the VP (on the verb), but in the "se" passive, "se" remains a constituent of INFL (cf. Belletti (1982)) in violation of the structural description for Reanalysis.

There are a number of other cases to be considered. A threaten-verb may reanalyze with a clause involving a predicative be, as in (32).

32 a) Your idea promises to be a good one
b) That dog promises to be a fierce fighter
c) Today promises to be miserable

These examples may appear to counterexemplify the generalization that a threaten-verb may not reanalyze with a predicate which assigns an external theta-role, because adjectives (passive participles aside) and nouns appear to never theta-mark an internal position which is in a chain with an argument in subject position. However, Stowell (1978) has argued that the predicative be in these constructions is a raising predicate. Under Stowell's analysis, a sentence involving a predicative be has the following representation.

33. $[_S$ [that dog_i] $[_{I'}$ is t_i $[_{VP}$ a fierce fighter]]]

If Stowell's account is correct, then the examples in (33) fall straighforwardly into our analysis; (33b), for example, would have the structure shown in (34).[23]

34. $[_S$ [that dog_i] $[_{VP}[_V$ promises-to-be] t_i a fierce fighter]]]

Note that these examples contrast with equative be, where a representation like that in (32) is unavailable.

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23. We slightly modify this picture below.

35.a)*24^{n-1} threatens to be prime
b)*Reagen threatens to be the president

A second class of potential counterexamples is given by certain psi-predicates. These predicates appear to assign a THEME theta-role to their subject position and an EXPERIENCER theta role to their object. Annoy is one such verb.

36 This problem annoys me

Psi-verbs may reanalyze with the threaten class.

37. This problem threatens to annoy me

In section 4 we shall see that there are a number of reasons for believing that psi-predicates do not theta-mark their subject position, but instead assign THEME to an internal position We shall argue that (37) is as in (38), and therefore that (39) conforms to (26), as (39) shows.

38. [$_S$this problem$_i$ [$_{VP}$annoys me t_i]]
39. [$_S$this problem$_i$ [$_{VP}$[threatens-to-annoy] me t_i]

Finally there are a set of examples which pose a more serious problem for the claim made here. These examples, exemplified by those in (40), involve cases where the lower predicate appears to assign a THEME theta-role to its subject position.

40 a) Litter threatens to ruin the beauty of our streets
b) Mary s quarrelsomeness threatens to destroy our picnic
c) The water balloon promises to hit Mr. Jacober
d) That rider threatens to crush the horse

As was noted above, in (40c,d), the matrix subject may bear an ACTOR

theta-role which is apparently assigned by the lower predicate to subject position. However, these examples may be only apparent counter-examples to (26). Recall that when the lower predicate assigns AGENT to its subject position, raising under a threaten-verb is blocked, cf. (41).

41.a)*Mary threatens to hit me intentionally
b)*Gary threatens to crush the can on purpose

This contrast shows that the two semantic relations AGENT and ACTOR should be considered distinct theta-roles. We may ask. Where do these two theta-roles come from? The subject-oriented adverbs in (41) pick out arguments bearing a particular theta-role (namely AGENT), but they do not assign it, this is shown by the ambiguity of (42a) as compared to the unambiguous (42b).

42 a) Gary crushed the can (Gary= AGENT or ACTOR)
b) Gary threatens to crush the can (Gary= ACTOR only)

We argued, earlier, that subjects of eventive predicates receive an AGENT theta-role by virtue of their position Suppose, however, that the theta-role assigned to the subject position of eventive predicates is ACTOR rather than AGENT Our previous arguments do not chose between these options. If this is correct, then (IV) should be changed to

IV An argument bears ACTOR iff it is in subject position of an eventive predicate

On this view, AGENT only arises by virtue of being assigned by a verb. Because AGENT is restricted to subject position, like ACTOR, we should view AGENT as being a particular form of ACTOR. We may take AGENT to be compositionally determined; suppose that a predicate that combines with an AGENT subject assigns a particular theta-role, call it X, which, when

combined with ACTOR yields AGENT. A verb like hit, then, optionally assigns X to its subject position; slap differs merely in that it obligatorily assigns X. The grammaticality of (40c d), and the unambiguity of (42b) now follows. Reanalysis may only occur with a verb that does not assign a theta-role to its subject position. Hence, in (40c.d), Reanalysis may only occur when the lower predicates do not assign X i.e. just when their subjects bear ACTOR

Nevertheless, I do not see how this explanation of (40c d) can be extended to (40a,b), which remain problematic for this account.

2.3.2.1 Expletive "it"

Still mysterious is the inability of a reanalyzed construction to host an expletive "it," as in (43).

43.a)*Il promet de s'avérer que Jean est idiot
b)*it promises to seem/appear that John is an idiot

In fact, we find that in some cases these constructions do host expletive it. When the raising predicate is an adjective, reanalysis is possible; (44) is a clear improvement to (43b).

44.a)??it threatens to be likely that John is an idiot
b)?it threatens to be certain that John is dead

The same contrast holds when the tensed clause is in subject position of threaten

45.a)* That John is an idiot threatens to seem/appear
b)??That John is dead threatens to be certain

The difference between these two cases is the following. The raising

predicates seem and appear are arguably auxiliaries attached under INFL. See, e.g. Rothstein (1983).[24] This is suggested by their ability to combine with predicative adjectives, as in (46).

46. John seems/appears upset

The raising predicates be likely, be certain, etc., are made up of a predicative be and an adjective We have assumed, following Stowell (1978), that the position that these predicates theta-mark is the immediate sister to the adjective. (47a) has the representation shown in (47b).

47.a) it is likely that John is dead
b) it is [[t_i likely][that John is dead]]

However, there is no reason for insisting that the theta-marked position be to the left of likely. All that is required is that likely be a sister to its argument.[25] (48) is a legitimate representation for (47a).

48. [it is [likely [that John is dead]]]

Reanalysis is defined so that it necessarily applies between a threaten-verb and another predicate. If Reanalysis is restricted so that the threaten-verb must reanalyze with a true predicate, i.e. a non auxiliary, then the preceding contrasts are accounted for This requirement will prevent threaten from reanalyzing with seem or appear,

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24. Howard Lasnik points out that the failure of Subject-AUX Inversion with these predicates is problematic for this view, cf. "*seems it that Mary left." We must assume that Subject-AUX Inversion is constrained to apply only to non-theta assigners (in English). Cf. 3.3.3.4.

25. We do not take theta-role assignment to be directional; cf. Koopman (1984) for a different view.

since these are auxiliaries, and (43b) and (45) are ungrammatical. With be likely, however, Reanalysis may occur; (44a) may be represented as (49).

49. [it [[threatens-to be-likely] [that John is dead]]]

Another case where expletives may appear quite freely in these constructions as Zubizarreta notes, involves the class of expletives associated with weather verbs.

50.a) Il menace/mérite de pleuvoir
(It threatens/deserves to rain)

b) Il promet de neiger
(It promises to snow)
(Zubizarreta 1982 78 (70a,b))

These "expletives" are in fact arguments theta-marked by the weather verb. See Chomsky (1981). These examples will then constitute counterevidence to the analysis presented here if weather verbs theta-mark their subject position. However, there is evidence that, in Italian weather verbs are potentially unaccusatives.[26] One test for unaccusatives in Italian employed by Burzio (1981) (see also Perlmutter (1978)) is auxiliary selection Monadic predicates which combine with essere are unaccusative, those that combine with avere are intransitive. Weather verbs may combine with either, cf. (51).

51.a) [pro] e pioruto
b) [pro] ha pioruto
(it rained)

If weather verbs can be unaccusatives in French and English as well as

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26. My gratitude to Luigi Rizzi for bringing this to my attention.

Italian, then the grammaticality of (50) is expected.

2.3.3 A test for unaccusative verbs

Reanalyzing predicates provide a test for unaccusatives in English. The condition that reanalysis cannot occur over a constituent intervening between two predicates requires that the lower predicate not assign an external theta-role. As a result, a threaten-predicate may only reanalyze with an unaccusative monadic predicate, not an intransitive one.

In the previous section we based the validity of (III) on the claim that monadic eventive predicates which have AGENT subjects, as in (52), are unaccusative.

52.a) A riot arose/ensued/began in the courtyard
b) The package arrived/appeared on Tuesday
c) A rock fell/dropped/rolled on the table

These predicates may reanalyze with a threaten-predicate, confirming that they are unaccusatives.

53.a) A riot threatens to arise/ensue/begin in the courtyard
b) The package promises to arrive/appear on Tuesday
c) A rock threatens to fall/drop/roll on the table

Compare the ungrammaticality of reanalyzing with intransitive predicates.

54.*A child threatens to jump, walk, bounce, telephone on Tuesday

We turn in the next section to a class of predicates where the effects of (IV) may be witnessed.

2.4 Psi-verbs

2.4.1 Introduction

Psi-verbs in English can be classed into two broad categories.[27] The first includes predicates which assign an EXPERIENCER theta-role to the subject position, where we may take "EXPERIENCER" to be defined as follows an argument bearing an EXPERIENCER theta-role is in, or comes to be in, some psychological state. These include both monadic. (54a), and dyadic, (54b), predicates.

54.a) John suffered
John was unhappy, sad, miserable, etc.

b) John feared, dreaded, liked hated, etc Mary

Let us refer to this class of predicates as the "external" class.

The second category includes those verbs which assign the EXPERIENCER theta-role to their direct object as in (55).

55. John s behavior bothers amuses, amazes, etc. me

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27. Another category exists in Romance, exemplified by the Italian "piacere" ("likes"). The EXPERIENCER in this class appears with overt Dative Case marking and may be in either subject or object position. The THEME bears Nominative Case and may likewise appear in either pre-or post-verbal position. The unavailability of this class in English is probably tied to the inability to assign Nominative Case to post-verbal NPs in English, a reflex, we assume, of the unavailability of Rule R in Syntax (cf. Borer (1984)).

It is this class, which we shall call "internal," that our discussion will be restricted to. The internal class shows an alternation between a THEME/EXPERIENCER reading, as in (56), and an AGENT/THEME reading, as in (57).

56. Reagan's smile disturbs me
    Blizzards depress me
    My ideas may strike you as improbable

57. The child disturbed the table
    John depressed the button
    The bat struck the ball

I shall refer to the reading represented by (56) as the "psych" interpretation, and the reading exemplified by (57) as the "active" interpretation. I shall sometimes call a psi-verb when it receives one of these readings a "psych-verb," or an "active verb." With verbs such as worry, strike surprise, upset, depress disturb, the difference in meaning is quite sharp. With other members of the internal class, the difference in meaning is often very subtle, as in (58).

58. The magician is amazing the children with his tricks
    The dogs are bothering the sheep into the pen

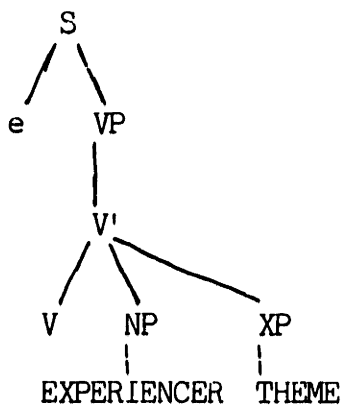
We shall advance some arguments, most borrowed from Belletti & Rizzi (1985), that the subject position of a verb from the internal class when it receives a psych-interpretation is not theta-marked. Instead, arguments in the subject position of these constructions are in a chain with a theta marked positon internal to the verb phrase.

2.4.2 Properties of the psych-interpretation

2.4.2.1 The non-theta-marked subject position

We shall argue that the representation associated with the psych interpretation for a predicate of the internal class is as in (59).

59.



The argument receiving the THEME theta role is subsequently raised to the Case-marked subject position, in accordance with (I). I shall review two of Belletti & Rizzi's arguments for taking the subjects of psych-verbs to be derived.

The first argument employs a property of Italian reflexive si. As the examples in (60) demonstrate, only NPs that occupy a theta-marked subject position may act as antecedents for si. Hence (60a) and (60b) are ungrammatical, since the subject of these clauses is linked to an internal theta-marked position. Example (60c) contrasts minimally with (60a) and (60b); the subject in this case occupies a theta-marked subject position and may therefore bind si (cf. Belletti (1982), Rizzi (1982a), Manzini (1983), Burzio (1981)).

60.a)*Gianni si e' stato affidato
John to-himself was given

b)*Gianni si sembra simpatico
John to-himself seems nice

c) Gianni si e' fotografato
John himself photographed
(B&R, 19a c)

Consider in this light the example in (61).

61. *Gianni si preoccupa
John himself worries
(B&R, 20b)

The ungrammaticality of this sentence can be traced to the presence of the reflexive "si" if the subject is not in a theta-marked subject position. This provides evidence that the subjects of psi-verbs have been moved from a VP internal position. We return to the particularities of (59) below.

The second argument that Belletti & Rizzi provide can be transposed to English. This makes use of a property of Binding Theory that we shall not be able to explore in detail at this point, though we shall give a preliminary description. We adopt the Binding Theory advocated in Chomsky (1981) which requires, essentially that an anaphor have a proximate antecedent which c-commands it. Consider the examples in (62).

62.a) [Replicants of <u>themselves</u>]$_i$ seem to <u>the boys</u> [t_i to be ugly]
b) [Replicants of <u>themselves</u>]$_i$ were believed [t_i' to have seemed to <u>the boys</u> [t_i to be ugly]

These examples are grammatical, though somewhat marginal due to their complexity. Contrast (62) with (63).

63.a)*[Replicants of themselves] promised the boys [PRO to become ugly]]

b)*[Replicants of themselves]$_i$ were believed [t_i to promise the boys [PRO to become ugly]]

In (63), the subjects of the matrix clauses do not form a chain with the lower subject position. In this respect, (63) minimally differs from (62), where the matrix subjects are linked to an internal position. The ungrammaticality of (63) straightforwardly derives from the Binding Theory There is no NP c-commanding the reflexive themselves in (63), and therefore this anaphor fails to be bound. The grammaticality of (62) is mysterious from this viewpoint. The relevant difference between (62) and (63) appears to be that in (62), the argument containing the reflexive is in a chain that contains a member which is in a structurally appropriate position to be bound. As (64) demonstrates, when the NP replicants of themselves is in subject position of the complement, themselves may take the boys as antecedent.

64.a) It seemed to the boys that [replicants of themselves] are ugly

b) It was believed that it seemed to the boys that [replicants of themselves] are ugly

As a preliminary statement, we may characterize the difference between (62) and (63) with (V).

V. An anaphor contained in an argument A must be bound by an antecedent in the Governing Category of and c-commanding a member of A's chain.

(V) requires modification irrelevant to our discussion; see Barss (1984) and Kuno (forthcoming). We assume the definition of "Governing Category"

in Chomsky (1981)[28]; X is a Governing Category for Y iff X is the minimal maximal projection containing Y, a subject, and a governor of Y.

One apparent problem with (V) is the ungrammaticality of: "*I believe herself to worry her t " In this sentence, herself may be bound by her, since her c-commands t. However, as Pesetsky (1985) observes, there is a Disjoint Reference violation in this example herself c-commands coindexed with, and is the Governing Category of her hence herself and her must be disjoint.[29]

With this in mind, consider the contrast in (65).

65.a) [Replicants of themselves] amused, bothered, etc. the boys

b)*[Replicants of themselves] bounced on hit, etc. the boys

Again, the ungrammaticality of (65b) is unsurprising; "themselves" is not c-commanded by "the boys" The grammaticality of (65a), by contrast, follows from (V) only if the NP "replicants of themselves" is linked to a position that is c commanded by "the boys". If the subject of a psi verb is linked to an internal position, (V) would permit "themselves" in (65a) to be bound by "the boys".

We may conclude that the psych interpretation of a psi-verb is associated with a representation, like (59), where the subject is linked to an internally theta-marked position.

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28. But see Chomsky (1984).

29. See Lasnik (1976). The ungrammaticality of "*I believe herself to worry herself" follows from the same cause for the ungrammaticality of "*I showed herself herself "

2.4.2.2 Position of the Experiencer

In (59), the argument bearing the EXPERIENCER theta-role is a sister to V', not a sister to the verb itself. Belletti and Rizzi assign the EXPERIENCER to this position on the basis of facts concerning ne-cliticization. In Italian, ne may be cliticized onto the verb only from direct objects of the verb. Cliticization from a subject, even when inverted, as in (66b), or from an indirect object, as in (66c), is not possible. See Belletti & Rizzi (1981).

66.a) Ne no conosciuto i collaborati
(I ne met the collaborators)

b)*Ne hanno parlato tre
(ne have spoken three)

c)*Gianni ne e rimasto tre a Milano
(Gianni ne remained three in Milano)

Interestingly, ne-cliticization is not possible from the direct object of a psi-verb when it receives a psych-interpretation.

67.a)??Questa battuta ne ha urtati molti
(this joke ne struck many)

b)??Questo genere di problemi ne preoccupa molti
(this kind of problem ne worry many)
(B&R (36d),(36b))

In this respect, the argument bearing an EXPERIENCER theta-role is more like an inverted subject than a direct object.

A companion phenomenon exists in English Extraction of a wh-phrase from

a direct object NP is generally possible in English, cf. (68).[30]

68.a) Who did you see [a sister of t]
b) Who did you buy [a story about t]

Extraction from an indirect object is much less acceptable.

69 a)??Who did you give a book to [a sister of t]
b)??Who did you put a glass on [a story about t]

Giving these contrasts a formal characterization is a difficult matter involving a number of complex factors see e.g. Huang (1982) for discussion. Belletti & Rizzi (1985) argue for an approach that distinguishes direct and indirect objects structurally They suggest that indirect objects and inverted subjects are not sisters to the verb, and then provide a method which does not require sisterhood for theta-marking them. The contrasts noted above, then, can be described with the following condition (See Chomsky (1985) and Ch. 3).

VI. An Xmax is an extraction domain only if it is sister to a verb.

For this reason Belletti & Rizzi place the argument bearing the EXPERIENCER theta-role outside V', as in (70).

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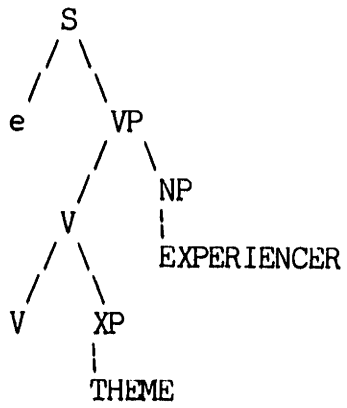
30. Extraction from an NP is subject to mysterious conditions in English. See 3.2.

70.



Belletti and Rizzi's method for theta-marking NP in (70) may not be available in English. They argue, on the basis of certain constraints on the ordering of PPs in Italian, that internal theta-role assignment has structure. For certain theta-roles, such as EXPERIENCER, $\overline{V}$ may assign the theta-role See Belletti and Rizzi (1985) for details. No ordering effects of the type they describe hold in English, however.

We shall pursue a different line and assume that (59) is the D-structure representation of psych-predicates, and derive the islandhood of the phrase bearing EXPERIENCER in a differently In chapter 4, we propose a constraint on movement that accounts for the ungrammaticality of (71).[31]

71.a)*who did you convince [a friend of t] that Mary had arrived
b)*Of whom did you tell [a friend t] to buy a book
c)*Of whom did you persuade [a friend t] that Gary had left

We propose there that extraction from a phrase on a middle branch is prohibited. This constraint will also account for the impossibility of

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31. See Kuno (1973) and Postal (1974).

extraction from the EXPERIENCER argument, if (59) is the correct representation. Because NP in (59) is on a middle branch wh-movement and ne-cliticization from that argument is blocked.

An interesting property of this account for psych-predicates noted by Belletti and Rizzi, is that it appears to provide a counterexample to Burzio's Generalization. Burzio (1981) shows that verbs which assign structural Case necessarily theta-mark their subject position. If psych-verbs assign structural Accusative Case to their complement, then this generalization would be violated, for we have seen that psych-verbs do not theta-mark their subject position. Belletti and Rizzi suggest that psych-verbs instead assign inherent Accusative Case. They adduce evidence for this claim from the impossibility of forming a syntactic passive with psych-verbs. This follows from their conjecture, if passive predicates necessarily absorb structural Case. Their evidence comes from the verb vienere, which combines only with an adjectival passive; consider the unambiguity of: "La porta viene chiusa (the door closed)." Hence the ungrammaticality of "Gianni viene preoccupato da tutti (John comes worried by everyone)" If the by-phrase in English passives necessarily carries the theta-role assigned to the subject position, then a similar argument may be made from English facts. Though judgements are not very clear, THEME is not easily borne by the NPs in the by-phrases of (72).

72 a) I was frightened by Mary's behaviour
b) She was bothered by Gary's laughter
c) He was struck by your clothing
d) She was depressed by the dinner

See Postal (1972 Cf. 6). We shall assume that EXPERIENCER receives inherent Case.

Recall that inherent Case is linked to a particular entry on a verb's theta-grid. Assignment of inherent Case is tied to theta-role assignment. Summarizing the preceding conclusions, we may give a psi-verb, when it projects a structure receiving a psych-interpretation, the following lexical representation.

73. V_{psych} <theme experiencer>

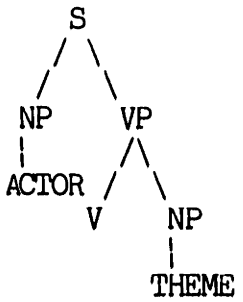
Accusative

We shall argue in the following section that this is not the only representation that a psi-verb may have.

2.4.3 Ambiguous structure of internal class

As we saw above, the internal class is associated with two interpretations.[32] The psych-interpretation is associated with the representation in (59). In this section, we shall argue that the active-interpretation is not associated with (59), but is instead associated with the D-structure in (74).

74



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32 This was first observed by Ruwet (1972), whose solution to this problem we essentially follow.

The arguments used above to show that the subject position of a psych verb is not theta-marked, can be employed to show that the subject position of an active-verb is.

Consider the contrast in (75).

75.a) Gianni si e' colpito con un bastone
John struck himself with a stick

b)*Gianni si e' colpito per la sua generosita'
John himself struck for his generosity
(B&R, 64c-d)

As we saw above, strike in its active interpretation has a meaning akin to hit. With this meaning, the subject of strike may serve as the antecedent to si, as (75a) exemplifies. This contrasts with (75b) where strike receives a psych interpretation.

A similar conclusion may be reached by employing the properties of anaphors described above; examine the contrast in (76).

76.a)*Replicants of themselves struck the boys with a stick

b) Replicants of themselves struck the boys as ugly

The grammaticality of (76b) arises by virtue of (V) if replicants of themselves is raised from a VP-internal position. By contrast, the ungrammaticality of (76a) follows only if replicants of themselves is in a theta-marked position, and thereby prevented from forming a chain with an internal position by the Theta-Criterion.

Additional evidence that psych and active verbs differ with respect to theta-marking their subject position comes from the interaction of these predicates with those of the threaten-class. We observed in section 2.3.2

that psi-verbs can reanalyze with a threaten-predicate.

77. This problem threatens to annoy me

However, Reanalysis may only take place with a psi-predicate which receives a psych-interpretation, as illustrated by the contrasts in (78).

78.a) John s behavior threatens to upset me
b)*The bull threatens to upset the teacup
c) That book promises to strike the child as amusing
d)*That book threatens to strike the child on the head

This follows from the analysis for threaten-predicates if the active version, but not the psych version, of a psi-predicate theta-marks its subject position.

Finally, there is evidence for a difference in D-structure representation of psych and active verbs provided by the fact that the direct object of an active verb does not constitute an island for wh-movement and ne-cliticization.

79.a) Who did you strike [a picture of t] with a broom
b) What did you upset [a stack of t]

80.a) Gianni ne ha urtati molti con un bastone
(Gianni ne struck many with a stick)

In this respect, too, direct objects of active verbs differ from direct objects of psych-verbs. The difference can be traced to the prohibition on extracting from a middle branch if active verbs are given the D-structure in (70).

The relationship between subject and verb is not the only difference between psych and active readings. The direct object also has a different status. The direct object of an active verb bears a THEME theta-role, not

a EXPERIENCER theta role as with psych verbs. In (81a), we understand the object to be the THEME, or perhaps PATIENT, of the verb; this is unlike (81b) where the object must bear EXPERIENCER, as suggested by the fact that (81c) may only be used metaphorically.

81.a) The child disturbed the table
John depressed the button
The bat struck the ball
The dogs are bothering the sheep into the pen

b) That table disturbs the child
All those buttons depress John
These examples may strike you as improbable
Sheep bother me

c) Pigeons disturb/bother/depress the statue

These facts suggest that the direct object of an active verb receives structural Case for it is no longer tied to the assignment of EXPERIENCER. From these considerations, we may hypothesize that the lexical representation of a psi-verb when it projects a structure receiving an active interpretation is as in (82).

82. V_{active} <ACTOR THEME>

Accusative

The following two questions may now be posed. First, how are the two phrase markers (59) and (82) tied to the lexical representations (70) and (82)? And second, why are psi verbs systematically related to the two lexical specifications (73) and (82)? In the next section we endeavor to answer these questions

2.5 An account for the ambiguous structure

We begin by considering the second question first. Why are psi-verbs systematically related to two seemingly unrelated lexical specifications? The regularity of this relation suggests that it is not accidental. Consider the two lexical representations that psi-verb is associated with.

83. psych: <THEME, EXPERIENCER>
                    |
                Accusative

    active: <THEME, ACTOR>
                |
            Accusative

One feature these two representations have in common is that they both involve THEME. Their differences include whether or not EXPERIENCER is present and whether or not Accusative Case is inherent. Let's begin by assuming that the fundamental difference between these two representations is whether EXPERIENCER is present or not. That is, let's suppose that psi-verbs have the following representation, where parentheses signify optionality.

84. V_{psi} <THEME. (EXPERIENCER)>
                    |
                Accusative

When EXPERIENCER is not present then Accusative Case can no longer be inherent, for there is no theta-role for it to be tied to. In this way the optionality of EXPERIENCER and the difference with respect to Case marking are related.

We are left without an account for how ACTOR is associated with the active interpretation. However, in section 2 we saw that ACTOR does not have an independent status; an argument bears an ACTOR theta-role by being in the subject position of an eventive predicate. In fact, the internal class of psi-verbs are ambiguously eventive. When eventive, they necessarily receive the active interpretation, cf. (85).

85.a)#Your book struck me as shameful in the parlor
b) Your book struck me on the head in the parlor

If psi-verbs of the internal class can be ambiguously eventive, then the ACTOR theta-role in the lexical representation of the active version is provided by (IV) in section 2. Giving psi-verbs the lexical representation in (84) appears to be sufficient and allows exactly the two interpretations that arise to be generated.

What then of the first question posed above? How do the two instantiations of (84) produce the two phrase-markers, (59) and (70), associated with psych and active interpretations? This, it turns out, follows from the well-formedness conditions on chains that have been assumed (cf. (I)).

Consider first the case when EXPERIENCER is expressed. Then Accusative is inherent Case and assigned to the argument bearing EXPERIENCER. Inherent Case is assigned under government by the Case assigner, in this instance the verb, and therefore the EXPERIENCER argument must be within the VP. Because Accusative Case is assigned to the EXPERIENCER the argument bearing THEME must be in Case marked subject position. If the THEME argument remained within the VP then its (unary) chain would not be headed by a Case marked position, and a violation of (I) is invoked. This

exhausts the possibilities available in this situation.

Consider next the case when EXPERIENCER is suppressed. In this situation, Accusative is structural Case and may be assigned to the argument bearing THEME. Clauses must have subjects therefore an argument must occupy subject position. The psi-verb has no external theta-role to assign to subject position; however, the subject receives an ACTOR theta-role by virtue of being the subject of an eventive predicate, in accordance with (IV). The THEME may not appear in subject position, i.e. psi-verbs may not appear as monadic predicates, because the result would violate (I). In subject position, the THEME argument would form a chain with the theta marked sister position to the verb. However, this position is assigned Accusative Case and this violates the condition in (I) that only heads of chains be in a Case marked position.

These considerations constitute rather indirect evidence for the validity of (IV) in section 2. We are able to express in a simple way the puzzling ambiguity that psi-verbs display with (84). But this is only possible, if ACTOR is not a theta-role assigned by a verb, as claimed above.

2.6 Conclusion

This chapter contains a number of results. First, we have argued that the distribution of AGENT and ACTOR theta-roles can be, in part, derived from the eventiveness of the verb. Second, we have argued, following Belletti and Rizzi (1985), that a certain class of psi-predicates involve Syntactic movement: their subjects are moved from an object position. From

these two results, we have argued for a particular definition of "inherent" and "structural" Case. We have argued that inherent Case is linked to, and therefore assigned with, theta roles; and that structural Case is assigned independently of theta-assignment. In the following chapters, we shall be primarily concerned with the second of these results: that psych-verbs should be admitted to the class of predicates that have derived subjects.

Chapter 3

Subjacency

Noam Chomsky's original formulation of Subjacency in Conditions on Transformations was intended to subsume several of the restrictions on movement operations, so-called "islands," that John Ross discovered in his dissertation. In a more recent paper Chomsky has modified Subjacency so as to subsume a number of additional constraints that Ross and others have discovered. The central idea that this revision incorporates is that government, or some related notion, plays a role in determining islands.[1] To put it informally, a phrase may not be moved out of another ungoverned phrase.

We begin by reviewing Chomsky s current formulation of Subjacency and examining its consequences.

3.1 Introductory definitions and assumptions

1. This idea informs the work of Kayne, Pesetsky, Longobardi, Huang, and Cattell, among others.

Chomsky (1985) introduces the following definition of Subjacency.[2]

1. α is a Blocking Category (BC) for β iff α is not L marked and α dominates β

α is a Barrier for β iff.

i) α immediately dominates γ, γ a BC for β, or
ii) α is a BC for β

α L-marks β iff α is a lexical category that theta-governs β

α theta-governs β iff α is a zero-level category that theta marks β, and α, β are sisters

α is Subjacent to β iff there are less than 2 Barriers for β that do not dominate α

If (α_i, α_{i+1}) is a link of a chain, then α_{i+1} is Subjacent to α_i

(Chomsky 1985 15 (25-28), 24 (58),(59))

Underlying this, perhaps complicated appearing, collection of definitions is one simple, and one complex, idea. The simple idea is that the definition of Subjacency proposed in Chomsky (1973) should be altered so that rather than listing the categories which are Cyclic Categories, the categories that "count" for Subjacency, Cyclic Categories are contextually determined. All phrases are potential Cyclic Categories, or in the present vocabulary: Barriers; barrierhood of a phrase is determined by its position with respect to an appropriate governor. So, for instance, rather than specifying that NP and S are Cyclic Categories for Subjacency in English (and NP and S-bar are Cyclic Categories in Italian, cf. Rizzi (1982)), a phrase is a Cyclic Category for some element dominated by that phrase if it is either not in an L marked position or dominates a non-L-marked phrase.

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2. I have simplified Chomsky's definitions here in a number of ways.

The complex idea is the cause of most of the complications in (I). This idea is that Subjacency and government should draw upon the same terms for their definition. Subjacency and government overlap in certain domains, suggesting that there is some root attribute that they both share. Chomsky's idea is that "Barrier" is that root attribute. Subjacency and government can be defined in terms of Barriers.

We will (fortunately) only be concerned with the simple idea here. As a result, for our purposes, we change (I) to the following:

II.

α, α a maximal projection, is a Blocking Category (BC) for β iff α is not theta-governed and α dominates β

α, α a maximal projection, is a Barrier for β iff:

i) α immediately dominates γ, γ a BC for β, or
ii) α is a BC for β

α theta-governs β iff α is a zero level category that theta-marks β, and α, β are sisters

α is Subjacent to β iff there are less than 2 Barriers for β that exclude α

If (α_i, α_{i+1}) is a link in a chain, then α_{i+1} is Subjacent to α_i

"Theta governs" replaces "L-marks," since the distinction between a zero-level category and a lexical category will play no role in our discussions. We shall assume that Subjacency is a condition on rule application. This plays a crucial role in our analysis of Extraposition from NP. Finally, Barrierhood is restricted to maximal projections, for only maximal projections seem to play a role in Subjacency.

Informally, (II) states that when a maximal projection, call it α, is not a sister to its theta-marker, no phrase within α may move past a maximal

projection immediately dominating δ. Extraction from an argument, then, will be bounded unless that argument is in its theta marked position. Extraction from a non-argument will always be bounded, for the Theta-Criterion requires that non arguments never have a theta marker.

Before turning to arguments for this view of Subjacency, three other notions that we shall employ need to be introduced. The first is the Principle of the Cycle introduced in Chomsky (1964). Adopting Williams's (1974) idea that the Principle makes reference to all maximal projections, we adopt (III).

III. Principle of the Cycle
No rule may apply to a domain not excluded by a maximal projection α if it affects solely a proper subdomain of α not excluded by a maximal projection δ.

The Cycle imposes an ordering on the application of rules; rules apply first on the smallest domain and then continue stepwise on ever enlarging domains. We define "excludes" below.

The second notion we employ is the Doubly Filled COMP Filter (DFCF):

IV. Doubly Filled COMP Filter (DFCF)

A wh-phrase may not be moved into a COMP occupied by another wh-phrase.

(IV) is stated informally, for it will be the subject of some revision as we proceed.

The final required notion is a principle that constrains adjunction. We shall assume, following essentially Chomsky (1965), that movement operations are of two varieties: substitution and adjunction. Movement through substitution is found in syntactic passives, raising predicates,

psi-predicates, movement of a wh-phrase into COMP, verb raising, and the like. In these cases, the moved phrase is relocated into a position generated at D-structure. Movement through adjunction occurs in Heavy NP Shift, PP-Extraposition, Extraposition from NP, and a number of other extraposition rules. In these cases, the moved phrase is relocated to a position created by Chomsky-adjunction. A large portion of the task of this chapter and the next shall be to discover how this operation is constrained. Here, we may address two preliminary questions. What phrases may host adjunction structures? And, Is there a left-right asymmetry with respect to adjunction? To the first question, we give the simplest answer:[3]

V. A phrase may be adjoined to any maximal projection

In 3.3.2 we encounter evidence that phrases may adjoin to NP, S, and VP. Whether adjunction is possible to S-bar, PP, and AP is a more difficult question: we discuss some of the issues involved below. We adopt (V) for its simplicity.

The second question arises because though there are many overt cases of a phrase adjoining to the right of some maximal projection, there are few cases where a phrase remains adjoined to the left of some maximal projection. The only straightford case I know of is where a prepositional phrase has adjoined to S, as in (1).

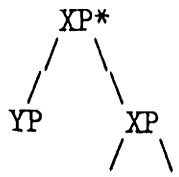
1. I said [that $[_S[$in the cupboard$]_i$ the saucers were stacked $\underline{t}_i]]$

---

3. See Saito (1985). We depart here from Chomsky (1985).

Two aspects of this phenomenon should be distinguished. Should the process of adjunction or the structure that results from adjunction be constrained to reflect a left-right asymmetry? Some examples of leftward adjunction are examined in Chapter 4, so we may tentatively assume that the structure resulting from adjunction is what is to be constrained. Borrowing ideas from Kayne (1984) and Lasnik and Saito (1984), we adopt.

VI. *



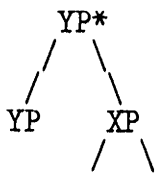
In (VI), XP* is meant to denote the node created from XP by Chomsky-adjunction; throughout I shall use this star notation to designate nodes created by adjunction. Following May (1985), we shall assume that the nodes that arise in adjunction structures be taken collectively to comprise a maximal projection. Son in (VI), neitherr XP nor XP* are maximal projections, but instead, XP and XP* together make up a maximal projection. Let's adopt this hypothesis and understand a maximal projection to be a set of "segments," where α is a "segment" for some category β iff for all β^i, α is β^n, where n>i. [4] We may now define "excludes" in the following way: α excludes β iff no segment of α dominates β. (VI) holds at S-structure, but not at LF if a theory of quantifier scope involving LF movement is correct (cf. May (1977), (1985))).

---

4. A more precise definition must distinguish structures arising through adjunction from Base generated structures.

(VI) might be derived from the Headedness parameter along the following lines.[5] Assume that one property of S-structure is that it is at this level that category is fixed. If Pesetsky (1982), and Baker (1985) are correct, then the category of a phrase may "change" from D-structure to S-structure. If D structure is category neutral, cf. Farmer (1980), then we might take this to mean that a phrase's category is not determined until S-structure. Consider now how X-bar Theory might evaluate the structure in (VI). YP cannot be interpreted as in SPEC position, because SPEC positions receive a particular interpretation at LF; the nature of that interpretation depending on the category of XP. See Higginbotham (1985). Because English is a Head initial language, YP will then be taken to be Head of XP*; that is, the tree in (VI) will be given the following representation at S-structure.[6]

2.



At LF, XP in (2) will not receive an interpretation, violating the Principle of Full Interpretation. If XP is a modifier or predicate, it will neither c-command nor govern the phrase is modifies; if XP is an

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5. See also Baltin (1978) where a different explanation for (VI) is proposed. The explanation offered there depends on directionality of modification (or perhaps predication). We are unable to adopt this view for it is incompatible with our analysis of Extraposition from NP.

6. We must rephrase the X-bar theoretic requirement that maximal projections have X^0 Heads (cf. Jackendoff (1977)) so that all X^0 categories project a maximal projection.

argument, it will not receive a theta-role. Though very speculative, this method for deriving (VI) has the following virtue. It accounts for the curiousness of finding precedence effects in this domain. Linear precedence is a relation that finds a very narrow application in syntactic theory. One probable place where a left-right order must be specified is Headedness (cf. Koopman (1983) and Travis (1984)); whether a Head precedes or follows its complements is language particular. By deriving (VI) from this parameter, the fact that precedence plays a role in adjunction structures is explained. It also predicts that languages that are Head Final should permit structures arising from left adjunction more freely than those arising through right adjunction.

This appears to be correct, at least from a cursory examination of the uniformly Head final language Japanese. Assuming Scrambling to involve adjunction (cf. Saito (1985) and references cited there.), the following facts suggest that a phrase may only adjoin to the left of a phrase in Japanese.[7]

3.

a) $[_{NP*}\underline{\text{syuto-kara no}_i}\ [_{NP}\text{seihugun-no}\ [_{N}\text{t}_i\quad\text{tettai}]]]$
capital-from gen government army gen withdrawal
(Saito 233 (126))

b)*$[_{NP*}[_{NP}\text{seihugun-no}\ [_{N}\text{t}_i\ \text{tettai}]]_{NP}\underline{\text{syuto kara-no}_i}]_{NP*}$

(the government army's withdrawal from the capital)

---

7. The issue is more complicated if Quantifier Floating gives rise to adjunction structures, for a quantifier may, apparently, adjoin to the right of an NP:

i) Gakusei-ga sannin sake-o nonde iru
student-nom 3 person sake-acc drinking
(3 students are drinking sake)
(Saito 233 (126))

c) $[_{S*}\underline{\text{John-o}}_i\ [_S\text{Mary-ga}\ \underline{t}_i\ \text{nagutta}]]$
-acc -nom hit
(Saito 81 (62))

d)*[Bill-ga $[[_S$John-ga ie ni $\underline{t}_i$ tazuneta$]_S$ [Mary-o$]_i$ to] itta]
-nom -nom home at visited -acc COMP said
(Bill said that Mary John visited at home)

Adjunction to S in English must be permitted because the means by which S is licensed is not destroyed by (2). Notice that this is not true for Japanese, as (3d) shows.

Before we examine how (II) applies, we must address another issue. The definition of Subjacency in (II) entails that VP will always be a BC and a Barrier, since VP is never, we assume, theta-governed.[8] As a result, extraction out of a VP should always violate Subjacency. This is not true, and so some modification to our assumptions must be made. The solution to this problem presents a number of complications that will be explored in some depth in the following chapter. To simplify matters, however, let us assume for the present discussion that VP does not constitute a BC.

Armed with these assumptions, we examine some evidence that phrasing Subjacency in terms of Barriers is correct. We begin by examining cases of leftward movement, concentrating throughout on Wh-movement. We then examine more general properties of movement, and attempt to tease apart those factors that, independently of Subjacency, place constraints on movement.

---

8. We ignore the complements to perception verbs.

3.2 Leftward movement

3.2.1 Extraction from NPs

3.2.1.1 Simple NPs

Consider the contrast between (4) and (5).

4.
a) Who did you see [$_{NP}$pictures of t]
b) What did you buy [$_{NP}$articles about t]
c) Who did you read [$_{NP}$a book about t]
d) What did you tell [$_{NP}$a story about t]
e) What do you remember [$_{NP}$papers about t]

5.
a)*Who did you destroy [$_{NP}$pictures of t]
b)*What did you drop [$_{NP}$articles about t]
c)*Who did you weigh [$_{NP}$a book about t]
d)*What did you collate [$_{NP}$papers about t]

A fundamental question that the above data presents is which to take as the "normal" case. As Bach and Horn (1976) have observed, extraction from NPs is impossible under the great majority of contexts. Extraction may take place only from simple NPs (ones that do not dominate an S-bar) when they are objects to verbs. They conclude that extraction from NP should, in general, be barred, and that something special occurs in (4).[9] I shall

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9. See also Horn (1974), Chomsky (1977) and Wexler and Culicover (1981)).

argue the opposite case.[10]

The difference between (4) and (5) rests, I believe, with the theta-marking properties of the noun heading the NP from which extraction has taken place; the apparent difference between (4) and (5) are the verbs involved. Let's consider this apparent difference first. There is a common property of the verbs in (5) that is not shared by the verbs in (4). In (5) we must understand the object to denote a physical object. The verbs in these examples report an action that is performed on concrete objects. This is not the case in (4). Here we may understand the object to refer to an abstract entity. "A book" in "I read a book," may denote the content of the book: the sum of thoughts and descriptions presented therein. But in "I burned a book," "a book" may only refer to the physical object: pages bound in a cover.

The difference in possibility of extraction between (4) and (5) might then be traced to this difference in the meaning of the NPs involved. Let's suppose this is the case. There is another property of NPs that correlates with this aspect of their meaning. Nouns which are taken to denote concrete objects do not theta-mark their objects. A post-nominal PP may either be a modifier of the head noun, or a theta-marked complement of this noun. See Cinque (1980), Roeper (1984), Giorgi (1985), Sproat (1985), and Chomsky (1984). This is clearest in transparently deverbal nouns. In "the construction of a city," "a city" has the same relation to

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10. The account that follows can explain many, but not all, of the cases that Bach and Horn (1976) discuss, from which the examples in (5) are fashioned. I do not believe that the ungrammaticality of "What did Einstein attack a theory about" (280 (77a)) can be subsumed under Subjacency in the way that I shall argue the ungrammaticality of (5) can.

"construction" that it has to "construct" in "They constructed a city," in both cases it is theta-marked by the head of the phrase. The difference between arguments of nouns and arguments of verbs is simply one of Case marking; the complements to nouns are inherently Case marked, whereas those of verbs may be assigned structural Case, cf. Chomsky (1984). However, in "the construction in the park," "in the park" serves to modify "construction," and is clearly not its argument. As Roeper (1984) points out, when "construction" is taken to denote a concrete object, it may not occur with a theta-marked complement: "*the constructions of a city" (compare: "the constructions in the park").[11] Therefore, (VII) appears to be a descriptive truth.[12]

VII. Concrete nouns are not theta-markers.

The difference in theta-marking properties that is so clear in deverbal nouns is much less clear in simple nouns like those of (4) and (5). But I believe the same distinction can be found. There is something odd about "I destroyed a book about snails." Either we use the verb "destroy" somewhat metaphorically, with a meaning closer to "ruin," or we understand "a book about snails" to mean something closer to "a book and it is about snails," where "it" now refers to the content of the concrete book. That is, we either understand "a book" as a non-concrete noun or we understand "about snails" to be a modifier rather than an argument. If so, then (VII) is

11. In the terminology of Lees (1960), the distinction is between "result" and "action" nominals. I wish to extend this distinction to (4) and (5).

12. See Roeper (1984) where a theory is proposed from which (VII) may follow. Much of my thinking on these matters has been guided by this insightful study.

operative for simple nouns as well as deverbal ones.

If this view is correct, then, as Richard Sproat has pointed out to me, NP preposing should be blocked in NPs which receive a concrete interpretation, since concrete nouns do not theta-mark their complements. There is a complex array of factors governing the availability of NP preposing in NPs that make relevant examples difficult to find, see Anderson (1979). I know of only one:

6.
a) I read Picasso's biography
b) I collated Picasso's biography

I do not perceive any difference between these two, an obvious problem for this account.

If (VII) is valid, then the difference in (4) and (5) follows from Subjacency. In (5), the PP is not a theta-marked complement to the noun, since the nouns in these cases are concrete. Hence it is a BC and also a Barrier for its complement. Because the PP is a BC, the immediately dominating maximal projection, in this case the containing NP, is a Barrier. As a result, movement of the complement to the PP out of the NP is blocked by Subjacency for it requires crossing two Barriers. In (4), however, the head noun is not concrete and therefore theta-marks its complement PP. As a result, this PP is neither a BC nor a Barrier. Because it is not a BC, no Barriers are generated, and movement of the preposition's complement is permitted by Subjacency.[13]

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13. Bach and Horn (1976) also observe that extraction of the entire PP is impossible in (4). This does not follow from Subjacency, but it does follow from the view that the PP complements to concrete nouns are

Under this view, the phenomenon displayed in (4) and (5) is collapsed with the distinction found in the following examples.

7.
a) Who did you purchase [a picture of t]
b) What did you hear [a description of t]
c) Which story do you remember [the telling of t]

8.
a)*What did you purchase [a picture beside t]
b)*What did you hear [a description in t]
c)*Which tree do you remember [the telling of the story under t]

As Jackendoff (1977) shows, extraction from modifying (Level 2, in his terminology) PPs is systematically worse than extraction from argument (Level 1) PPs. This is just the difference we argued existed in the cases above. Extraction from non-argumental PPs will be blocked because they will be both BCs, causing their containing NP to be Barriers, and Barriers.

These facts lend very strong support to the idea that islandhood should be derivative from theta-marking, and therefore that Subjacency should be formulated along the lines of (II). In so far as this account is correct, they also show that NPs are not intrinsically islands.

3.2.1.2 Complex NPs

The examples below violate Ross's (1967) Complex Noun Phrase Constraint.

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non-arguments since extraction of non-argumental PPs from NPs is in general ungrammatical:

i.*In which suit did you see [a man t]
  *From which country did you meet [a woman t]

See Chapter 4.

9.
a)??Who did you hear [$_{NP}$a rumor [$_{S}$that Mary saw t]]
b)*On what did you make [$_{NP}$a statement [$_{S}$that Mary put a book t]]
c)*Who did you visit [$_{NP}$a man [$_{S}$that saw t]]
d)*To whom did you see [$_{NP}$a woman [$_{S}$that gave a book t]]

The ungrammaticality of (9c,d) falls straightforwardly under (II). Because the relative clauses in (9c,d) are not theta-marked, and therefore not theta-governed, they are both BCs and Barriers for their contents. Because the relative clauses are BCs, the NP immediately dominating them are Barriers. Hence, movement from within the relative clause beyond the NP violates (II): the Barriers S and NP are crossed.

The ungrammaticality of (9a,b) is more problematic; the clausal complements to these nouns appear to be theta-governed by the noun. However, if Stowell's (1981) theory is correct, then the clausal complements to the nouns in (9a,b) are not in a theta-governed position, but are instead in "apposition" to the noun. Assuming the correctness of this theory, then the ungrammaticality of (9a,b) follows from (II) in the same fashion as (9c,d). For problems with Stowell's account see Safir (1982).

3.2.2 The Raising Principle

As the following examples demonstrate, once a phrase has been moved, it is an island.

10.
a)*$\underline{\text{Who}}_k$ did you buy [a picture $\underline{t}_i$] yesterday [of $\underline{t}_k$]$_i$
b)*$\underline{\text{What}}_k$ did you read [a story $\underline{t}_i$] yesterday [about $\underline{t}_k$]$_i$
c)*$\underline{\text{Who}}_k$ did you see $\underline{t}_i$ yesterday [some beautiful pictures of $\underline{t}_k$]$_i$
d)*$\underline{\text{What}}_k$ did you buy $\underline{t}_i$ today [some remarkable stories about $\underline{t}_k$]$_i$

In (10a,b), a prepositional phrase has been moved rightwards out of a noun phrase, and in (10c,d), the object NP has been moved to the end of the sentence. Both are legitimate instances of rightward movement, as (11) illustrates (see 3.3).

11.
a) I bought [a picture $\underline{t}$] yesterday [of Madonna]
b) I read [a story $\underline{t}$] yesterday [about the Madonna]

After movement, the contents of these phrases may not be extracted; but, before movement, extraction from these phrases is possible, as (12) demonstrates.

12.
a) Who did you buy [a picture of $\underline{t}$] yesterday
b) What did you read [a story about $\underline{t}$] yesterday
c) Who did you see [some beautiful pictures of $\underline{t}$] yesterday
d) What did you buy [some remarkable stories about $\underline{t}$] today

Wexler and Culicover formulate the following Principle to account for these cases.[14]

VIII. The Raising Principle
If a node A is raised, then no node that A dominates may be used to fit a transformation.
(Wexler and Culicover 143)

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14. (VIII) is half of the Freezing Principle found in Wexler and Culicover (1981)The Raising Principle is independent of the Freezing Principle (introduced below), see 3.3.2.

The Raising Principle also accounts for the marginality of extraction from phrases that have undergone Wh-movement:[15]

13.
a)??Which guy_i did you ask [[which picture of t_i]$_k$ [she bought t_k
b)??Which guy_i did you wonder [[which story about t_i]$_k$ [I had told t_k]

Again, extraction from these NPs is possible before they have been moved:

14.
a)?Which guy did you buy [which picture of t]
b)?Which guy did you tell [which story about t]

The Raising Principle follows straightforwardly from Subjacency, if it is defined in terms of theta-governing. The moved phrase in each of these cases is in a non-theta-governed position. As a result they are BCs and Barriers for material they dominate. Because the moved phrase is a BC, the maximal projection immediately dominating it is also a Barrier. Subjacency, then, prevents extraction of material from within the moved phrase.

Another potential derivation of (11) and (13) must be blocked. If Wh-movement were to apply before the containing phrase is moved rightwards, Subjacency would not come into play, as (12) and (14) show. But in 3.3 we shall see that the rightward moved phrases in (11) must be moved to VP. Hence, the Principle of the Cycle will require that rightward movement take place first. Similarly, the Cycle will require that the host NP be moved

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15. Howard Lasnik points out that these examples are, interestingly, much better than extraction from subject noun phrases, i.e. Subject Condition violations.

first in (13).[16]

Subjacency, if it's formulated as in (II), derives (VIII).

3.2.3 The Subject and Adjunct Conditions

The "Subject Condition" prohibits phrases from being moved out of subjects (cf. Chomsky (1973):

15.
a)*Who did [pictures of t] bother Gary
b)*What do [proofs of t] mean that triangles are regular
c)*What did [talking about t] upset Mary

To this Huang (1981) adds the observation that there is an Adjunct Condition prohibiting movement from adjunct phrases.[17]

16.
a)*Who did you leave [without buying pictures of t]
b)*What did you dine [before buying proof of t]
c)*What did you sleep [after talking about t]

Similarly, extraction from non-argumental predicates and modifiers is usually difficult.

17.
a)*Who did you leave [angry at t]
b)??What did you come home [talking about t]
c)*What did you see [a man [talking about t]]

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16. This is true only if, as Noam Chomsky points out, the PP must be moved rightward in Syntax, not in PF. We shall see that the PP may move rightward in PF, so something additional will be required. Cf. Chapter 4.

17. Huang collapses these two phenomena with his Condition on Extraction Domains, a direct predecessor of (II).

All these cases are acccunted for by Subjacency, since these phrases are not in theta-governed positions. Hence they will all be BCs and Barriers for their contents, and the maximal projection immediately dominating them will also be a Barrier for their contents.

The Subject Condition, Raising Principle and movement from simple noun phrases all provide strong support for defining Subjacency in terms of theta-government. Further support for the particular formulation in (II) is found from rightward movement in section 3.3. In the following section, the bounding effects for movement imposed by indirect questions are examined, and a modification to (II) is found to be necessary.

3.2.4 Wh-Islands

Movement out of an indirect question in many cases results in ungrammaticality, as Chomsky (1964) observes. When argument NPs are extracted, however, the grammaticality of the resulting sentence appears to depend on the tense of the host clause, as Ross (1967) points out.

18.
a) He told me about a book which I can't figure out
   i) whether to buy or not
   ii) how to read
   iii) where to obtain
   iv) what to do about

b) He told me about a book which I can't figure out
   i) why he read
   ii) ?whether I should read
   iii)??when I should read
   (Ross 27 (2.23a-b))

I shall take the examples in (18a) to be grammatical, and those in (18b) to be ungrammatical. The definition of Subjacency that I am defending, however, will mark them all ungrammatical. Consider, for example, the

derivation in (16ai).

19. ...which I can't figure out [$_S$whether [$_S$PRO to buy t or not]]

Under our assumptions, figure out theta governs the S-bar Headed by whether, but nothing theta-governs S. Hence, S will be a BC and a Barrier for the moved phrase. Because whether occupies COMP, which will not be able to move into COMP and must therefore move directly post S-bar. But since S-bar dominates the BC S, it is a Barrier. Which must move past two Barriers in (19), violating Subjacency.

Subjacency as it is defined in (II) must be modified. The modification should reflect the difference between (18a) and (18b) above. That is, it should have the effect of allowing extraction from an infinitival indirect question, but making marginal extraction from a finite indirect question.

The modification we adopt follows a suggestion in Chomsky (1985); we shall assume that S is a Barrier by virtue of being a BC only in so far as its HEAD (i.e., INFL) is "complete." So (IIii) is changed to read as:

II. ii) α is a BC for β, where α has a complete Head

Our task now is to be more specific by what is meant by "complete."

If the distinction between (18a) and (18b) is one of grammaticality, then Tense must play a role in the definition of complete. We may assume that the Head of an infinitival clause has a defective TNS, reflecting the fact that infinitival clauses do not have the full range of temporal meaning

that finite clauses have.[18]

A similar situation arises in Italian, where, as Rizzi (1982a) has argued, extraction from an indirect question is possible under certain conditions.

20.
a) Tuo fratello, a cui mi domando che storie abbiano raccontato, era molto preoccupato
(Your brother, to whom I wonder which stories they told, was very troubled)
b) Il solo incarico che non saperi a chi avrebbero affidato e poi finito proprio a te
(The only charge that you didn't know to whom they would entrust has been entrusted directly to you)
(Rizzi 50 (6a-b))

The peculiarity of these examples is that, unlike (18) above, (20) are grammatical despite the fact that the indirect question is a tensed clause. The difference between (20) and (18b) resides in another difference between Italian and English.

Italian is a Null Subject language, the subjects of tensed clauses in Italian may be phonologically null (cf. Jaeggli (1980), Chomsky (1981), Rizzi (1982a), and many others). One property that Null Subject languages have, lacking in English, is that AGR may move onto the verb in Syntax. See Chomsky (1981), Borer (1984) and references cited there. Assume that this is possible in Italian only when the subject is phonologically null.[19] If correct, then extraction from tensed indirect questions in

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18. See Stowell (1981) where it is argued that infinitival clauses have TNS, but lack a specification for PAST; and Johnson (1983) for arguments that infintives lack an independent TNS.

19. In Jaeggli (1982) AGR is required to move when the subject is phonologically empty. Under an account of the Null Subject phenomena like

Italian will be possible only when AGR-to-verb movement has taken place, i.e. when the subjects of these clauses are empty.

This appears to be the case.[20] The subjects of the indirect questions in (20) are null, and extraction is possible. In (21), where the subjects are expressed, extraction deteriorates.

21.
a)?*Tuo fratello, a cui so che storie miei genitori hanno raccontato, era molto preoccupato
b)?*Il solo incarico, che so a chi miei genitori hanno affidato e poi finito proprio a te

Therefore, we may take "complete" in (IIii) to mean for INFL "contains AGR and an independent TNS." For all other categories, we shall take complete to mean "is an X^0."

With (IIii) modified as above, the grammaticality of (18a) (and (20)) is accounted for, as is the relative difference between (18a) and (18b). In (18a), the moved phrase crosses only one Barrier (i.e., S-bar) in accordance with Subjacency.

There are, however, a host of problems with this account. We shall consider three here.

First, as Luigi Rizzi points out, although this account has the correct

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Rizzi's, the availability of syntactic AGR movement can be derived in the following fashion. We have assumed that TNS assigns nominative Case to subject position (cf. Chapter 2), but that phonologically overt noun phrases must be governed by AGR in order that Case be "visible." When the subjects of tensed clauses are overt in Italian, AGR-to-verb movement will, for this reason, be blocked. But when the subjects of finite clauses are phonologically empty, AGR may move onto the verb.

20. My thanks to Isabelle Haik for bringing this observation to my attention.

results when simple biclausal examples are considered, it fails with more complicated examples. Consider, for example, the sentences in (21).

22.
a)*Il mio primo libro, che so a chi credi che abbia dedicato, mi e sempre stato molto caro
(My first book which I know to whom you believe that I dedicated, has always been very dear to me)
b)*La macchina che mi domando se Mario creda che potra utilizzare nel week end e la mia
(the car that I wonder whether Mario believes that he will be allowed to use during the week end is mine)
(Rizzi 56 (18b),(19b))

These examples are fully ungrammatical, and yet they are seemingly parallel to (18) in all respects. Consider how (22b) is derived. Movement on the first cycle does not violate Subjacency, since only one BC (=S), and no Barriers by virtue of (11iii) above, are crossed. On the second cycle, che moves past the Ss which dominate the infinitival clauses and past the S-bar Headed by se. Only the S-bar is a Barrier. Hence movement on the second cycle crosses only one Barrier and no Subjacency violation occurs. The problem presented by (22), simply put, is that COMP-to-COMP movement is more severely constrained than initial movement into COMP.

A second problem is posed by the examples in (22).

23.
a)*What$_i$ did you wonder who$_k$ to give t_i to t_k
b)?*On what$_i$ did you ask who$_k$ to put t_k t_i
c)*What$_i$ did you figure out to whom$_k$ to donate t_i t_k

These examples are much worse than those in (18), and yet from the standpoint of Subjacency (18) and (23) are exactly the same. The examples in (23) involve movement of two arguments of the verb, while those in (18) involve movement of one non-argument (or whether) followed by movement of

an argument.[21] Movement of a subject, follwed by movement of an internal argument, appears to yield somewhat intermediate results.

24.
a)???What$_i$ did you wonder who$_k$ t_k bought t_i
b)???Who$_i$ did you wonder what$_k$ t_k bothered t_i
c)???To whom$_i$ did you ask who$_k$ t_k gave it t_i

These examples necessarily involve movement from tensed clauses, since short extraction of the subjects of infinitival clauses is blocked for independent reasons. Hence, the examples in (24) will violate Subjacency. Nevertheless, the examples in (24) do not appear to be as bad as those in (23). If the difference between (24) and (23) is due to the completeness of INFL, then the problem presented by the above facts can be described in the following way: Movement of two internal arguments to the same verb leads to ungrammaticality.

Finally, it is never possible to move a non-argument phrase out of an indirect question, as in (24).

25.
a)*Why did you wonder [whether to leave t]
b)*How did you ask [whether she danced t]
c)*How fast did you wonder [whether to drive t]

We return to these problems in Chapter 4. At present we may continue to assume (II), with the modification introduced here.

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21. Some of these examples violate the Path Containment Condition of Pesetsky (1982). See 3.3.2 for discussion.

3.3 Rightward movement

Our examination of leftward movement to this point has assumed a simplified view of the possibilities involved. In particular, we have not broached the possibility of leftward movement through interative adjunction. Because leftward adjunction is so rarely overt, determining the properties of movement through adjunction requires that facts from rightward movement be considered, since rightward movement necessarily involves adjunction.

This section is an examination of the properties of rightward movement. We shall see that rightward movement is very restrictively constrained; it is governed by some more draconian principle than Subjacency. Where this constraint permits, however, we shall see that rightward movement obeys Subjacency, and provides support for its formulation in (II).

The instances of rightward movement that are considered below are cases of Heavy NP Shift, Extraposition from NP, and PP Extraposition, in Ross's (1967) terminology, exemplified in (26).

26.
a) I gave t to Gary [$_{NP}$every one of my articles on lazy pronouns]
b) I saw [a book t] yesterday [that everyone has read]
c) I saw [a book t] yesterday [about lazy pronouns]

We may collapse Extraposition from NP and PP Extraposition under the label Extraposition from NP, as is now commonly done. Bresnan (1976) has extended Heavy NP Shift to apply to PPs, and Rochemont (1978) has argued

that the term "Heavy" used for these cases is better replaced with "Focussed." Combining these claims, we shall use the term "Focus Movement" to refer to the operation evidenced in (26a). Although these descriptive labels are used, a primary goal of this chapter and the next is to show that syntactically these "rules" are merely manifestations of a unitary movement rule: Move-α. We begin with a description of the properties obeyed by Focus Movement.

3.3.1 Focus Movement

A focussed phrase may be moved to the end of the string.

27.
a) I brought for Terry a big, ripe olive glistening with oil
b) I gave to Sonia the largest tip I've ever seen
c) I put a stain yesterday on my favorite antique rolltop desk
d) I showed a copy of it yesterday to the most demanding committee member

(27a) and (27b) must be cases of movement because of the Projection Principle and Case Theory. Case Theory requires that, for example, the largest tip I've ever seen in (27b) be adjacent to the verb at D-structure. For the order of constituents in (27b) to arise, the largest tip I've ever seen must have moved. In (27c) and (27d), however, no movement needs to have taken place, since nothing requires that the PP precede yesterday at D-structure. We return to this case below.

This section is primarily concerned with establishing (IX).

IX. Focus Movement adjoins a phrase X to the maximal projection immediately dominating X.

When the focussed phrase originates from within the VP, then it must adjoin to that VP; if the phrase is moved from subject position, it must adjoin to

the dominating S or, in the case of a small clause, AP. This is just a strict version of Ross's (1967) Right-Roof Constraint. It will become clear in the following sections that (IX) does not follow from Subjacency.

Consider the case of moving a phrase from the object position of a verb. That this phrase may not move out of its containing VP is shown by the following examples.

28.
a)*Eleanor bought apparently brand new drapes for the whole house
b)*Vern left angry that store where service is so slow
c)*Julie didn't buy until it became available that book on Venus

In (28a), the focussed NP has moved past the S-level adverb apparently (cf. Jackendoff 1972); in (28b), the moved NP has adjoined to the right of the adjective angry which must be a daughter of S in order to be predicated of the subject Vern (cf. Williams (1980) and Rothstein (1983)),[22] and in (28c) the moved NP has been adjoined past the sentence level until clause (cf. Ross (1967)). In each case, the focussed NP has adjoined to S. A phrase moved rightwards from within a VP, then, must adjoin to that VP.

An exactly parallel case is found when Focus Movement applies to the complement of a preposition. Although unable to directly determine whether the complement to a preposition may adjoin to that preposition, it is certain that it may not move beyond that preposition, cf. (29)

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22. Note that angry must be taken as a verbal modifier (i.e. synonymous with angrily) for this latter example to be grammatical.

29.
a)*I [put it [$_{PP}$on t_i] yesterday [every table in the living room]$_i$]
b)*I [bought it [$_{PP}$for t_i] yesterday [every friend of mine in Ray Town]$_i$]
c)*I saw [$_{NP}$a review [$_{PP}$of t_i]] involume 6 [that remarkable book on prolepsis]$_i$]
d)*I believed [$_{AP}$Mary happy [$_{PP}$with t_i]] yesterday [the books on prolepsis she got from Widener]$_i$

Again, a phrase affected by Focus Movement may not move to a position higher than the node immediately dominating it.

Before the behavior of focussed phrases moved from subject position can be examined, another property of Focus Movement must be introduced. This property is that subjects may be moved by Focus Movement only under very narrow circumstances. They may not be moved from tensed clauses.

30.
a)*t_i left home [my favorite grandfather from Independence]$_i$
b)*I said (that) t_i left home [my favorite sister from Austin]$_i$
c)*I remember t_i telling all [my favorite nephew from El Paso]$_i$
d)*I want that t_i be happy [my favorite niece from Skokie]$_i$

Nor may the subjects of most infinitival clauses be moved.[23]

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23. Focus Movement from the subject of the complement to want is more acceptable for some speakers. An interesting observation is made by Witten (1972) (cited in Postal (1974 92 fn. 8)). Focus Movement appears to be able to move a phrase out of object position of an infinitival complement to want:

i. I have wanted to know t for many years [exactly what happened to Rosa Luxemburg]

for many years may modify wanted, and hence the exactly clause must have moved to (at least) the matrix VP. As Postal notes, this is not possible when the subject of the infinitive is present:

ii.*I have wanted for Gary to know t for many year [exactly what happened to Rosa Luxemburg]

31.
a)*I tried [$\underline{t}_i$ to be happy [my unfortunate friend on Boylston street]$_i$]
b)*It seemed [$\underline{t}_i$ to leave [everyone who doesn't like Jazz]$_i$]
c)*I prefer [$\underline{t}_i$ to leave [those guys with the polyester pants]$_j$]]
d)*I wanted [$\underline{t}_i$ to come [my friends from the Lawrence street house]$_i$]

The ungrammaticality of (31a,b) follows from the Theta-Criterion, since the argument chain [$\underline{t}$, my unfortunate friend on Boylston Street) or [$\underline{t}$, everyone who doesn't like Jazz) does not contain a Case-marked position and thereby fails to be visible at LF. The ungrammaticality of (31c,d) is still mysterious. We return to this issue in Chapter 4.

But the subjects of the infinitival complements to Exceptional Case Marking verbs can be moved.

32.
a) I consider [$\underline{t}_i$ to be a nice guy [anyone who'd play with my unfortunate cousin]$_i$]
b) I thought [$\underline{t}_i$ to have left [everyone who'd been involved in that affair]$_i$]
c) I believe [$\underline{t}_i$ to like Mary [my favorite daughter from Phoenix]$_i$]

Likewise, the subjects of small clauses are able to move.

An explanation for these facts derives from a proposal made by Haik (1985). There it is argued that Restructuring, in the sense of Rizzi (1982 Ch. 1) and Burzio (1981), applies at LF in English. Want is a verb that triggers Restructuring; therefore, at LF want and its complement will form a complex predicate in (i).

33.
a) I thought [$\underline{t}_i$ a nice guy [anyone who'd play with my cousin]$_i$]
b) I believe [$\underline{t}_i$ angry [everyone who'd been involved in that affair]$_i$]
c) I would consider [$\underline{t}_i$ stupid [anyone who tries to climb that mountain in winter]$_i$]

(Wexler and Culicover 276 (19b))

In these environments we are able to partially determine the position to which the focussed NP is moved. Consider first the case involving infinitival clauses. I know of no clear method for determining empirically whether the focussed NP in these cases may adjoin to the S node immediately dominating it. The argument must be made indirectly. To begin with, it is possible to show that the moved NP may not adjoin to the higher VP. The examples in (34), I believe, show that a focussed NP may not follow material that belongs to the higher clause.

34.
a)*I believe [$\underline{t}_i$ to be a nice guy] very strongly [my favorite stepfather from Port Huron]$_i$
b)*I believe [$\underline{t}_i$ to have quit] without understanding it [all the cheerful and friendly waitresses at Ken's Pub]$_i$
c)*I considered [$\underline{t}_i$ to be faultless] last night [the paper on clitic climbing and Metathesis]

These examples improve if the adverbial clause is read as a parenthetical separated from the surrounding material by heavy intonation breaks. But, this reading is irrelevant for our purposes, since the position of parentheticals in the phrase marker is unclear.

That the focussed NP may not adjoin to the lower VP is difficult to establish empirically, but from more general considerations there is reason to suspect that it is prohibited. Consider (35).

35.*I urged t_i [$_S$PRO [to go inside]$_{VP}$[every little puppy of Dorothy's]$_i$]$_{VP}$* [before the dogcatcher drives by]]]

The relevant meaning to be given to (35) is one where before the dogcatcher drives by tells when the puppies should go inside. (35) is an illicit case of lowering; the object of told has been moved downwards and adjoined to a lower VP. We might prevent (35) with the following constraint.[24]

X. The Right-Cellar Constraint

No constituent may be lowered.

Deriving (X) is not a trivial matter. Consider briefly the various Principles we have adopted that (X) might fall under. We have assumed that traces left by movement of a phrase to an A-bar position must be c-commanded by that phrase at LF. However, this requirement is satisfied in (35). At LF, the lowered phrase may adjoin to the matrix S by virtue of Quantifier Raising (cf. May 1977, 1985). That quantified expressions are not clause bound in cases like (35) is shown by (36), where everyone may have wide-scope with respect to someone.

36. Someone urged him [PRO to visit everyone]

Perhaps (35) could be ruled out if Principle C were extended so as to hold between A and A-bar positions.[25] Because the trace is in an

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24. Counterexamples to (X) include May's (1977, forthcoming) Quantifier Lowering and certain accounts of subject postposing in Null Subject languages (cf. Jaeggli (1980), Chomsky (1981) and Rizzi (1982), among many others).

25. To extend Principle C to hold between A-bar positions would, in the present framework, disallow COMP-to-COMP movement. See Aoun (1981), (1985)

A-position and c-commands the lowered NP, Principle C is violated. However, this would not explain the ungrammaticality of the similar (37).

37.*[About [which man [that [fell]$_{VP}$[every child of Dorothy's]$_i$]$_{VP*}$]$_j$
did you tell $\underline{t}_i$ $\underline{t}_j$

In (37), the lowered NP, every child of Dorothy's, has adjoined to a position that is then raised into the matrix COMP. As a result, there is no Principle C violation. The trace left by lowering every child of Dorothy's does not c-command this NP.[26] Perhaps a combination of these two requirements is sufficient to derive (X). We might make the reasonable assumption that every child of Dorothy's may not QR at LF to a position where it c-commands its trace(s). Hence, cases disallowed by (X) will either run afoul of Principle C (extended in the appropriate way) or the requirement that phrases in A-bar positions c-command their traces. However, the extension of Principle C that this account for (X) involves is probably incorrect. If it were correct, extraction of postposed subjects in Null Subject languages would be prohibited.[27]

What is relevant here is that either (X), or the factors it follows from, will disallow movement of phrases from subject position to a lower VP.

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where this proposal is made, and its resulting ramifications explored.

26. Note that Principle C may not be extended to apply at an intermediate level between D- and S-Structure, for this would incorrectly disallow coreference between pronoun and Name in:

i. [Which man that Mary likes] did you say that she saw

27. But see Travis's (1984) account of the Null Subject phenomena where this does not follow. See also Rizzi (1982a), for discussion of this problem.

Hence, we might reason that the focussed NP in (32) does not adjoin to the lower VP. If the focussed NP in (32) cannot adjoin to either the higher or the lower VP, then it must have adjoined to its immediately dominating S.[28]

Consider next the case of moving the subject of a small clause. That this phrase does not lower onto the small AP follows from (X). That the subject may not adjoin to the higher VP is shown by the following examples:

38.
a)*I didn't $[[_{VP}$believe $[_{AP}t_i$ angry at Mary] on Tuesday$_{VP}]$
[my favorite child from Concord]$_{iVP*}]$
b)*I didn't $[[_{VP}$believe $[_{AP}t_i$ angry at Mary] without knowing her$_{VP}$
[my favorite stepchild from Tulsa]$_{iVP*}]$

When the adverbial clause in (38) is construed with the matrix sentence, these examples are ungrammatical: the subject may not be moved to the right of a higher adverb. Hence, subjects of small clauses must adjoin to the node immediately dominating them.

Therefore, the vailidity of (IX) is established. In fact, something stronger than (IX) is required. It is not merely that Focus Movement adjoins a phrase to the node immediately dominating it, but that the affected phrase may not move beyond that node. That is, iterative adjunction rightwards out of VP, S, and PP is prohibited. We shall see that this is a quite general requirement, for both leftward and rightward

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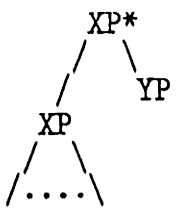
28. We cannot yet disallow the possibility that the NP has adjoined to S-bar. I know of no helpful empirical arguments. However, we shall reject this possibility in the following chapter. That the focussed phrase may neither adjoin higher nor lower than this is easy to verify.

movement, admitting of rare exception.

3.3.2 Focus Movement and Freezing Principle Effects

Focus Movement, as an instance of rightward movement, gives rise to the adjunction structure illustrated in (39).

39.



What is the status of XP and XP* for movement? As we shall see, iterative adjunction is generally prohibited, perhaps suggesting that XP* acts as a Barrier for YP. The status of XP is more difficult to establish, but we shall assume that it assumes Barrierhood, returning to evidence that demonstrates this below.

That either XP or XP* in (39) block movement for phrases they dominate is indicated by (40).

40.

a)*Who$_i$ did you buy t_k for t_i [$_{NP}$that grandiose picture of Terry in her yellow outfit]$_k$

b)*Who$_i$ did she tell t_k to t_i [$_{NP}$my grandmother's stories about the days in Peoria]$_k$

c)*What$_i$ did he lead t_k to t_i [$_{NP}$those inspectors from the home office]$_k$

In (40), Focus Movement has moved the direct object to the end of the VP, in accordance with (IX). In addition, the object of the preposition introducing the indirect object has been wh-fronted. The ill-formedness of

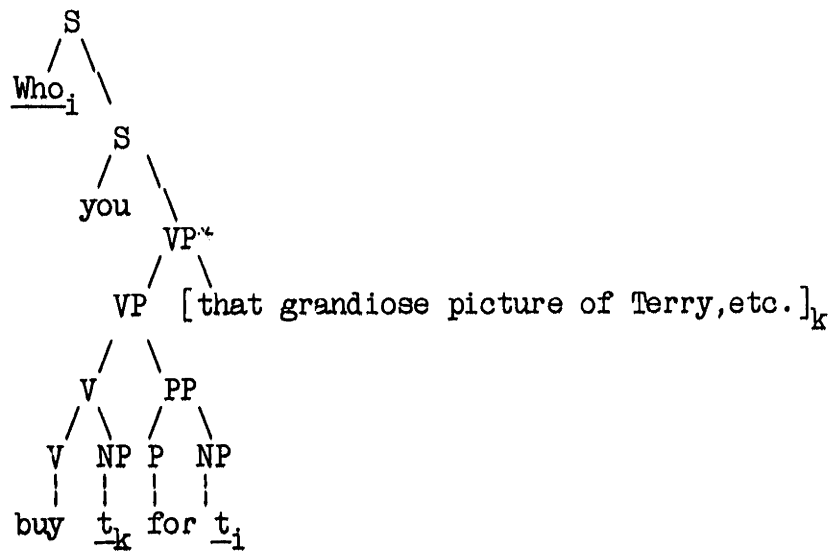
examples like (40) leads Wexler and Culicover (1981) to propose a constraint they dub The Freezing Principle. The intuitive content of the Freezing Principle is that a phrase is "frozen" for further movement rules once it has been the site of adjunction. We shall capture Wexler and Culicover's idea, and make use of the vocabulary of Subjacency, with (XI)[29]

XI. A node dominated by an adjoined node is a BC.

(XI) claims that XP in (39), rather than XP*, is the node that gives rise to Freezing Principle effects. We shall eventually abandon (XI); but at present let's simply assume (XI) for concreteness.

(XI) will derive, in part, the ungrammaticality of (39) in the following way. Under the set of assumptions we have been so far adopting, (40a) may have the representation in (41).

41.



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29. Our formulation is better able to accomodate Extraposition from NP. See 3.3.3.

In (41), the focussed NP has been adjoined to VP. Let's consider this case first. The Principle of the Cycle requires that the focussed NP be adjoined to VP before the wh-phrase following for is moved. After adjunction, VP, in accordance with (XI), is a BC and a Barrier. Because VP is a BC, the dominating VP* is a Barrier by inheritance. Hence, movement of the wh-phrase to COMP will violate Subjacency, since it must cross two Barriers: VP and VP*.

Notice that Subjacency applies to these cases only if nodes created through adjunction are taken to be "maximal projections" for the purposes of (II). Both VP* and VP satisfy the criteria for BC or Barrier, and one of these is that they must be maximal projections.

There are two other derivations to be considered in this case. The wh-phrase may first adjoin to either VP or VP* and then continue its journey. There are a number of ways to block these derivations; in Chapter 4 we shall argue that double adjunction to one phrase is barred. We adopt:

42. $*[_{XP}\ \ _{XP}]$

See 4.4.1.

One property of (XI) is that it imposes no restrictions on the relative positions of the constituents moved. The examples in (40) all have the property that the phrase moved to the left originates in a position to the right of the phrase moved rightwards. That is, the "paths" of the moved constituents cross. Perhaps there is a general ban against crossed dependencies of this type, as claimed by Fodor (1978) and Pesetsky (1982). The Freezing Principle entails that an island should be formed of a phrase

that hosts an adjoined phrase, whether doing so gives rise to crossing or not. In fact, this does appear to be the case.

43.
a) $\underline{\text{What}}_i$ did you give $\underline{t}_i$ $\underline{t}_k$ yesterday $[_{PP}$to my favorite nephew from El Paso$]_k$
b) $\underline{\text{What}}_i$ did you put $\underline{t}_i$ $\underline{t}_k$ yesterday $[_{PP}$on my picture of Sonia$]_k$
c) $\underline{\text{What}}_i$ did you teach a story about $\underline{t}_i$ $\underline{t}_k$ yesterday $[_{PP}$to my favorite grandma from Kansas City$]_k$

Because these sentences are grammatical, it is tempting to credit the ungrammaticality of (42) to a crossing constraint.

There is another way of looking at these facts. The version of the Projection Principle that we have adopted permits yesterday to be a sister to the verb in (43). If this is correct, then there are no constraints that I am aware of that enforce an order on yesterday and the PPs in (43) at D-structure. They may be generated in any position within V', as long as they do not intervene between verb and object noun phrase. The examples in (43) need not be cases of movement, and this could be what is responsible for their grammaticality. In general, then, there will be a distinction between NPs and PPs with respect to reordering. Only when NPs have been reordered will there necessarily have been movement.

My claim, then, is that the difference between (43) and (40) is the result of a difference between PPs and NPs. Only NPs need to be adjacent to the verb at D-structure for reasons of Case Theory, and hence only NPs must be reordered by movement. It is clear what sort of evidence could distinguish between this account and one based on crossing. We should find cases where an NP has been moved rightwards, but not "over" the constituent

to be moved leftward. The only cases I know of with the right geometry are Dative Shift constructions, as in (44).

44.
a) I gave Gary all of my favorite toys yesterday
b)??I gave Gary yesterday all of my favorite toys
c)?*Who did you give t yesterday all of my favorite toys

However, the ungrammaticality of (44c) is inconclusive since extraction from this position is marginal to begin with.

45.?*Who did you give a book

Therefore, Case Theory and a number of other factors blend and make examples which distinguish these two claims difficult to find. In the following sections, a number of problematic examples for a general ban on crossing dependencies are encountered, and for this reason I shall abandon a crossing explanation for the distinction between (43) and (40), though this should be understood as a temporary hypothesis.

We have left open the question of whether adjunction forms a BC of the phrase adjoined to, as (XI) states, or whether the node formed by adjunction is the cause of Freezing Principle effects. That the node formed through adjunction might be considered a BC is suggested by the prohibition on iterative adjunction. As we saw in the previous section, Focus Movement must move the affected phrase no farther than the immediately dominating maximal projection. Iterative adjunction to a higher position is not possible. We return to this issue in 3.3.4. Finally, consider the following example.

46.*Sam $[[[_{VP}$gave [a book t_i] t_k yesterday$]_{VP}$ [about black holes$]_i]_{VP*}$ [to Mary$]_k]_{VP**}$

As we shall see below, a PP may be moved from an NP and adjoin to the next maximal projection. In one derivation of (46), the PP about black holes has moved from the NP Headed by book and adjoined to VP. Focus Movement has then applied and moved to Mary to VP*. (46) may arise through another derivation; to Mary may first be adjoined to VP, and then about black holes may be adjoined "under" to Mary. Both derivations are prohibited by the bar on double adjunction.

Freezing Principle effects are also invoked when a phrase has been adjoined to S or the node immediately dominating a small clause, as (47) shows.

47.
a) *Which game$_i$ do you consider t_k (to be) good at t_i [your favorite grandson from Seattle]$_k$
b) *Whom$_i$ do you think t_k (to be) angry at t_i [your favorite granduncle from Portland]$_k$
c) *Whom$_i$ do you believe t_k to always talk/happy about t_i [your favorite nanny from Madison]$_k$

The explanation for the ungrammaticality of (47) follows if we take both S and S* to be Barriers for the moved phrase. This, however, does not follow from (XI), unless we take the complements to ECM verbs and small clauses to have a complete Head. For though (XI) will entail that S is a BC in (47), it will not be a Barrier unless it has a complete Head.

3.3.2.1 A Freezing Principle asymmetry

We have so far argued that Freezing Principle effects derive from Subjacency — although its application in the case of adjunction to S is

suspect. However, this thesis has a serious flaw. The cases we have so far examined where Freezing Principle effects arise involve leftward movement of an NP. But if a PP is moved leftwards, the result is much better, cf. (48).

48.
a)??At which game$_i$ do you consider t_k to be good t_i [your favorite grandson from Seattle]$_k$
b)??At whom$_i$ do you think t_k to be angry t_i [your favorite granduncle from Portland]$_k$
c)??[About whom]$_i$ do you believe t_k to always talk t_i [your favorite nanny from Madison]$_k$

49.
a)??About whom$_i$ did [you [[$_{VP}$tell t_k t_i yesterday]$_{VP}$ [my favorite father-in-law from Stockton]$_k$]$_{VP*}$
b)??On what$_i$ did [you [put t_k t_i yesterday]$_{VP}$ [my favorite portraits of Picasso]$_k$]$_{VP*}$]

These are unwieldy, perhaps, but much better than the examples in (49). Let's assume that the unacceptability of (49) is due to the already diminished status of Pied Piping and the fact that questions do not host foccused phrases easily.[30]

Another indication that Freezing Principle effects are not uniformly invoked comes from movement of adjunct phrases. The examples in (50) are grammatical with why construed with the lower clause.

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30. The status of (49) diminishes rapidly in cases of cyclic movement, as in: "*?About whom did you tell yesterday my favorite father-in-law from Stockton." I do not know why this should be so.

50.
a) $\underline{\text{Why}}_k$ do you believe $[[\underline{t}_i$ to have left $\underline{t}_k]_S$ [my favorite godmother from Jefferson City$]_i]_{S*}$
b) $\underline{\text{How}}_k$ do you believe $[[\underline{t}_i$ to have fallen $\underline{t}_k]_S$ [my favorite second cousin from Pensacola$]_i]_{S*}$

Adjuncts provide a very sensitive indicator of Barriers: they may not move past even one Barrier (cf. Lasnik and Saito (1985), but see Ch. 4). That the examples in (50) are grammatical suggests that no Barrier is created by adjunction of the focussed phrase to S.

Similar to (49) are cases where the focussed NP has been moved from the subject position of a small clause.

51.
a)?$\underline{\text{At which game}}_i$ do you consider $\underline{t}_k$ good $\underline{t}_i$ [your favorite grandson from Seattle$]_k$
b)?$\underline{\text{At whom}}_i$ do you think $\underline{t}_k$ angry $\underline{t}_i$ [your favorite granduncle from Portland$]_k$
c)?$\underline{\text{About what}}_i$ do you believe $\underline{t}_k$ happy $\underline{t}_i$ [your favorite nanny from Madison$]_k$

These examples seem to me even better than those in (48), and are certainly an improvement on those in (51).

We have now encountered two problems for (XI). First, it does not straightforwardly apply to cases where Focus Movement has adjoined an NP to S. And, second, the boundedness effects it is intended to produce hold only for leftward moved NPs. We are not yet equipped with any principle that distinguishes between PPs and NPs; Subjacency applies uniformly to all categories. Therefore, let's assume, for the moment, that Subjacency applies to these cases in the manner described above, and that something

additional permits Subjacency to be relaxed for leftward moved PPs. We return to this case in some detail in 4.1.1. Additionally, let's assume that small clauses and complements to ECM verbs have complete Heads, thereby allowing (XI) to correctly invoke Subjacency effects in these situations.

3.3.3 Extraposition from NP

In the previous section we concentrated on rightward movement of arguments to verbs and prepositions. In this section, we examine cases where arguments to nouns are moved rightwards, cases of "Extraposition from NP," cf. Ross (1967). We begin by providing arguments that Extraposition involves movement, rather than some other relation (e.g., predication). As an instance of movement, Extraposition should obey Subjacency, and, in fact, Extraposition provides very strong evidence for the formulation of Subjacency in (II). We will also see that rightward movement from an NP is less severly constrained than rightward movement of a verbal argument.

3.3.3.1 Extraposition is movement

A modifying PP may be displaced from the NP that it modifies.

52.
a) I met a man yesterday from Niue
   (I met a man from Niue yesterday)
b) I saw the woman at the party from Niue
   (I saw the woman from Niue at the party)
c) I put the story on the table about my mum
   (I put the story about my mum on the table)
d) I gave the story to my mum about Niue
   (I gave the story about Niue to my mum)
e) I bought a story for my mum about Niue
   (I bought a story about Niue for my mum)
f)?I hit a book with a hammer about Niue
   (I hit a book about Niue with a hammer)

What is the relation between the examples in parentheses in (52) and those where Extraposition has taken place? Is movement involved, or is some other relation implicated? Perhaps the Extraposed PPs could be considered open predicates, and the relation between them and the NP they modify one of predication. That is, perhaps the semantic notion of modification falls under the syntactic domain of predication.[31] However, there are reasons for favoring the movement analysis to the predication analysis. Perhaps the simplest reason is that there is no reason to expect movement to be blocked. Phrases may be moved leftward out of noun phrases by Wh-Movement and Topicalization. And since rightward movement is obviously possible, that phrases can be moved rightward from NPs constitutes the null hypothesis. Unless faced with considerable evidence to the contrary, we should assume the possibility that Extraposition arises through movement. In addition, there are a number of facts which support the movement analysis. Some of these are brought out sharply when cases of Extraposition and predication are compared.

Consider the relation that holds between the NP and modifying adjective in (53), which, following Williams (1980), we take to be predication.

53.
a) I ate the meat raw
b) The man danced naked

There are a number of respects in which predication and Extrapositon

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31. Still another alternative is offered by Koster (1978) where the relation between the extraposed phrase and its host is not a matter of sentence grammar at all. See Baltin (1981) for a convincing rebuttal to this proposal.

differ. Predication may involve a specific NP, in the sense of Fiengo & Higginbotham (1981), but Extraposition may not.[32] Compare (54) with (55).

54.
a) I remember John's friend unhappy
b) I ate every dish raw
c) I bought this radio broken

55.
a)*I remember John's friend yesterday from Chicago
b)*I ate every dish on Tuesday from Cantor's
c)*I bought this radio yesterday from Taiwan

If Extraposition is movement, this contrast is explained. In English, extraction from specific NPs is blocked, as (56) demonstrates; cf. Fiengo and Higginbotham (1981).

56.
a)*Who did you remember John's friend of t
   (vs. Who did you remember a friend of t)
b)*Who did you buy every picture of t
   (vs. Who did you buy a picture of t)
c)*What did you hear this story about t
   (vs. What did you hear a story about t)

The ungrammaticality of (55), then, follows directly if Extraposition is movement.

The second difference between predication and Extraposition involves subjects. A phrase may be predicated of a subject under conditions where Extraposition is impossible. Consider the contrasts in (57).

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32. See Akmajian and Lehrer (1977) and Wexler and Culicover (1981) where the inability of Extraposition from an NP with a possessive specifier is observed; and Gueron (1980) where the observation is made that the NP to which the PP is related may not have a "definite" determiner; which she subsumes under the "Name Constraint."

57.
a) A man ate the oranges naked
b)*A man ate the oranges with green eyes
c) A woman left the room angry
d)*A woman left the room with green eyes
e) A child screamed unfed
f)*A child screamed with green eyes

Extraposition is possible from subjects under very narrow circumstances, as (58) shows.

58.
a) A man entered with green eyes
b) A woman walked in with a scarlet carnation
c) A child was seen with a yo-yo

We return to the conditions under which Extraposition from subjects is permitted, and argue that the contrast between the cases of Extraposition in (58) and (57) shall be shown to follow from Subjacency. At present, however, it is clear that the contrasts shown in (57) demonstrate that Extraposition and predication do not display the same behavior in this domain.

Finally there is an argument from Binding Theory which indicates that Extraposition is movement. We have seen that Binding Theory applies in such a way that anaphors may be bound at any point in the derivation. Hence, if other conditions permit, an anaphor may be bound by an antecedent at D-structure, and then moved to a position where the constraints of Binding Theory do not hold between antecedent and anaphor. So, for example, themselves may be bound by the women in (59), even though at S-structure c-command does not hold between the women and themselves.

59. [Pictures of themselves]$_i$ seem to the women t_i to be on sale

This phenomenon may be used to distinguish the predication and movement accounts. Under the movement account the Extraposed PP occupies different positions at D-structure and S-structure. Under the predication account, it does not. Therefore, only under the movement account will Binding Theory treat Extraposed PPs as though they were in the NP they moved from.

Consider in this light, the contrast, observed by Ross (1983) between (60) and (61).

60.
a)*They said that the woman walked in angry with themselves
b)*They said that the woman bought a dress for themselves
c)*They thought that the woman left home happy with themselves

61.
a)?They said that a story appeared yesterday about themselves
b)?They believe that a problem was pointed out at the faculty meeting about themselves
c)?They think that books had arrived about themselves

Although the examples in (61) are slightly awkward, they contrast sharply with those in (60). The Binding Theory excludes (60) since the woman is the minimal accessible subject, causing the complement clause to be the Binding Domain for themselves. The Binding Theory also excludes binding of themselves by they in (61) at S-structure.

However, if Extraposition involves movement, (61) is (62) at an earlier point in the derivation.

62.
a)?They said that a story about themselves appeared yesterday
b)?They believe that a problem about themselves was pointed out at the faculty meeting
c)?They think that books about themselves had arrived

Anaphors contained within subject NPs may be bound by an antecedent which lies outside the clause they are the subjects of. The minimal accessible

subject to themselves in (62) is they, hence the matrix clause constitutes the Binding Domain for themselves. The contrast between (60) and (61) is explained, then, if Extraposition arises through movement; that is, if (62) is a representation for (61) at some level.

There is another, slightly different, account for this last set of contrasts. It could be that Extraposition is a "stylistic" rule in the sense of Chomsky & Lasnik (1977) and Rochemont (1978). Stylistic rules apply in the PF component; therefore, this account claims that (62) is the S-structure of (61) and that Extraposition takes place after Binding Theory applies. Under this account too, Extraposition must be movement; the difference between the two accounts resides in the level at which Extraposition occurs.

If Extraposition is strictly a stylistic rule, and never a syntactic rule, then this fact calls for explanation. As noted above, the null hypothesis is that Extraposition is movement; there is no reason to expect Extraposition not to apply with perfect freedom at any level in the grammar. And, in fact, there is evidence that Extraposition must, in some cases, occur before S-structure. Gueron (1980) has shown that Extraposition feeds rules that occur at LF, such as the rule that interprets negative polarity items; cf. (63).

63.
a) *The names of any of those composers weren t called out yet
b) The names weren't called out yet of any of those composers
(Gueron 650 (43a-b))

The contrast in (63) shows that Extraposition must be able to apply before S-structure, where LF representations are derived. This, of course, in no way consitutes evidence that Extraposition cannot apply after S-structure.

Up to this point, we have restricted our discussion of Extraposition to cases where a PP is moved. There are two other cases to consider. Extraposition may also move a sentential complement of a noun, as in (64), and it may move a restrictive relative clause, as in (65).

64.
a) I spread [a rumor t] yesterday [that Mary is in town]
b) I read [a proof t] last night [that Godel's Incompleteness Theorem was incomplete]

65.
a) I saw [a man t] yesterday [that Gary knows well]
b) I met [a woman t] last night [who knew Godel well]

The arguments offered above that Extraposition of PPs is movement hold equally well for Extraposition of sentential complements. Sentential complements may not be moved from specific NPs, as (66) shows, and they may not be moved from subjects, except under special circumstances, as (67) demonstrates.

66.
a)*I spread [your rumor t] yesterday [that Mary is in town]
b)*I read [your proof t] last night [that Godel's Incompleteness Theorem is incomplete]

67.
a) [A rumor t] was spread [that Mary is in town]
b)*[A rumor t] means that Gary is wrong [that Mary knew Godel well]
c) [A proof t] has been published [that Godel's Incompleteness Theorem is incomplete]
d)*[A proof t] implies that Godel was lazy [that Godel's Incompleteness Theorem is incomplete]

Similarly, the Binding Theory argument extends to these cases. An anaphor contained in the subject of a complement to a noun may be bound by a distant antecedent in cases parallel to (61).

68. They said rumors that pictures of each other are on sale have been spread

The nearest accessible Subject for each other in (68) is they. When the clausal complement to rumors is extraposed in (68), each other may still be bound by they, as (69) shows.

69. They said [rumors t] have been spread [that pictures of each other are on sale]

But, Extraposition of relative clauses is different. An extraposed relative clause seems to be more easily associated with a specific NP, as in (70).

70.
a) I met your friend yesterday who knows everything about everything
b) I brought my book along that tells everything about everything

And Extraposition from subjects appears less restricted with relative clauses.

71.
a)??[a man t] knows Godel [who understands his Incompleteness Theorem]
b)??[a woman t] said that Gary had arrived [who knew him quite well]

The Binding Theory argument is not applicable to relative clause Extraposition since anaphors within a relative clause may never be bound outside that clause, cf. (72). See Johnson (1984).

72. *They said that [rumors [which pictures of each other had caused]] bother their mothers

From these facts we may conclude that Extraposition is movement when it

affects a sentential complement or modifying PP.[33] However, (70) and (71) indicate that Extraposition of relative clauses is not necessarily movement. Perhaps the relation between a restrictive relative clause and its head is less strict than the relation between a modifying PP or complement. We might conjecture that because relative clauses have the appropriate syntactic properties for a predicate, namely an open variable, they may fall under the syntax of predication. If so, Extraposition of relative clauses need not be movement. Because the properties of movement are the focus of this chapter, we restrict our attention to cases of Extraposition which affect PPs or sentential complements.

A number of properties of Extraposition introduced here have been left unexplored. In the following section we examine the properties governing Extraposition from subjects.

3.3.3.2 Extraposition from subjects

Extraposition from subjects show a number of unique properties. We shall be primarily concerned with the following, loosely put, difference: Extraposition from subjects is possible only with some verbs. Consider the contrasts below.

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33. Extraposition may also move a complement PP as (i) shows.

i) I heard [a telling t] yesterday [of the Canterbury Tales]

73.
a)*A man saw/met/hit/paid/remembered/etc. me from Nuie
b)*A man put a picture on the table from the flea market
c)*A man gave a story to Bill from Nuie

Extraposition apparently cannot occur from the subject of a dyadic verb which has an object. This is so no matter what category the complement is, consider (74).

74.
a)*A man said/whispered/claimed/believed/etc. that it made sense from Nuie
b)*A child tried/wanted/promised/etc. to make sense from Nuie
c)*A child remembered/regretted/forgot/etc. making sense from Nuie

Extraposition from the subjects of monadic verbs presents a more complicated case. There are two situations to consider. The first is when Extraposition has applied to the subjects of "unergative" (or "intransitive") verbs. These are verbs whose S-structure subjects are base-generated in subject position. See Burzio (1981). Without a supporting context, Extraposition in these cases is ungrammatical, or marginal at best, as (75) demonstrates.

75.
a)*A man whispered/screamed/conversed/etc. from Nuie
b)*A man ran/walked/jumped/drove/etc. from the EPA
c)*A man hiccuped/coughed/vomited/drank/etc. from the EPA

But in an appropriate discourse, these examples improve.

76. First a man with a green parachute jumped, and then a man jumped with a brown parachute.

Gueron (1980) argues that PP Extraposition is possible in these cases only from "Presentational" predicates. By a "presentational" sentence,

Gueron means one where "The VP denotes, essentially, the appearance of the subject in the world of the discourse." (p. 651). One unique aspect of presentational sentences is that their subjects are the unmarked focus. To get the flavor of the intended distinction, consider the following contrast observed by Gueron.

77.
a) The case was judged. Then a lawyer appeared.
b) The case was judged. Then a lawyer appealed.
(Gueron 1980 659 (77a-b))

In (77a), a lawyer receives stress, while in (77b), appealed does. Only in (77a) is there a presentational sentence. And, conforming to Gueron's account, only in (77a) may Extraposition occur, cf. (78).

78.
a) The case was judged. Then a lawyer appeared with green eyes.
b)*The case was judged. Then a lawyer appealed with green eyes.

Whether a sentence is presentational or not is influenced by pragmatic considerations. Hence, a sentence which does not normally tolerate Extraposition can be improved if embedded in the proper discourse. Again, Gueron provides the following examples which nicely illustrate this point.[34]

79.??Some books were burned by Pablo

80. First the Chilean military burned the books of all political figures sympathetic to the Allende government. And then some books were burned by Pablo Neruda.
(Gueron 1980 653 (56d),(57))

In (80), the VP were burned is no longer new information due to the

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34. Gueron finds (79) fully ungrammatical.

preceding sentence; hence, the subject some books by Pablo Neruda is focussed and the sentence is taken as presentational. The above contrast, then, follows from the greater ease with which (80) is taken as presentational.

The second class of monadic predicate to consider is "unaccusative" (or "ergative") verbs. The subjects of these verbs are D-structure objects, again, cf. Burzio (1981). For these predicates, Extraposition from the subject appears to be easier.

81.
a) Men appeared from Tanzania
b) A storm followed from the North
c) Books arrived at the store about Hammett's life
d) A picture stands in the hallway by Picasso

Gueron's condition seems, then, to be a necessary one for unergative verbs; but with unaccusatives, focussing the subject improves the acceptability of Extraposition, but is not required. Passive predicates pattern with unaccusatives. The examples below are fully grammatical, though the host NP of Extraposition is not focussed.

82.
a) A man will soon say that pictures were taken of Madonna
b) Whose publisher claimed that books were sold about Cantor's?
c) NOBODY insisted that stories be published about the ECP
d) It's my dad that required a man to be invited with short hair

I do not understand why only unergative verbs are necessarily subject to the condition that their host NP be focussed. A probably related fact is that Extraposition from the subjects of unergative predicates appears to be a solely stylistic rule. This is shown by the ungrammaticality of the following examples.

83.
a)*First a man from the Air Farce refused to jump, and then a man wouldn't jump from anywhere
b)*At first a man from Linguistics wouldn't leave, and then a man wouldn't leave from any department
c)*If a woman from Julliard can't sing, then a woman can't sing from anywhere

The ungrammaticality of (83) suggests that the negative polarity item any is not within the scope of negation at LF. This follows if the PP containing any must be within the subject NP at S-structure. That is, the ungrammaticality of (83) stems from the fact that their corresponding S-structure, and therefore LF, representations are as in (84).

84.
a)*...and then a man from anywhere wouldn't jump
b)*...and then a man from any department wouldn't leave
c)*...then a woman from anywhere can't sing

Extraposition from the subject of an unergative verb always occurs after S-structure. But we saw above that in some cases Extraposition may occur before S-structure. This is the case when Extraposition has occured from the subject of a passive predicate or an unaccusative verb, as (85) illustrates.[35]

85.
a)??a story wasn't sold about any topic in Linguistics
b)? a picture wasn't given to him of any member of our party
c)? a book hasn't arrive yet about any topic of interest

It appears, then that the "Focus" condition constrains just Extraposition that applies after S-structure. That is, one of the properties that

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35. The slight marginality of these examples is due, I conjecture, to the fact that negating the verb shifts focus onto the VP and, hence, off of the subject. Extraposition is better from a focussed NP, as Gueron observes.

distinguish pre- and post-S-structure levels are the rules concerning Focus.

Let us separate these two cases, calling the post-S-structure case "stylistic" Extraposition and the pre-S-structure case "syntactic" Extraposition. Only syntactic Extraposition is discussed in what follows, discussion of stylistic Extraposition is postponed until section 3.3.3.4. We endeavor to answer the following two questions concerning syntactic Extraposition. Why do some verbs allow Extraposition from their subjects and others not? And, what distinguishes syntactic Extraposition from stylistic Extraposition? That is, why can some cases of Extraposition only take place after S-structure?

We shall argue that syntactic Extraposition is only possible from subjects that are raised from a D-structure object position.[36] This immediately accounts for the ungrammaticality of syntactic Extraposition from the subjects of the transitive verbs in (82). (82) exemplifies the normal case for a dyadic verb: its subject is generated in it S-structure position. However, there are two exceptional cases of dyadic verbs. In these cases, the S-structure subject has been raised from a D-structure object position. One is passive predicates; and these uniformly permit Extraposition from subjects, as in (86).[37]

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36. A similar proposal is made in Rapoport (1984), where an account very similar to the one I shall propose is explored.

37. Gueron's account for the ungrammaticality of (72) hinges on her proposal that the verb in presentational (and only in presentational) sentences is fronted at LF. This proposal encounters problems, as Gueron notes, when pseudocleft and identificational sentences are considered (cf. Gueron 1980 655 fn. 26; Higgins 1974). Similarly, (81) and the examples below involving psi-predicates are problematic for Gueron's account.

86.
a) a man was seen/called/hired/freed/etc. with green eyes
b) a book was put on the table about Nicaragua
c) a book was given to Danny about Nicaragua

The second are psi-predicates, as argued in Chapter 2. These, too, permit Extraposition.[38,39]

87.
a) Books impressed me about Nicaragua's struggle
b)??Pictures shocked him of those war atrocities
c) A proof surprised her of the theorem
d)? Stories amused me about the Great Khan's court
e)??A customer upset her with that loud plaid coat

The same generalization will account for the difference between unaccusative and unergative verbs. Only unaccusative verbs permit syntactic Extraposition, as the contrasts with negative polarity items

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38. These examples sound less acceptable to me than the passive cases above. Perhaps this is because the subjects of psi-predicates are less able to be taken as focussed. In the proper setting, these examples improve:

i. First I was impressed by a book about Niue; and then
a book impressed me about Nicaragua

The point here is that no discourse can save Extraposition from the subject of a "normal" transitive verb:

ii.*First a man with green eyes bought a book; and then
a man bought a book with brown eyes

39. To show that Extraposition from the subjects of psi-predicates is syntactic, we need to apply the negative polarity test:

i. Books didn't impress me about any country's struggle
?Pictures didn't shock him of any of those war atrocities
??A proof didn't surprise her of any theorem in geometry
Stories didn't amuse me about any of the Khans' courts
??A customer didn't upset her with any clothes on

My judgements vary without pattern, but, in general, these cases seem to be better than those in (73).

above showed. Unergative verbs do not allow syntactic Extraposition because the subjects of unergative verbs are base-generated in subject position. Therefore the descriptive statement in (XII) answers both of the questions posed above.

XII. Extraposition is possible only from D-structure objects.

(XII) follows from the definition of Subjacency advanced in the previous section. Consider a typical derivation of Extraposition from the subject of a passive predicate.

88.
i) $[_{S}\ \ [_{VP}$was bought $[_{NP}$a book $[_{PP}$about Cantor's]]]]
ii) $[_{S*}[_{S}\ \ [_{VP}$was bought $[_{NP}$a book $\underline{t}_i]]]_{S}\ [_{PP}$about Cantor's$]_i]_{S*}$
iii) $[_{S*}[_{S}[_{NP}$a book $\underline{t}_i]_j\ [_{VP}$was bought $\underline{t}_j]]]_{S}\ [_{PP}$about Cantor's$]_i]_{S*}$

In (i), the PP can be moved from its host NP without violating Subjacency. The NP a book about Cantor's is in a theta-governed position and is therefore neither a BC nor a Barrier. The PP may move to either VP or S, neither constitute Barriers for it. Movement to S-bar will be shown to be blocked for these cases in Chapter 4. Putting off for the moment the case of movement to VP, consider the case where the Extraposed PP is adjoined to S. Following Extraposition, the NP "[a book $\underline{t}$]" is raised into subject position. The derivation in (88) is available in all simple cases of passives, psi-predicates, and unaccusative verbs.

Syntactic Extraposition from subjects of transitive (non-psi) verbs and unergative verbs is blocked by Subjacency because the derivation shown in (88) is not available in these cases. The following example is illustrative.

89.
i) $[_S[_{NP}$a book $[_{PP}$about Cantor's]] $[_{VP}$fell]]
ii)$[_{S*}[_S[_{NP}$a book $\underline{t}_i]$ $[_{VP}$fell]]$_S[_{PP}$about Cantor's$]_i]_{S*}$

In (89), the NP a book about Cantor's is both a BC and a Barrier for the PP since it is not in a theta-governed position. Because it is a BC for the PP, S is a Barrier by inheritance. Hence, movement of the PP about Cantor's will cross two Barriers: NP and S. This violates Subjacency.

The distribution of Extraposition from subjects, therefore, provides evidence for a version of Subjacency formulated in terms of theta-government, as in (II). However, a complicating factor for this account is introduced when the potential landing sites for the phrase moved by Extraposition are considered.

3.3.3.3 Landing sites and Freezing effects

When examining Focus Movement we discovered that it obeyed a very strict version of the Right-Roof Constraint. The moved constituent can adjoin only to the immediately dominating maximal projection. We also discovered that when Focus Movement adjoins a phrase to VP, it creates an island of that VP, for leftward moved NPs. Extraposition from NP appears different in both respects. We establish here the landing sites for Extraposition from NP, and give an explanation for the absence of Freezing Principle effects. An explanation for the landing sites, to use Baltin's (1983) phrase, is delayed until the next chapter. We begin with the facts.

Phrases extraposed from subjects are constrained to adjoining to the immediately dominating S, as was the case with Focus Movement. See Baltin

(1978). This is shown by the fact that the extraposed clause may not be moved with the VP when VP-Preposing applies, as the following contrast illustrates.

90.
a)*I said that a book was published about East Timor, and published about East Timor a book was.
b)*I wondered if a woman ran in the Olympics from New England, and run in the Olympics from New England a woman had.

91.
a)??I said a book was published about East Timor, and published a book about East Timor was
b)??I wondered if a woman ran in the Olympics from New England, and run in the Olympics a woman from New England had

Similarly, VP-Deletion may not delete material Extraposed from subjects.

92.
a)*A man arrived with green eyes, and a woman did, too.
b)*A book was published about linguistics, and then a newspaper article was, too.

93.
a)?First a man arrived with green eyes, and then a woman did with brown eyes
b)?First a book about linguistics was published, and then a newpaper article was about Anthropology

As with Focus Movement, the extraposed phrase may not adjoin to any node higher than the immediately dominating S.

94.
a)*I said [that [a book $\underline{t}_i$] will appear] yesterday [about Randy Mantooth]$_i$
b)*I will believe [[a book $\underline{t}_i$] to have appeared] tomorrow [about Randy Mantooth]$_i$

As (94b) demonstrates, Extraposition beyond S is blocked, even when that S is the complement to an ECM verb.

Extraposition from objects is different. To begin with, as our account entails, the choice of verb exercises no influence on Extraposition in this situation.[40]

95.
a) I gave a report to Sonia about M. Fox's cash flow problems
b) I destroyed a report yesterday about Terry's travels
c) Sonia put a sandwich on the table with no mustard in it
d) I attacked a paper on Tuesday which purported to tell all
e) I bought a shirt for Terry with little green poka-dots

Under our account, this is because an NP in object position never constitutes a BC.

Also unlike Extraposition from subjects, phrases extraposed from objects may adjoin to VP. Hence their ability to move under VP-Preposing:

96.
a) I said that she read a book yesterday about East Timor, and read a book yesterday about East Timor she did.
b) I wondered if we entered a woman in the Olympics from New England, and enter a woman in the Olympics from New England we did.

And VP-Deletion may affect an extraposed phrase.

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40. Note in particular that this casts serious doubt on the claim that NPs are islands, independent of their position in the phrase marker, cf. Bach and Horn (1976), Horn (1974), and Koster (1978). In part the contrasting unavailability of wh-movement in (i) and availability of Extraposition in (ii) can be accounted for if the treatment of (i) in section 3.1.1 is correct.

i) *What did you destroy a book about t
ii) I destroyed a book yesterday about Terry's travels

Modifying phrases within NP may be extraposed freely, but, in that account, movement <u>from</u> modifying phrases is blocked.

97.
a) Sonia saw a man through the telescope with green eyes, and Terry did too.
b) Mr. Fox gave me a sandwich over the counter with too much horseradish, and Mr. Tishman did too.

The constraint is stronger: a phrase extraposed from an object must adjoin to VP. That the extraposed phrase may not adjoin to the higher S is indicated by its inability to follow constituents which are daughters of S.[41]

98.
a)*Gary ate an apple naked with a rotten core
b)*Gary didn't read a book until she recommended it about familial ties.

This may seem a problematic fact for our account of Extraposition from subjects. If Extraposition from subject NPs may only occur when that NP is in object position, then how is the moved phrase able to escape the VP. Let's consider this problem in detail.

A large role was played by (IX), the requirement that a focussed phrase move no farther than the first maximal projection, in our discussion of Focus Movement. But (IX) is too strong a restriction on Extraposition. If a phrase adjoined to NP cannot, on the next cycle, move farther (cf.

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41. VP-Deletion does not establish that phrases moved from objects must adjoin to VP, as is sometimes claimed, consider:

i.*Sonia saw a man through the telescope with green eyes, and Terry did with brown eyes too

As Baltin (1981) notes, the ungrammaticality of (i) could be due to the fact that the trace with brown eyes should bind has been deleted along with the host NP. This very likely violates the Principle of Full Interpretation, perhaps the ban against vacuous quantification, if non-operators in A-bar positions fall under this constraint.

3.3.2.2), then simple cases of Extraposition will be blocked by (IX):

99.
a) I [[read [[$_{NP}$a book $\underline{t}$]$_{NP}$ $\underline{t'}$]$_{NP*}$ yesterday]$_{VP}$ [about oranges]]$_{VP*}$
b) I [[read [$_{NP}$a book $\underline{t}$] yesterday]$_{VP}$ [about oranges]]$_{VP*}$

We shall see that the derivation in (99a) is blocked because movement from an adjoined position is blocked. And (99b) is blocked by (IX). Let's weaken (IX) for Extraposition in the following way.

IX'. Extraposition must adjoin a phrase X to a maximal projection Y, such that:
i) Y immediately dominates X, or
ii) Y immediately dominates Z, and Z immediately dominates Y.

(IX') permits Extraposition to be freer than Focus Movement.

The problem for our account of Extraposition that began this section still stands. How is Extraposition able to move a phrase to S when this phrase originates from a D-structure object which moves to subject position, but not when it originates from a D-structure object that remains in object position? The answer must lie in the fact that the trace left by Extraposition is in a different location in these two cases. When the host NP is moved to subject position after Extraposition (as our account requires), then the relationship between extraposed phrase and its trace is the same as in simple cases of Extraposition from object NPs. (IX') must be stated as a condition on the relation between extraposed phrase and its trace, as in:[42]

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42. Our reasoning, and conclusion, follows in spirit that of Gueron and May (1984). We take the relation to be between antecedent and trace, unlike these authors.

IX' No more than 1 maximal projection may dominate X and not dominate Y, where Y is an extraposed phrase and X its trace.

Therefore, the fact that Extraposition from (S-structure) objects must adjoin the moved phrase to VP does not present a straightforward problem for the account of Extraposition presented here.

Although this fact does not, alone, present a problem, it does when taken in tandem with the following fact. As Wexler & Culicover (1981) observe, Extraposition from objects does not give rise to Freezing Principle effects.[43]

100.
a) Mary is the person $\underline{\text{that}}_i$ I $[[_{VP}$gave [a book $\underline{t}_k$] to $\underline{t}_i]_{VP}$ [about Fred]$_k]_{VP*}$
(Wexler and Culicover 337 (163d))
b) $\underline{\text{What}}_i$ did you $[[_{VP}$put [a folio $\underline{t}_k$] on $\underline{t}_i]_{VP}$ [about decorative arts in the 16th century]$_k]_{VP*}$
c)?$\underline{\text{Who}}_i$ did you $[[_{VP}$buy [a picture $\underline{t}_k$] for $\underline{t}_i]_{VP}$ [of my great aunt Florrie]$_k]_{VP*}$

If Extraposition from NP does not give rise to Freezing Principle effets, as does Focus Movement, then it may be that Extraposition is not movement; that Extraposition does not give rise to an adjoined structure. These facts challenge the analysis of Extraposition as movement, and therefore, the account of Extraposition from subjects offered above.

We adopt a solution to these cases proposed by Rochemont (1982).

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43. These examples also constitute a problem for crossing constraints. I do not know a solution for these examples that leaves the parsing explanation of crossing constraints intact. Pesetsky's (1982) version may be left intact if his Path Containment Condition doesn't hold at PF and these cases of Extraposition are stylistic. A more serious problem for Pesetsky's account is posed by Extraposition from subjects.

Rochemont suggests that Extraposition is a strictly stylistic rule. This is too strong, it cannot be that all cases of Extraposition are stylistic, if our analysis of Extraposition from subjects is correct; however, Extraposition from objects may be stylistic. If so, then Wh-movement would take place before Extraposition. No Freezing Principle effect is invoked because when Wh-Movement takes place an adjunction structure has not yet been created by Extraposition. This solution is attractive, for it truly adds nothing at all. There is nothing that requires Extraposition from object NPs to occur before or after S-structure. The derivation Rochemont suggests for (100) is already available.

As with Extraposition from objects, Freezing Principle effects do not arise when Extraposition has moved a phrase from a subject NP, as (101) illustrates.

101.
a) $\underline{\text{Who}}_i$ did [an article $\underline{t}_k$] bother $\underline{t}_i$ [about prolepsis in Indo-European]$_k$
b) $\underline{\text{In what}}_i$ was [a story $\underline{t}_k$] published $\underline{t}_i$ [about the IMF's lending policies]$_k$
c) $\underline{\text{Which newspaper}}_i$ did [a review $\underline{t}_k$] appear in $\underline{t}_i$ [of that new book by Fred]$_k$

(Wexler and Culicover 337 (163a))

Rochemont's solution cannot extend to (101), since in these examples Extraposition must occur during the Syntax.

The grammaticality of (101) is paralleled by the grammaticality of the very similar (102).

102.
a) $\underline{\text{Who}}_i$ was $[[_S$it obvious to $\underline{t}_i]_S$ [that Mary had left]]$_{S*}$
b) $\underline{\text{Who}}_i$ was $[[_S$it clear to $\underline{t}_i]_S$ [that Mary had left]]$_{S*}$

In (102), the clause that Mary had left has been moved from subject position and adjoined to S, see 3.4.2 below. And yet, like Extraposition from NP, no Freezing Principle effects obtain.

There are two differences between the cases of rightward adjunction to S that we have been considering. In the cases where rightward adjunction to S does not invoke Freezing Principle effects, the adjoined phrase is either a PP or an S-bar; cases where Freezing Principle effects obtain involve an adjoined NP. Also in the cases where Freezing Principle effects fail to obtain, the S to which the moved phrase has adjoined is immediately dominated by S-bar; where Freezing Principle effects do obtain, the S (or AP) which hosts the adjoined phrase is immediately dominated by VP. It is reasonable to conjecture that one of these differences correlates with Freezing Principle effects.

It does not appear that the second of these differences, the position of S, is the relevant factor. When Extraposition has adjoined a PP or S-bar onto an S which is the complement to an ECM verb, Freezing Principle effects still do not obtain:

103.
a) $\underline{\text{Who}}_i$ did you believe $[[_S$it to be obvious to $\underline{t}_i]_S$ [that Mary had arrived]]$_{S*}$
b) $\underline{\text{Who}}_i$ did you believe $[[_S$[a book $\underline{t}_k$] to have been given to $\underline{t}_i]_S$ [about Prolepsis]$_k]_{S*}$

The relevant factor, then, seems to be the category of the phrase

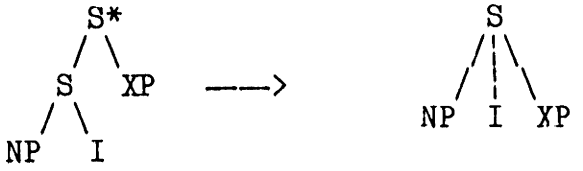
extraposed. Only when an NP is adjoined rightwards do Freezing Principle effects obtain. We shall see below that this is only true for adjunction to S, when an S-bar is adjoined to VP, Freezing Principle effects arise. And further, it seems to be true only for rightward adjunction. When a PP is adjoined to the left of S, Freezing Principle effects are invoked.

104.
a) *$\underline{\text{What}}_i$ did you say [that [$_{S*}\underline{\text{on the porch}}_k$ [$_S$you put $\underline{t}_i$ $\underline{t}_k$]]]
b) *$\underline{\text{To whom}}_i$ did you believe [that [$_{S*}\underline{\text{my book}}_k$ [$_S$you gave $\underline{t}_k$ $\underline{t}_i$]]

In fact, in (104), "Freezing Principle" effects are stronger, applying uniformly to both PPs and NPs. What we search for, then, is an account for why PPs and S-bars that are adjoined rightwards to S do not invoke Freezing Principles effects; and why leftward adjunction invokes "stronger" effects. We put off the second of these problems to Chapter 4.

For the first of these problems, Wexler and Culicover (1981) make the following suggestion. Informally, they suggest that only when a movement rule dislocates a phrase in such a way that the result does not produce a structure that could have been generated by Phrase Structure rules, do Freezing Principle effects arise (cf. Wexler and Culicover 119 4.1.1). Both S-bars and PPs may be Base-generated as sisters to I-bar, but NPs may not be. Similarly, nothing may be Base-generated between subject position and COMP, hence Freezing Principle effects arise when PPs and S-bars have been adjoined leftwards onto S. We do not sanction the use of Phrase Structure rules rich enough to adopt Wexler and Culicover's proposal in full. Instead, we rephrase their principle in the following way.

105. Readjustment Rule



Condition: Where XP is not NP

(105) correlates the failure of Freezing Principle effects in sentences involving Extraposition from NP with the failure of this effect when clauses have been extraposed from subject position. If correct, then, the fact that Extraposition from NP does not give rise to Freezing Principle effects does not threaten an analysis of Extraposition as a syntactic movement phenomenon.

3.3.3.4 Stylistic Extraposition

In section 3.3.3.2 I argued that Extraposition from subject NPs could take place in two ways. When the subject NP has been raised from a D-structure object position, Extraposition takes place before raising, and therefore necessarily in the Syntactic component. This is the case when the predicates involved are psi, passive, or unaccusative. When the verb is unergative, however, a PP may be extracted from it only in the Stylistic component, after S-structure. Extraction in the Syntactic component is blocked by Subjacency, since at no level is the subject NP in a theta-governed position.

Subjacency, then, provides an explanation for why Extraposition from the subjects of unergative predicates cannot take place in the Syntax, and why it is different in this respect than certain other predicates. But why

should Extraposition be possible from the subjects of unergative predicates at all?

The simplest solution would be that movement (hence Extraposition) in the Stylistic component is not subject to Subjacency. But this is clearly not the case, consider (106).

106. *[A review [of a new book t_i]] rests here [about French cooking]$_i$

The ungrammaticality of (106) follows from Subjacency and (III), see 3.3.2.2. The PP about French cooking may not be moved out of the subject NP without crossing (at least) two Barriers. It may not move directly to the adjoined position on S because of (XII), which requires that Extraposition not move too far from its trace. (106) must involve two applications of movement. The PP must first adjoin to the subject NP and then move from its adjoined position to S. But this prohibited by the prohibition from moving from an adjoined position.

If Subjacency is operative for Stylistic movement, then the ability to move a phrase from the subject of an unergative predicate remains mysterious. Perhaps in the Stylistic component, Subjacency does not constrain movement from subjects, for some reason; that is, maybe the Subject Condition is inoperative for Stylistic movement. However, this is not the right approach either, as (107) demonstrates.

107.
a)*[A man t_i] saw Gary [with green eyes]$_i$
b)*[A woman t_i] met Mary [from Victoria]$_i$

As we saw in 3.3.2.2, Extraposition from the subjects of transitive

(non-psi) predicates is always ungrammatical.

The solution must be:

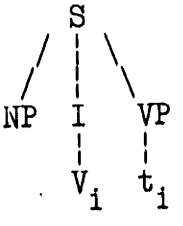
108. The subjects of unergative verbs are not BCs after S-structure.

Our task has been simplified to finding a reason for why (108) is true. (108) will follow if the subjects of unergative verbs are theta-governed after S-structure.

A possible method for deriving (108) makes use of the rule of "Affix Hopping," or "Rule-R," in the sense of Chomsky (1981). Rule R moves AGR onto the verb to form the inflected verb (cf. Jaeggli (1982), Chomsky (1981), Borer (1984), and many others). Suppose that Rule R may also move the verb onto AGR, as Baker (1985) suggests (see also Chomsky (1985)). Rule R applies in the PF component in English.

Consider the structure resulting after Rule R has applied to a sentence with an unergative verb.

109.



In (109), the subject is a sister to the verb that theta marks it; the subject is therefore theta-governed.

If (109) can be a PF representation for unergative clauses, then part of (107) follows; the subject is theta-governed and therefore not a BC.

Because Rule R applies only in the post-S-structure component, the fact that syntactic movement from the subjects of unergative verbs is blocked still derives from Subjacency. But we remain with no explanation for why (109) cannot be a PF representation for transitive clauses.

The following set of assumptions yield this final result. Rule R is an instance of Head movement in (109). Head movement must apparently leave a trace, as we have been assuming, if Travis (1984) and Baker (1985) are correct. If the trace left by movement of a verb cannot serve as a theta-marker, then verb-to-INFL movement will be blocked in transitive clauses by the Projection Principle;[44] for, if verb-to-INFL movement did take place, then the theta marked argument of the moved verb would no longer be a sister to its theta-marker.[45] In transitive clauses, then, Rule R must be instantiated by movement of AGR onto the verb; (109) will be an impossible PF representation for a transitive clause. (107) is now derived in full.

3.3.4 Summary of rightward movement

There are five principle results from this section, that we now summarize. The first, and most relevant to our present concerns, is that

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44. That traces of verbs are not theta-markers follows if traces are not merely phonetically null copies of the moved phrase. We have been tacitly assuming this version of trace-theory, since we have adopted Pesetsky's (1982 Part I) theory of c-selection. We must also assume that the Projection Principle holds in the PF component. I know of no (independent) evidence bearing on this assumption.

45. Movement of the argument theta-marked by the moved verb cannot rescue this case from the Projection Principle. If movement only arises through substitution and adjunction, the argument of the moved verb cannot move to a sister position to this verb.

Extraposition from NP provides support for a formulation of Subjacency based on theta-government. Only in this way can the facts concerning Extraposition from subjects be captured.

Our second finding was that adjunction to a node formed a BC of that node. In particular, we found that adjoining an NP rightward onto VP, AP or S blocked further extraction from (or adjunction to) that VP, AP or S. We shall return with an explanation for these facts in the following chapter.

Thirdly, we observed that rightward movement is subject to a bounding constraint more severe than Subjacency. Interestingly, this constraint differs for Focus Movement and Extraposition. Focus Movement is subject to (IX), while Extraposition is constrained by (IX').

IX. Focus Movement adjoins a phrase X to the maximal projection immediately dominating X.

IX'. No more than 1 maximal projection may dominate X and not dominate Y, where Y is an extraposed phrase and X its trace.

(IX) and (IX) make reference to rule types, "Extraposition" and "Focus Movement." This violates our hypothesis that all movement rules are unitary. The difference between "Extraposition" and "Focus Movement," of course, is that Extraposition moves a PP or an S-bar, and an NP is moved by Focus Movement.[46] (IX) and (IX') might be more correctly formulated as in (XII).

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46. There are pragmatic differences, probably, but they arguably do not influence the syntax of these constructions.

XII. No more than α maximal projections may dominate X
but not dominate Y iff X precedes Y, where:
i) α = 0 if Y is an NP and X its trace, or
ii) α = 1 if Y is a PP or S-bar and X its trace

Our fourth result is that movement from an adjoined position is blocked; movement through iterative adjunction is severly constrained. Let's examine this phenomenon in more detail.

Ross (1967 Ch. 5) shows that Extraposition from NP is strictly bounded; a PP may not be moved out of an NP when it originates from a constituent within that NP. This is illustrated in (110).[47,48]

110.
a)*I read [a review [$_{PP+}$of [a new book $\underline{t}_i$]]] yesterday
[about French cooking]$_i$
b)*I bought [a publication [$_{PP+}$of [a review $\underline{t}_i$]] yesterday
[of Chomsky's new book]$_i$

---

47. These examples, and most of the following discussion, are based on Akmajian (1975).

48. Gueron (1980 647 fn. 11) offers the following counterexamples to this fact:

i) The tip of the leg was repaired of the dining room table
ii) The measurements of the uniforms were taken of the officers
iii) The size of the lettering was prescribed on the covers of all government reports

The greater grammaticality of these examples might be explained if what appears to be the head of the host NP (i.e. tip, measurements, sizes) is actually a measure phrase, cf. Selkirk (1977). If true, then agreement between the phrases and the verb should make Extraposition worse, and it does:

i) *The tips of the statue were polished of the porcupine, Hortense
ii) *The measurements of the uniform were taken of the officers
iii)*The sizes of each letter were prescribed on the covers of all government reports

Akmajian (1975) argues that the cause of (110)'s ungrammaticality is not the islandhood of PP^+, for the moved PP may be extracted out of PP^+ and adjoined to the topmost NP, as in (111).

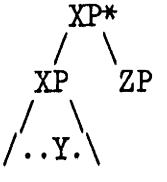
111.
a) I read $[[_{NP}$the review $[_{PP+}$of [a new book $\underline{t}_i$] in The New York Review of Books$]_{NP}$ [about French cooking$]_i]]_{NP*}$ yesterday
b) $[[_{NP}$LI's publication $[_{PP+}$of [a review $\underline{t}_i$]] in volume 6$]_{NP}$ [of Chomsky's new book$]_i]_{NP*}$ really surprised us

(Akmajian 123 (17b))

Something must block deriving (109) from (111). Akmajian concludes that the Freezing Principle is responsible (cf. p. 120 fn. 4). In the terms used here, this means that the node formed by adjunction is a BC. We saw earlier that the node adjoined to became a BC; if Akmajian is correct, then the node formed by adjunction is also a BC.

This solution to the unavailability of iterative adjunction has two problems. If the node created by adjunction is a BC because it satisfies the criteria for BC-hood in (II), then it must be a maximal projection. But if it is a maximal projection, then it will necessarily be a Barrier for phrases dominated by the node that adjunction affected. Consider (112).

112.



Adjunction of ZP to XP has made XP a BC. If XP* is a maximal projection, then (II) causes both XP and XP* to be Barriers for Y. If XP is a VP, and

XP* a maximal projection, then passive should not be possible in a clause which has a phrase adjoined to VP, as in (113).

113. The records were given to a man on Tuesday from the the IRS

But, (113) is grammatical. Similarly, when a phrase is adjoined to S, it should block further movement from that clause. This too, as we saw in 3.3.3.3, is incorrect.

So far we have seen evidence that movement from a position adjoined to VP and NP is blocked. Similar facts obtain with clauses. Consider the following examples from Ross:

114.
a) $[_S$That $[_S\ [_{NP}$a review $\underline{t}_i]$ came out yesterday$]_S$ [of this article$]_i\ ]_{S*}]$ is catastrophic
b)*$[_S[_S$That $[_S\ [_{NP}$a review $\underline{t}_i]$ came out yesterday$]_S\ \underline{t'}_i\ ]_{S*}]$ is catastrophic$_S$ [of this article$]_i\ ]_{S*}$

(Ross 305 (5.55))

As (114a) shows, it is possible to extract the PP <u>of this article</u> and adjoin it to the S of the sentential subject (see section 3.3.3). The derivation shown in (114b) is blocked by Subjacency since the sentential subject is not in a theta-governed position and therefore S-bar is a BC and a Barrier for the adjoined phrase and the dominating S is a Barrier as well. But the derivation in (115) is not blocked, unless movement from an adjoined position to either S or S-bar (or both) is impossible.

115. *$[_S[_S$That $[_S\ [_{NP}$a review $\underline{t}_i]$ came out yesterday$]_S\ \underline{t'}_i\ ]_{S*}]_S$ $\underline{t''}_i\ ]_{S*}$ is catastrophic$]_S$ [of this article$]_i\ ]_{S*}$

In (115), the moved PP has first adjoined to S, and then (if possible) on

the second Cycle adjoined to S-bar. Unless movement from the intervening adjoined position is blocked, these examples will be incorrectly generated. An important observation is that the unavailability of iterative adjunction is independent of whether the phrase hosting the adjoined constituent is theta-governed. This is shown by (116).

116
a)*I didn t believe [that she had read [a review t_i]] until I spoke with her [of this article]$_i$
b)*[[She read t_i apparently]$_S$ [a book about tholish students]$_i$]$_{S*}$

A method for blocking iterative adjunction is introduced in Chapter 4.

Finally, we have determined that Subjacency is a condition on movement. We may understand this to mean that Subjacency must, at some point between D- and S-structure, hold of every link in an A-bar chain. Understood in this way, Subjacency must make reference to segments, for otherwise Extraposition from D-structure subjects will not be blocked. Subjacency, with the modifications introduced to this point, is defined as follows.

II.
α, α a segment of a maximal projection, is a Blocking Category (BC) for β iff α is not theta-governed and α dominates β.

α, α a segment of a maximal projection, is a Barrier for β iff:

i) α immediately dominates γ, γ a BC for β, or
ii) α is a BC for β, where α has a complete Head

α theta-governs β iff α is a zero-level category that theta-marks β, and α, β are sisters

α is Subjacent to β iff there are less than 2 Barriers for β that exclude α

α has a complete Head, iff α is X^0 or [AGR, TNS*], where TNS* is independent.

If ($\alpha_i, \ldots, \alpha_{i+1}$) is a link in a chain, then
α_{i+1} must be Subjacent to α_i at some
level in Syntax

This examination of rightward movement has provided us with an understanding of some of the properties of adjunction. Equipped with this knowledge, we may return to cases of leftward movement and examine the consequences.

3.4 Two problematic constructions

3.4.1 Extraposed clauses

In the previous sections, we have seen that when a phrase has been dislocated, it functions as an island for its contents. When a PP has been extraposed from an NP, or when an NP has undergone Focus Movement, movement from these phrases is barred, cf. (117).

117.
a)*Who$_i$ did you read [a book t_k] yesterday [about t_i]$_k$
b)*Who$_i$ did you tell t_k about Gary [some good friend of t_i]$_k$

However, there is one case we have not yet examined: dislocated clauses. Just as NPs may adjoin rightwards, so may sentences. Consider, for example, those in (118).

118.
a) it is obvious (to me) [that I should have finished by now]
b) it is clear (to Gary) [that I should have finished by now]

Under a traditional analysis of these constructions, the post-verbal S-bar

has been moved from subject position. See, for example, Rosenbaum (1967), Emonds (1976), Higgins (1974), Stowell (1981), Safir (1982), Chomsky (1984), and references cited there. The expletive it is then inserted in the vacated subject position, and forms a chain with the extraposed clause. The clause must form a chain with the subject position, because, under our assumptions, argumental S-bars must be in Case-marked chains. The sentences in (118), then, are related to the sentences in (119) by movement.

119.
a) [That I should have finished by now] is obvious (to me)
b) [That I should have finished by now] is clear (to Gary)

That it is the Case assigned to subject position which is relevant is shown by (120).

120.
a)*I decided [e to be obvious [that Mary had finished]]
b)*I tried [e to be clear [that Mary had finished]]
c)*it was necessary [e to be obvious [that Mary had finished]]

In (120), the subject positions of obvious and clear are not Case marked, and hence the chain formed between this position and the extraposed clause, even if possible, will not suffice to make the extraposed clause visible for theta-marking.

And yet, unlike phrases of other categories moved rightwards, extraction from extraposed clauses is apparently possible.

121.
a) Who was it obvious [that Mary had seen t]
b) What was it clear [that Gary had bought t]

Two similar cases are exemplified in (122).

122.
a) Who$_i$ did you suggest t_j to Gary [that Sam saw t_i]$_j$
b) What$_j$ did you explain t_i to Mary [that Sue had said t_j]$_i$

Because structural Accusative Case is assigned to elements string adjacent to the verb, the complement clauses in (121) occupy a position adjacent suggest and explain at D-structure. They are then extraposed to string final position. Notice that the Principle of the Cycle requires that the clauses in (121) be extraposed before the wh-word is moved. Hence, extraction from these clauses should be blocked, and yet (121) is perfectly grammatical.

We postpone offering an account to this apparent violation of Subjacency until the next chapter. However, we may make an observation concerning these examples at this point. The examples in (121) and (122) involve movement of an NP or S-bar. In fact, only when an NP or S-bar has been extracted do apparent violations of Subjacency arise. Compare the preceding examples to those in (123).

123.
a)*To whom was it obvious to Gary [that Mary gave a book t]
b)*On what was it clear [that Gary put a book t]

124.
a)*To whom did you suggest to Gary [that Mary gave a book t]
b)*On what did you explain to Mary [that Gary put a book t]

Of course, cyclic extraction of PPs is normally permitted, as in (125)

125.
a) To whom did you say [that Gary gave a book t]
b) On what did you think [that Mary put a book t]

It appears, then, that the apparent violation of Subjacency presented by

these cases is restricted to a very narrow class of examples: extraction of NPs and S-bars.

Clausal extraposition provides another puzzle. Like Focus Movement, clausal complements to verbs may be moved rightwards only as far as their immediately dominating maximal projection. The examples in (126) demonstrate that extraposition of a clause from subject position may not adjoin that clause past material belonging to the higher VP.

126.
a)*I believed [it was obvious] very strongly [that Mary had arrived]
b)*It was [that it was unlikely] by everyone [that Mary had arrived]

Object clauses may not be adjoined to a node higher than their containing VP, as (127) illustrates.

127.
a)???I didn't believe until Mary had arrived [that Gary had left]
b)???John didn't say until Mary had left [that Gary had arrived]

In 3.3.4 we characterized the difference between the boundedness of Focus Movement and Extraposition from NP in terms of category. We suggested that NPs, when moved rightward, could be separated from its trace by no maximal projections, but that PPs and S-bars could be moved rightwards to a position separated from their trace by one maximal projection. However, the distribution of clausal extraposition shows that this was an incorrect characterization of the problem. At this point it appears that the difference in rightward boundedness shows up between arguments of verbs and arguments of nouns. We return to this problem directly.

Cases of clausal extraposition, therefore, present two difficulties. They provide examples which are apparent violations of Subjacency, and they

are bounded in the same way that NPs are.

3.4.2 Extraction from PPs

In English, the complements to prepositions may be extracted, stranding their preposition.

128.
a) Who did you leave home [with t]
b) What did you go home [for t]

If the PPs in (128) are not theta-marked, as is standardly assumed, then they should be BCs for their complements. If they are BCs, then both they and the VP that contains them should be Barriers for their complements. (128) should constitute a Subjacency violation, and yet it is perfectly grammatical.

The problem posed by (128) is compounded when extraction from the complements of prepositional phrases is considered. As we have observed above, this results in ungrammaticality.

129.
a)*Who did you leave home [with [a picture of t]]
b)*What did you include it [in [a story about t]]
c)*What did you talk [about [a picture of t]]

This is true for both movement of NPs and PPs, as in (130).

130.
a)*Of whom did you leave home [with [a friend t]]
b)*About what did you include it [in [a story t]]
c)*Of what did you talk [about [a picture t]]

An identical problem exists when the PP is within an NP.

131.
a) *What did you see [a proof [of [a theorem about t]]]
b) *About what did you see [a proof [of a theorem t]]]

The principle that blocks these cases appears to hold only at S-structure, since LF extraction of wh-phrases in these environments is possible.

132.
a) Who left home with a picture of whom
b) Who included it in a story about what
c) Who talked about a picture of what
d) Who saw a proof of a theorem about what

It is a reasonable conjecture, then, that Subjacency is responsible. And yet, as noted above, Subjacency does not straightforwardly derive these results. Under our assumptions, the highest PP in (128)-(132) is theta-marked by the verb and therefore not a BC for phrases it contains. If theta-marking requires sisterhood, then the complement of the preposition must be theta-marked by the head preposition and is therefore not a BC for its daughters. Hence, there are no Barriers that intervene between the wh-phrases and their traces in (128) and (130).

Let us concentrate on the apparent violation of Subjacency that preposition stranding invokes; we return to the islandhood of prepositional complements immediately. Whatever factor is responsible for the lack of Subjacency effects in these cases, it is one that arises only for complements to verbs. Subjacency yields the correct facts concerning stranding PPs, when the PP is within a NP, cf. 3.2. Only when a PP complement to a noun is theta-marked by the noun, may the preposition of that PP be stranded, cf. (133).

133.
a) Who did you buy [a book [about t]]
   What did you understand [a proof [of t]]
   Who did you visit [a friend [of t]]
b)*Who did you buy [a book [near t]]
  *What did you understand [a proof [in t]]
  *Who did you visit [a friend [beside t]]

Furthermore, the availability of preposition stranding seems, in part, to be determined by lexical characteristics of the governing verb.[49] When verb and PP are, in some sense to be made precise, "semantically close," the preposition may be stranded; the contrasts in (134) are illustrative.

134.
a) Which room did you stand [in t]
   Which rug did you sweep the dust [under t]
b)*Which room did you write a paper [in t]
  *Which blanket did you see Gary [under t]

This relationship between preposition stranding and verb is again illustrated by contrasts such as the following.[50]

135.
a) John pounded the door with a friend
b) John pounded the door with a hammer
c) Mary bought Exxon stock for her grandchildren
136.
a)#Who did John pound the door with t
b) What did John pound the door with t
c) Who did Mary buy Exxon stock for t

Only an instrument with may be stranded after pound, as the contrast

---

49. Hornstein and Weinberg (1981) claim that preposition stranding is possible for all and only prepositions that are within the VP, and in this way attempt to derive these semantic differences, but this is a false chararcterization of the difference, cf. 4.4.

50. My thanks to Naoki Fukui for bringing these facts to my attention; (135c) is due to him.

between (135a,b) and (136a,b) shows. Similarly, while (135c) is ambiguous, for may be either a benefactive or a goal, the grandchildren may or may not yet exist, (136c) is not so ambiguous. We must understand for in (136c) as specifying a goal. Notice, in particular, that it is not that the strandability of prepositions hinges uniquely on their semantic class, as the contrast between (136) and (137) demonstrates.

137.
a) Who did you stand for t
b) Who did you run with t

It appears that the ungrammaticality of the examples in (136), as well as (134b), (131) and (130), is due to Subjacency, as the possibility of LF wh-movement in parallel examples indicates; cf. (138).

138.
a) Which author wrote a paper [in which room]
b) Who saw Gary [under what]
c) Who stood [for whom]
d) Who pounded the door with which friend
e) Who pounded the door with wich hammer

A reasonable conjecture at this point would be that the "semantic closeness" evident in these cases is just theta-marking. Perhaps subcategorization and theta-marking should be divorced in such a way that a phrase may be theta-marked by a Head that is not subcategorized by that phrase. Then the contrasts we have reviewed above would be due, straightforwardly, to Subjacency. Not only would the preposition stranding phenomenon not counterexemplify the formulation of Subjacency in (II), but it would support it.

But there are two difficulties with this conjecture. The first difficulty is only apparent. This is that it offers no account for why

stranding prepositions within NPs is different than stranding prepositions within VPs. We have supposed that nouns come in two varieties: those that theta-mark their complements and those that don't (and some nouns which can do either, cf. 3.2). But, strangely, nouns never theta-mark goals, benefactives, instruments, and the like, cf. (139).

139.
a)*What did you witness [$_{NP}$the hammering with t]
(compare: What did you witness the hammering of)
b)*Who did you watch [$_{NP}$the buying for t]
(compare: what did you watch the buying of)
c)*Who did you encourage [$_{NP}$the giving to t]
(compare: what did you encourage the giving of)

It seems, in fact, that nouns only assign THEME to their internal arguments. I have no suggestion for why this might be; but notice that this difference between nouns and verbs must be stipulated independently of the conjecture we are entertaining with respect to preposition stranding verbal complements. This is shown by (139c). Whereas the goal phrase to NP subcategorizes, and is theta-marked by, its governing verb, it is not theta-marked by its governing noun. The greater availability of stranding prepositions that are governed by verbs, relative to nouns, arises by virtue of the independently required (XIII).

XIII. Nouns may only assign THEME internally.

The second problem posed by assuming that verbs are able to theta-mark PPs that do not subcategorize them concerns certain movement asymmetries. As we've remarked above, movement of non-theta-marked phrases is more severely constrained than movement of theta-marked phrases. In particular, non-theta-marked phrases may not be moved from Complex Noun Phrases or

indirect questions, though theta-marked phrases may be (cf. Huang (1982)). Consider the following contrasts.

140.
a)??Who did you make [the claim that Mary saw t]
b) Who did you wonder [whether to see t]

c)*Why did you make [the claim that Mary left t]
d)*Why did you wonder [whether to leave t]

In so far as this distinction is diagnostic of theta-marking, the PPs we have hypothesized are theta-marked by their governing verb should be able to be extracted from Complex Noun Phrases and indirect questions; the grammaticality of (141) should be on a par with (140a,b).

141.
a)?*With what did you make [the claim that Mary pounded the door t]
b)??With what did you wonder [whether to pound the door t]
c)?*In what did you make [the claim that Mary stood t]
d)??In what did you wonder [whether to stand t]
e)?*Under what did you make [the claim that Mary swept the dust t]
f)??Under what did you wonder [whether to sweep the dust t]

However, it seems that extraction of these PPs is more like non-theta-marked phrases. We return to these case in chapter 4, and argue that they are not problematic for the cases at hand.

This accounts for why instances of preposition stranding do not violate Subjacency. But we are still left with no explanation for the ungrammaticality of extraction from the complement of a preposition. Recall that the islandhood of the complement to a preposition is independent of whether that prepositional phrase subcategorizes its governing verb:

142.
a)*Who did you put a book [on a picture of t]
b)*Who did you give a gift [to a friend of t]

And further, we speculated that principle at work was Subjacency, due to the fact that it holds only of S-structure movement:

143.
a) Who put a book on a picture of whom
b) Who gave a gift to a friend of whom

These facts can be derived if the complements to prepositions are not theta-governed at S-structure. If this is the case, then NP in (144) is a BC and a Barrier for who, and the PP is a Barrier for who by virtue of dominating a BC. Hence, extraction of who crosses two Barriers, and Subjacency is violated.

144. Who did you give it [$_{PP}$to [$_{NP}$a friend of t]]

Of course, the complements to prepositions must be theta-marked at some level, presumably at LF if (143) is not to violate the Empty Category Principle (cf. Aoun, Hornstein and Sportiche (1981) and Lasnik and Saito (1984), among others). Similarly, extraction of prepositional complements from indirect questions and complex noun phrases patterns with theta-marked phrases, consider (145).

145.
a)??Who did you make [the claim that Mary gave it to t]
b) What did you wonder [whether to put it on t]

Suppose that the definition of "theta-govern" is extended as in (XIV).

XIV. α theta-governs β iff α is a zero-level category that theta-marks β, and α, γ are sisters, where $\gamma = \beta$ or γ is a projection of β.

(XIV) modifies theta-government so that it extends to the Head of a

theta-governed phrase. A phrase may be theta-governed by virtue of being a sister to its theta-marker, or by being the Head of a theta-governed phrase. Imagine, furthermore, that the Head of a prepositional phrase changes from S-structure to LF. At S-structure, in accordance with X-bar Theory, the preposition is the Head, for it is leftmost. But at LF, the "complement" NP becomes Head.[51] This entails that the complement to a preposition is not theta-marked by the preposition, but instead by the verb.[52] We must assume that this process is a special property of prepositional phrases, it captures the frequently expressed intuition that the complements to prepositions are "compositionally" theta-marked by both verb and preposition.

These assumptions, in conjunction with (XIV), yield the desired effects. Because the preposition is the Head of a prepositional phrase at S-structure, and because prepositions do not theta-mark their complements the complements to prepositions will not be theta-governed at S-structure. Extraction from the complements to prepositions will violate Subjacency in the manner described above. At LF, the "complement" to the preposition will become Head of the PP, where it will now be theta-governed by the verb or noun to which the PP is a sister.

A surprising fact, that this account fails to predict, is that extraposition from the complement of a preposition is grammatical.

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51. This proposal is remindful of Ross's (1967) very similar method for accounting for pied-piping.

52. The Projection Principle must now be rephrased in terms of theta-government, rather than sisterhood.

146.
a) I read about a book yesterday by Mr. Tishman's favorite son
b) I stood beside a man on Tuesday from West Greenland
c) I bought a book for a woman yesterday from Bolton
d) I gave it to a child on Tuedsay with big, sad eyes

This is a reversal of the normal case; rightward movement is usually more severely constrained than leftward movement. Similar facts hold for PP complements to nouns, as we have seen above; consider Akmajian's example in (147).

147. $[[_{NP}$LI's publication $[_{PP}$of [a review $\underline{t}_i$]] in volume 6$]_{NP}$ [of Chomsky's new book$]_i$ $]_{NP*}$ really surprised us
(Akmajian 123 (17b))

We return to these cases in the following chapter.

Chapter 4

Chain Government

In recent years, the Empty Category Principle (ECP) has been fruitfully employed to explain a variety of bounding effects. The primary burden on the ECP has been to explain subject/object and argument/adjunct asymmetries with respect to extraction. A plethora of formulations of the ECP exist (cf., e.g. Jaeggli (1982), Chomsky (1981 1982 1985), Kayne (1984a) Stowell (1981), Huang (1981), Pesetsky (1982), Bouchard (1982), Aoun, Hornstein and Sportiche (1981), Aoun (1985), Lasnik and Saito (1984)), but they all have the following general form:[1]

A non-pronominal empty category must be
i) governed by an appropriate governor, and/or (lexical government)
ii) proximate to a coindexed phrase (antecedent government)

Whether (i) and (ii) must be disjunctively satisfied, or conjunctively satisfied, is one point on which the various formulations of the ECP differ, as are the definitions of "appropriate governor," and "proximate." In this chapter we shall discuss some the factors involved in arriving at a definition of "appropriate governor" and "proximate," and suggest that (i) and (ii) must both be satisfied; but our primary goal will be to argue for

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1. Except Kayne (1984a Ch. 3) and Chomsky (1985), where the effects of lexical government are factored into the definition of antecedent government.

a slightly different conception of the ECP than that expressed above. We shall argue that antecedent government does not belong to the ECP at all, but is instead an independent condition on A-bar chains. In particular, we shall argue that "antecedent government" is not a condition on non-pronominal empty categories, but is a condition on chain links. For this reason, we relabel "antecedent government" as "chain government." Under this view, the ECP is reduced to (I), with (II) standing in place of (ii) above.

I. The Empty Category Principle
a non pronominal empty category must be lexically governed

II. Chain Government Condition
For all α_j, α_{j+1} in the A-bar chain $\tau = (\alpha_1, \ldots, \alpha_m)$,
chain-government must hold of (α_j, α_{j+i}).

The evidence for removing "antecedent government" from the ECP comes in part from the asymmetrical boundedness of rightward and leftward movement, and in part from parasitic gap phenomena. We turn to the evidence from rightward/leftward asymmetries directly below, returning to the parasitic gap phenomenon in 4.3. A standard method of accounting for subject/object and argument/adjunct asymmetries employs the idea that lexical government holds only of internal arguments and that when lexical government fails, antecedent government must be satisfied. Extraction of subjects and non-arguments, then, is different from extraction of internal arguments because only they must be antecedent governed. The theory presented by (I) and (II) destroys this simple explanation of these asymmetries by denying that "antecedent government" holds only of non-internal arguments.[2] An

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2. In this respect, (I) and (II) follow the spirit of Kayne (1984a Ch. 8).

explanation for these asymmetries now rests on lexical government, (I), alone. In 4.2, we pursue a definition of lexical government that gives a partial account of these asymmetries.

4.1 Chain Government

4.1.1 Rightward Movement

In the previous chapter it was discovered that rightward movement of verbal arguments cannot escape VP, but this is obviously not true of leftward movement, compare the following examples.

1.
a) Who did you $[_{VP}$see $\underline{t}]$
b)*Julie didn't $[_{VP}$buy $\underline{t}_i]$ until it became available
[that book on Venus]$_i$

It is clear that whatever is responsible for this asymmetry, it is not Subjacency. We saw in 3.3.4 that what is responsible for the boundedness of Extraposition from NP is a condition on the relationship between antecedent and trace, as the contrast in (2) shows.

2.
a) $[[_S[_{NP}$pictures $\underline{t}_i]$ [were sold]]$_S$ [of Madonna]$_i]_{S*}$
b) I $[[_{VP}$gave [pictures $\underline{t}_i$] to Gary]$_{VP}$ [of Madonna]$_i]_{VP*}$
*$[[_S$I [gave [pictures $\underline{t}_i$] to Gary] until Monday]$_S$ [of Madonna]$_i]_{S*}$

The VP does not block rightward movement of extraposed phrases, when the trace they leave is moved into subject position, as (2a) shows; but it does when its trace is left within the VP, as (2b) shows.

There are two potential causes of this asymmetry. It could be that VP acts to block the relationship between antecedent and trace for rightward movement only,[3] or it could be that VP blocks the required relation between antecedent and trace for both leftwards and rightwards movement, but that iterative adjunction is only permitted of leftward movement.

The solution to the left-right asymmetry of movement from VP, should also provide an explanation for the following illicit derivations.

3.
a)*$[_{S*}\underline{t}''_i[_S$I didn't $[_{VP*}\underline{t}'_i[_{VP}$see $\underline{t}_i]$ until they arrived$]_S]_{S*}$ [all those Chandler novels$]_i]_{S**}$
b)*$[_{S*}\underline{t}'_i[_S$I didn't $[_{VP}$see $\underline{t}_i]$ until they arrived$]_S]_{S*}$ [all those Chandler novels$]_i]_{S**}$

In (3b), Focus Movement has moved the object NP first leftwards, adjoining it to S, and then rightwards, adjoining it to S*. (3a) illustrates a similar derivation, but the initial leftward movement adjoins the moved phrase first to VP and then to S. In 3.3.3, we found that iterative rightward adjunction through VP was impossible; however, we have not yet encountered evidence showing that leftward iterative adjunction is impossible, so we hold the possibility open. If VP restricts leftward movement, then (3a) might be a licit derivation; if VP doesn't restrict leftward movement, then (3b) might be a legitimate derivation. In both cases, an ungrammatical sentence is produced.

The final burden that we should expect an account for the left-right asymmetry to carry, is that it should offer an explanation for the

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3. This is reminiscent of Baltin's (1983) proposal.

"left-right" property itself. That is, it should explain why a precedence relation is involved. As we have noted above, "precedence" is a relation that has a very limited domain in syntax. We have assumed that the Headedness parameter is one area where precedence is specified; Heads either precede or follow their complements. Let us assume that the Headedness parameter derives from a Directionality of Government parameter (cf. Horvath (1981), Stowell (1982/3)); in a Head First language, government holds between X and Y iff X precedes Y, and in a Head Final language, government holds between X and Y iff X follows Y.

The directionality of government might then be employed to account for the left-right asymmetry of movement. Combining this hypothesis with the conclusion that the relevant condition must hold of representations, we may begin with a condition like (I).

I. Chain Government Condition

In an A-bar chain $\sigma=(\alpha_i, \alpha_{i+1}, \ldots, \alpha_n)$,
for all α_j, α_j must govern α_{j+1} or α_{j-1}.

Recall that we have assumed Barriers-type definition of government, to which we must now specify the precedence parameter:

4. α governs β iff no more than one maximal projection dominates β and not α, and α precedes/follows β.

In English, α precedes β.[4] To determine how (I) operates, we will need to

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4. We must assume that nominative Case is not assigned under government by AGR. We may assume that mutual c-command must hold between AGR and a nominative Case-marked NP.

discover how "maximal projection" is defined for (4).

Consider, now how (I) will apply to cases of rightward movement, as in (2b) above.

5. $[[_S$Julie didn't $[_{VP}$buy $\underline{t}_i]$ until it became available$]_S$
$[$that book on Venus$]_i]_{S*}$

In (5), the following chain is formed: (t, that book on Venus).[5] This chain violates (I), for VP dominates t but does not dominate that book on Venus and that book on Venus does not precede t. Hence neither member of the chain in (5) governs the other.

Consider next the derivations in (3). Neither of these derivations are affected by the CGC, since the CGC does not constrain leftward movement. (3) will be blocked if iterative leftward adjunction through VP, like rightward adjunction, is blocked. Consider next (3b), repeated here.

3.b)*$[_{S*}\underline{t'}_i[_S$I didn't $[_{VP}$see $\underline{t}_i]$ until they arrived$]_S]_{S*}$ [all those Chandler novels$]_i]_{S**}$

In (3b), movement has created the following chain: (t, t', all those Chandler novels). C-government holds between the link (t, t'), since everything that dominates the left member dominates the right member. Similarly, the link (t', all those Chandler novels) does not violate c-government, since t' is dominated by only one segment (S*), and hence no more than one maximal projection, which does not dominate all those

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5. We adopt the convention of listing the members of a chain arranged in the order that they were "created."

Chandler novels. I know of no better method for disallowing this derivation than to stipulate that multiple adjunction to one category is barred:[6]

III. $*[_{XP**}$

We will encounter a number of cases confirming (III).

The CGC also correctly constrains rightward movement of the subjects of small clauses and complements to ECM verbs, if segments are maximal projections for the purposes of government. Consider (6).

6. $*[_{S}I\ [[_{VP}$believed $[_{S}t_i$ to be a nice guy] very strongly$]_{VP}$ [my favorite stepfather from Port Huron]$]_{VP*}$

The chain formed by movement in (6), (t, my favorite stepfather from Port Huron), will violate the CGC, under this assumption, since two segments, S and VP, dominate t but not my favorite stepfather from Port Huron. The CGC requires, correctly, that Focus Movement, i.e. rightward movement of an NP, may not move a phrase beyond the maximal projection immediately dominating that phrase.

Although the CGC properly constrains rightward movement of an NP, and explains the different properties observed by rightward and leftward movement, it is too restrictive for rightward movement of a PP or S-bar. In the previous chapter, we discovered that Extraposition from NP could

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6. See 3.3.2. See Barss (1985) for evidence that multiple adjunction leads to undesirable results. (III) must be English specific, for it does not hold in Japanese, if Scrambling arises through adjunction. See Saito (1985).

move a phrase out of an NP and onto the next maximal projection, as in (7), but that it could not move a phrase farther, as in (8).

7.
a) Gary didn't $[[_{VP}$read [a book $\underline{t}_i]]]_{VP}$ yesterday [about Quarks$]_i]_{VP*}$ until she recommeded it
b) I will believe $[[_S$[a book $\underline{t}_i$] to have appeared$]_S$ [about Quarks$]_i]_{S*}$ tomorrow

8.
a)*$[[_S$Gary didn't $[_{VP}$read [a book $\underline{t}_i$]] until she recommended it$]_S$ [about familial ties$]_i]_{S*}$
b)*$[[_S$I will believe $[_S$[a book $\underline{t}_i$] to have appeared] tomorrow$]_S$ [about Quarks$]_i]_{S*}$

In (7), chains are formed that violate the CGC, since in both cases the trace of the extraposed phrase is dominated by NP and a segment of VP or S that does not dominate the moved phrase. The CGC should be modified to permit (7), but disallow (8), where two maximal projections, and one segment, intervene between moved phrase and its trace.

The following modification to government has the desired results.

9. α c(hain)-governs β iff α governs β and no more than one γ dominates α but not β, and:
i) γ=segment, if α is an NP, or
ii) γ=category, otherwise

In (7), the chain formed by movement, (t, about Quarks), satisfies this revised CGC, since only one γ (=category), namely NP, dominates t but not about Quarks. Hence, the definition of c-government in (9) distinguishes rightward movement of NPs from rightward movement of PPs and S-bars correctly.

(9) also accounts for the availability of Extraposition from the

complements of prepositions, as in (10).

10.
a) I read $[_{NP}$the review $[_{PP}$of [a new book $\underline{t}_i$]] in The New York Review of Books$]_{NP}]_{NP}$ [about French cooking$]_i]_{NP*}$ yesterday
b) I [[bought a book [for [a friend $\underline{t}_i$]] yesterday$]_{VP}$ [from Blythe$]_i]_{VP*}$

At first, these examples appear to counter-exemplify the CGC; the extraposed PP is separated from its trace by both PP and NP. But these are only apparent counterexamples. The CGC allows complements to prepositions to adjoin rightwards onto that preposition. Therefore, (10b), for example, may have the representation in (11).

11. I [[bought a book [[for $\underline{t}_j]_{PP}$ [a friend $\underline{t}_i$]]$_{PP*}$ yesterday$]_{VP}$ [from Blythe$]_i]_{VP*}$

The CGC is satisfied in (11). Only one category, NP, dominates $\underline{t}_i$ but not from Blythe$_i$. By adjoining to PP, the NP from which Extraposition has taken place has been brought close enough to the extraposed phrase. Because the CGC is independent of Barrierhood, the surprising asymmetry with respect to leftward and rightward movement from complements to prepositions, as in (12), is explained.

12.
a) I [[bought a book [[for $\underline{t}_j]_{PP}$ [a friend $\underline{t}_i$]]$_{PP*}$ yesterday$]_{VP}$ [from Blythe$]_i]_{VP*}$
b)*Who$_i$ did you buy a book [[for $\underline{t}_j]_{PP}$ [a friend $\underline{t}_i$]]$_{PP*}$

The ungrammaticality of (12b) is due to Subjacency, see 3.4.

4.1.2 Leftward movement

Our discussion of rightward movement showed that the relative restrictive boundedness shown by rightward moved NPs when compared to rightward moved PPs and S-bars could be captured using the distinction "segment" and "category." Under the view we are advocating, c-government holds of both leftward and rightward movement; it holds of chain-links. We might then expect to find cases where leftward movement is sensitive to the segment/category distinction.

In fact, we have encountered a number of cases where movement leftward of a PP was less constrained than movement leftward of a NP. These cases involve Freezing Principle effects with Focus Movement. Consider, for example, the following pair of examples.

13.
a)?At which game$_i$ do you consider [[$_S$t$_k$ to be good t$_i$]$_S$ [your favorite grandson from Seattle]$_k$]$_{S*}$
b)*Which game$_i$ do you consider [[$_S$t$_k$ to be good at t$_i$]$_S$ [your favorite grandson from Seattle]$_k$]$_{S*}$

14.
a)??To whom$_k$ did you [[$_{VP}$give t$_i$ t$_k$ yesterday]$_{VP}$ [all my favorite books about prolepsis]$_i$]$_{VP*}$
b)* What$_k$ did you [[$_{VP}$put t$_i$ on t$_k$ yesterday]$_{VP}$ [my favorite portrait of Picasso]$_i$]$_{VP*}$

15.
a) To whom$_k$ did you [[$_{VP}$suggest t$_i$ t$_k$ (yesterday)]$_{VP}$ [that Mary should come too]$_i$]$_{VP*}$
b)*Who$_k$ did you [[$_{VP}$suggest t$_i$ to t$_k$ (yesterday)]$_{VP}$ [that Mary should come too]$_i$]$_{VP*}$

The contrasts in these sets of examples are very reminiscent of the contrast we found between NPs and PPs when rightward movement was considered. We shall explore the hypothesis that both sets of contrasts find the same explanation.

It is clear that the CGC, unaltered, does not yield the contrasts found in leftward movement, since, as we observed, the CGC leaves completely unconstrained leftward movement. Subjacency is also unable to give different results for leftward moved PPs and NPs. One or the other of these principles must be modified. Let us begin by exploring how the CGC could be modified.

The idea that we shall exploit is that, like Subjacency, the CGC requires that antecedent and trace must be separated by no more than one Barrier. However, unlike Subjacency, this requirement will be a condition on representations, and will, furthermore, be defined in such a way so as to be sensitive to the "segment-category" distinction. We propose:

I. Chain Government Condition (CGC)

In an A-bar chain $\sigma=(\alpha_i, \alpha_{i+1}, \ldots, \alpha_n)$,
for all α_j, α_j must c-govern α_{j+1} or α_{j-1}.

α c(hain)-governs β iff α governs β, and
i) no more than one γ dominates α but not β, and
ii) no more than one γ-Barrier dominates β but not α, where
γ=segment, if α is a NP, and
γ=category, otherwise

The CGC now requires that no more than one Barrier intervene between a moved phrase and its trace, where segments "count" as Barriers only for NPs. But it is clear that this revised CGC will have a very limited domain, for Subjacency has virtually the same effects. In fact, for all

the cases we have so far examined, Subjacency and this version of the CGC have identical results. Subjacency will prevent a phrase from moving past more than one category-Barrier, and, as we shall see, movement from an adjoined position falls outside the domain of Subjacency.

Let's explore the hypothesis that Subjacency's application to adjunction structures is more subtle than we have so far assumed. It is structures that arise by adjunction where Subjacency and the CGC may diverge, for it is only in these situations that a category is composed of more than one segment, and therefore, where a category-segment distinction might yield empirical results. We begin with an examination of how Subjacency applies to adjunction structures.

4.1.2.1 Extraction from VP

We begin with an examination of how Subjacency constrains movement of a phrase in an adjoined position, by examining movement out of a VP. In the previous chapter (cf. 3.3.4), we saw that VP could not be both a BC and a Barrier for rightward movement. If VP were both a BC and a Barrier for rightward movement, then Extraposition from subjects could never arise, since Extraposition in these situations moves a phrase out of a noun phrase when it is in object position and adjoins it directly to S.

However, it could be that VP is a BC but not a Barrier. The evidence from Extraposition from NP is uninformative in this respect, since if VP were merely a BC, then movement from within the VP to S would pass only one Barrier. S. We might have cause for speculating that VP is only a BC, since the formulation of Subjacency we have adopted very nearly predicts this. VP is not theta-marked, and by default not theta-governed. Hence it

should be a BC. But, if the theory of "Affix Hopping," or "Rule R," is correct, the verb that Heads the VP is incomplete. The inflectional morpheme(s) has not moved onto the verb in Syntax, leaving the verb without a Head (cf. Williams (1981) and Sproat (1985)). Therefore, a VP is not a Barrier, even if it is a BC, because it does not have a complete Head.

Movement of a single phrase out of VP will never provide evidence either confirming or disconfirming this hypothesis, since movement to COMP or S will never violate Subjacency (or the modified CGC). Therefore, examining rightward movement does not yield helpful evidence, for rightward movement always involves the movement of just one phrase. We must consider cases where two phrases have moved, either two instances of leftward movement, or one instance of leftward movement and one instance of rightward movement. Let's begin with the first case: two applications of leftward movement.

In 3.2.4, we left unexplained a curious asymmetry to "violations" of the wh-island constraint. We noted that extraction from an indirect question was possible when the wh-phrase heading that indirect question was whether or a non-argument phrase, as in (16).

16.
a) What did you wonder [$_S$whether [$_S$PRO to [$_{VP}$buy t]]]
b) What did you wonder [$_S$how [$_S$PRO to [$_{VP}$fix t]]]

But if the indirect question is headed by an argument wh-phrase, the result is far less grammatical.

17.
a)*What$_i$ did you figure out [$_S$to whom$_k$ [$_S$PRO to [$_{VP}$donate t_i t_k]]]
b)*What$_i$ did you wonder [$_S$who$_k$ [$_S$PRO to [$_{VP}$give t_i to t_k]]]

We noted that Subjacency appears to apply to these cases uniformly, failing to account for the difference between them.

This is true if VP is taken to be neither a BC nor a Barrier. But if VP is taken to be a BC, the difference between (17) and (16) is captured by Subjacency. The application of Subjacency is a complicated one. Consider the derivation in (17a). Suppose that first to whom moves into COMP. The Principle of the Cycle requires that what now move directly to the matrix COMP. In this case, movement of what will cross two Barriers: the S and S-bar of the complement clause. Different from our previous assumptions, S is now a Barrier for phrases moved from within the VP, because VP is a BC.

Consider next the following derivation of (17a). First what adjoins to the complement S, and then to whom moves into the complement COMP. Iterative adjunction of to whom through VP yields a parallel derivation. All other derivations are blocked by the Principle of the Cycle and the ban on double adjunction. Under these derivations, to whom crosses either VP, and S, or VP, S, and S*. VP is a BC, but not a Barrier. In the second of these options, S will be a Barrier because it immediately dominates VP, a BC. In the derivation where what has adjoined to S, to whom crosses two Barriers: S and S*, again both are Barriers by virtue of dominating a BC. In either case, Subjacency is violated.

After to whom has moved into the embedded COMP, is what able to move into the matrix COMP? If S* "inherits" its status relative to Subjacency from S, then movement of what will violate Subjacency. Because S* is a BC, S-bar will be a Barrier, and because VP is a BC, the matrix S will be a Barrier as well. Hence, movement of what either to the matrix COMP or onto the matrix S will violate Subjacency. This is an undesirable result, for

now extraction from an indirect question will always result in ungrammaticality. We assume the following convention.

IV. a segment α is a Blocking Category for β iff
for all α_j in the category $\sigma = (\alpha_i, \ldots, \alpha_n)$
α_j is a Blocking Category for β.

(IV) allows iterative adjunction from non-theta-governed phrases, as in (17). We shall assume that (IV) holds only of Subjacency. Both this, and the particular formulation of (IV), are supported below. Note that the applicability of (IV) to iterative adjunctioni is restricted to cases where adjunction may arise. Recall that our assumption concerning determining the Head of a phrase restricts leftward adjunction just to S. Hence (IV) will inhibit Subjacency in these situations, i.e. Subjacency will not prevent leftward iterative adjunction through S. We return to the difference between leftward and rightward iterative adjunction below.

Consider how (16b), repeated below, must be derived, if VP is a BC.

18. $\underline{\text{What}}_i$ did you wonder $[_S \underline{\text{how}}_k\ [_S$PRO to $[_{VP}$fix $\underline{t}]\ \underline{t}_k]]$

Direct movement of what to the matrix COMP now violates Subjacency, since the intervening S nodes, and S-bar, are Barriers. Therefore what must first adjoin to the lower S, followed by how moving into the complement COMP. Movement of how into COMP does not violate Subjacency in this case, as did movement of to whom above, because S is not a Barrier for how since VP does not lie between how and S. Hence, taking VP as a BC, but not a Barrier derives the difference between wh-island violations that exists between indirect questions headed by argument wh-phrases, and those headed by non-argument wh-phrases.

This account also extends to the intermediary status of wh-island violations involving indirect questions headed by a wh-phrase which has been moved from subject position. Consider the examples in (19).

19.
a)???$\underline{\text{What}}_i$ did you ask [$\underline{\text{who}}_k$ [$\underline{t}_k$ bought $\underline{t}_i$]]
b)???$\underline{\text{Who}}_i$ did you ask [$\underline{\text{what}}_k$ [$\underline{t}_k$ bothered $\underline{t}_i$]]

These examples are clearly worse than those in (17), but perhaps slightly better than those in (18). If their ungrammaticality relative to (17) is due to the fact that the indirect questions in (19) are tensed, and therefore have complete Heads, unlike the indirect questions in (17), then the improved status of (19) relative to (18) is explained by taking VP to be a BC. The derivation in (19) will parallel in all respects the derivation in (17). However, unlike in (17), once what in (19a) for example, has adjoined to the complement S, movement of who into the complement COMP will cross two Barriers, S and S*, since S is a Barrier by virtue of having a complete Head. The relative grammaticality of (19) as compared to (18) is then due to the relative "strength" of Barrierhood that S has. When S is a Barrier because it has a complete Head, it less "strongly" blocks movement than does an S that is a Barrier by virtue of dominating a BC.

The ungrammaticality of (19), under this account, should then be comparable to the ungrammaticality of (20).

20.
a)???$\underline{\text{What}}_i$ did you wonder [$\underline{\text{how}}_j$ [I should [fix $\underline{t}_i$] $\underline{t}_j$]]]
b)??$\underline{\text{Who}}_i$ did you ask [$\underline{\text{why}}_k$ [I should [see $\underline{t}_i$] $\underline{t}_k$]]

This may be correct, although I find relative judgements in these cases

difficult to make. Some examples involving extraction from a tensed indirect question headed by a non argument wh-phrase seem better than those headed by a subject wh-phrase, cf. the examples in 3.2.4.

4.1.2.2 CGC and Freezing Principle effects

We are now in a position to account for the NP/PP disinction with respect to leftward movement by way of the CGC. Consider again the relevant examples.

21.
a)?At which game$_i$ do you consider $[_{S*}[_{S}t_k$ to be good $t_i]_S$ [your favorite grandson from Seattle]$_k]_{S*}$
b)*Which game$_i$ do you consider $[[_{S}t_k$ to be good at $t_i]_S$ [your favorite grandson from Seattle]$_k]_{S*}$

Earlier we conjectured that both (21a) and (21b) were Subjacency violations, but that something special "rescued" (21a). Let's assume instead that both (21a) and (21b) are not Subjacency violations, and that the CGC is responsible for the ungrammaticality of (21b). Notice that the examples in (21) now satisfy Subjacency by virtue of (IV). Consider first the status of S*. S* is a sister to its theta-marker, and is therefore not a BC for the moved phrase. Because S is the Head of S*, it too is theta-governed (cf. 3.4), therefore S* is not a Barrier for the wh-phrase, since it is neither a BC nor dominates a BC. However, S is a Barrier for the moved phrase since it dominates VP which is a BC. Hence, though movement in (21) crosses one segment-Barrier, Subjacency is not violated since all the segments for the category S=(S,S*) are not Barriers for the moved phrase. A parallel situation arises in (22), where adjunction has taken place to VP.

22.
a)?To whom$_i$ did you [[give t_j t_i]$_{VP}$ [all my books on prolepsis]$_j$]$_{VP*}$
b)*Who$_i$ did you [[give t_j to t_i]$_{VP}$ [all my books on prolepsis]$_j$]$_{VP*}$

Hence, movement over a "mixed" category will never "count" as a Barrier for Subjacency.

However, the segment which is a Barrier in a mixed category will count for the CGC, since (IV) is inoperative for the CGC. Therefore, in (21b) and (22b), the wh-phrase is separated from its trace by two segment-Barriers. In (21b), the matrix S and the complement S, are both Barriers by virtue of dominating a VP. In (22b), VP* and the matrix S are both Barriers, again by virtue of dominating VP. As a result, the CGC will block (21b) and (22b), because more than one segment-Barrier intersects an "NP-chain." But the CGC will allow (21a) and (22a), since only one category-Barrier intervenes between the moved PP and its trace: in each case, the matrix S.

The CGC, then, governs leftward movement, as well as rightward movement, though its effects are necessarily limited. It is only in configurations involving adjunction structures that the differences between segments and categories can be seen. Because rightward movement always involves adjunction, the CGC's effects are in constant evidence. But with leftward movement, the CGC is only apparent when the moved phrase is extracted out of a category hosting an adjoined phrase. We examine another environment where the CGC governs leftward movement in 4.3.

4.1.3 Problems

Our account now harbors the following problems. We have divorced the principle which prohibits iterative adjunction from Subjacency. And yet we may not make a blanket prohibition against iterative adjunction, since our account of wh-island "violations" requires that a phrase may move from a position adjoined to S. Why should iterative adjunction be possible in some cases but not in others?

In fact, the problem is more serious. For it appears that iterative adjunction from S is impossible when the phrase is moved rightward. Consider the following example.

23. *I $[[_{VP}$believe $[[_{S}[$a book $\underline{t}_i]_j$ to have appeared $\underline{t}_j]_S\underline{t'}_i]_S$ very strongly$]_{VP}$ [about sea ducks$]_i]_{VP}$*

In (23), the PP about sea ducks has been moved from its host NP and adjoined onto the complement S. Following movement of the host NP a book into subject position, the extraposed PP now adjoins to the higher VP. This results in a clearly ungrammatical sentence; but the CGC is not violated, since between each link in the chain, no more than one category intervenes. It appears, then, that iterative adjunction rightward from S must be blocked. Indeed, iterative adjunction is impossible in all configurations, except for leftward movement from S (and, perhaps, VP). We return to this difficulty directly.

The second problem concerns the formulation of the CGC with respect to the distinction it makes between categories. We saw in the previous chapter that it was incorrect to characterize the difference in rightward

boundedness as holding between NPs and PPs or S-bars. That is, the CGC should not permit PPs and S-bars to move farther from their traces than NPs. We saw that rightward movement of clausal arguments of verbs is restricted in the same way that rightward movement of nominal arguments of verbs or prepositions is. The distinction, then, is not between particular categories, but rather between arguments of verbs and prepositions and arguments or modifiers of nouns. Rightward movement of verbal or prepositional arguments is more severely restricted than rightward movement of nominal arguments (or modifiers).

I propose that a proper characterization of this difference should be made in terms of Case. Only verbs and prepositions assign structural Case to their arguments; nouns lack this property The CGC should be modified to read as:

II. Chain Government Condition (CGC)

In an A-bar chain $\sigma=(\alpha_i, \alpha_{i+1}, \ldots, \alpha_n)$, for all α_j, α_j must c-govern α_{j+1} or α_{j-i}.

α c(hain)-governs β iff α governs β, and
i) no more than one γ dominates α but not β, and
ii) no more than one γ-Barrier dominates β but not α, where
γ=segment, if σ is structurally Case marked
γ=category otherwise.

This version of the CGC predicts that non-structurally Case-marked arguments of verbs should have the freedom that arguments of nouns have. It should be possible to rightward adjoin to S a PP argument of a verb as in (24).

24.
a)??I didn't put the book until it had arrived on my favorite hutch in the study
b)??Gary gave the book naked to my favorite relative in Los Altos

Although better than parallel cases where Focus Movement has adjoined an NP to S (as in (25)), the examples in (24) are decidedly awkward.

25.
a)*I didn't put in the hutch until they arrived my favorite books on Prolepsis
b)*Gary gave to Mary naked my favorite books on Prolepsis

Perhaps PPs do not easily bear focus, resulting in the marginality of (24).

A final problem appears to be posed by (26).

26.*Who did [$_S$ [pictures of t] arrive]

In 3.2.3, we argued that the ungramamticality of (26) is due to Subjacency. But this is no longer true. Because arrive is an unaccusative verb, the subject pictures of who is in a theta-governed position at D-structure. For this reason the following derivation of (26) may occur. First who is adjoined to S, then pictures of t is raised into subject position. Finally, who is moved into COMP. Neither Subjacency nor the Principle of the Cycle are violated. It may be thought that some condition on preposition stranding is responsible for the ungrammaticality of (26). But this would be insufficient, for the same problem exists when the subject is sentential, consider (27).

27.
a)*Who was [$_S$ [Mary seeing t] remembered by Gary]
(compare: Mary seeing John was remembered by Gary)
b)*What did [$_S$ [PRO eating t] bothers John]
(compare: eating anchovies bothers John)

Although these examples do not violate Subjacency, since in each case a derivation like that outlined for (26) is possible, they do violate the CGC. Consider the representation given for (26) under the intended derivation.

28.*Who$_i$ did [$_{S*}$ t'_i [$_S$ [$_{NP}$pictures of t_i]$_j$ arrive t_j]]

Between t' and t in (28) lie two segment Barriers: S and NP. Because (who, t', t) is a structurally Case-marked chain, the link (t', t) violates the CGC, for more than one segment-Barrier intervenes.

Consider next, parallel cases involving wh-movement of a PP, as in (29).

29.
a)?[about which war]$_i$ was [$_{S*}$ t'_i [$_S$ [a book t_i]$_j$ sold t_j]]
b)?[On which topic]$_i$ was [$_{S*}$ t'_i [$_S$ [a lecture t_i]$_j$ given t_j]]
c)?[Of which senator]$_i$ was [$_{S*}$ t'_i [$_S$ [a picture t_i]$_j$ taken t_j]]
d)?[About what person]$_i$ was [$_{S*}$ t'_i [$_S$ [a story t_i]$_j$ recounted t_j]]
e)??[Of which senator]$_i$ did [$_{S*}$ t'_i [$_S$ [a portrait t_i]$_j$ arrive t_j]]
f)??[About what catastophe]$_i$ did [$_{S*}$ t'_i [$_S$ [a book t_i]$_j$ appear t_j in the store]]
g)??[On what topic]$_i$ did [$_{S*}$ t'_i [$_S$ [a lecture t_i]$_j$ interest t_j you]]
h)??[About whom]$_i$ did [$_{S*}$ t'_i [$_S$ [a story t_i]$_j$ amaze t_j you]]
(Wexler and Culicover 1981, 317 (121a))

These examples are a strong improvement on those in (28), as the CGC requires. Because the phrases moved in (29) are not in structurally Case-marked chains, the CGC requires that no more than one category-barrier

intervene between links. But no more than one category-barrier does intervene between (PP, t') or (t', t). Hence the examples in (29) violate neither Subjacency nor the CGC.

Nonetheless, the examples in (29) are not fully grammatical. For some speakers, extraction from the subjects of unaccusative or psi-verbs is fully ungrammatical, and extraction from the subjects of passive predicates yields only a marginal improvement. Recall that pied-piping a prepositional phrase seems regularly to result in slight degradation. Kuno (1973), where the relative grammaticality of examples like those in (29) is first observed,[7] points out that extraction leads quickly to unacceptability as the constituent from which the prepositional phrase is extracted is "internal" to the sentence (see also Postal (1974)). Hence, extracting a PP from an NP that precedes other V internal material gives marginal results.

30.
a)??Of whom$_i$ did [$_S$you [$_{VP}$tell [$_{NP}$a friend t_i] that Mary had arrived]]
b)?*Of whom$_i$ did [$_S$you [$_{VP}$convince [$_{NP}$a friend t_i] that Mary had arrived]]
c)?*About what$_i$ did [$_S$you [$_{VP}$word [$_{NP}$a letter t_i] carefully]]
d)?*Of whom$_i$ did [$_S$you [$_{VP}$persuade [$_{NP}$a friend t_i] [PRO to leave]]]
e)?*Of whom$_i$ did [$_S$you [$_{VP}$give [a picture t_i] to John]]

Indeed, it appears that when the domain of extraction lies to the left of a sister, it is a weak island for extraction of a PP. When the VP internal material that follows the extraction domain does not subcatgorize the verb, and hence need not be a sister to the verb, extraction from that argument

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7. We do not find a contrast between pied piping and non pied-piping in these cases, as does Kuno.

gives less remedial results.

31.
a)?About what$_i$ did [$_S$you [$_{VP}$[$_V$buy [$_{NP}$a book t_i]] for your sister]]
b)?About what$_i$ did [$_S$you [$_{VP}$[$_V$write [$_{NP}$a letter t_i]]
without a word-processor]]
c)?Who$_i$ did [$_S$you [$_{VP}$[$_V$see [$_{NP}$a friend of t_i]]
behind the door]]

Let us adopt the following constraint.[8]

V. The Non-Right Branch Constraint (NRBC)
γ may not dominate α_i and not α_j,
where α_i is a trace bound by α_j, if there
is a ν, ξ such that ν immediately dominates
δ and ξ, and δ precedes ξ.

This constraint appears to be unrelated to either the CGC or Subjacency. That it should be independent is suggested by the fact that it is dialect specific, holding for some speakers but not others, unlike either Subjacency or the CGC. Therefore, the NRBC, for those speakers for whom it is in force, will therefore apply to (29), marking it ungrammatical. This account predicts that just those speakers who find (30) grammatical will find (29) grammatical, and those speakers finding (29) ungrammatical will find (30) ungrammatical as well. This seems to be the case with the very few speakers I have consulted. A more thorough study is required.

The relative grammaticality of (29) contrasts with the complete ungrammaticality of (32).

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8. The NRBC is an obvious sister to Ross's (1967) Left Branch Constraint. It is akin to Kayne's (1984a) g-projection set.

32.
a)*About whom$_i$ did [$_{S*}$ t'$_i$ [$_S$ [$_{NP}$a book t$_i$] drop off the rack]]
b)*Of whom$_i$ did [$_{S*}$ t'$_i$ [$_S$ [$_{NP}$a friend t$_i$] walk into the room]]
c)*About what$_i$ did [$_{S*}$ t'$_i$ [$_S$ [$_{NP}$a novel t$_i$] slide down the hall]]
d)*On what$_i$ did [$_{S*}$ t$_i$ [$_S$ [$_{NP}$a report t$_i$] stand on the shelf]]
e)*Of what$_i$ did [$_{S*}$ t$_i$ [$_S$ [$_{NP}$a proof t$_i$] prove your theorem]]

The contrast is due to Subjacency. In (32), the subject NPs are always in subject position, and therefore never in a theta-governed position. As a result, extraction of a phrase of any category from these NPs violates Subjacency.

The contrast between (29) and (28) provides additional support for that aspect of the CGC which establishes a segment-category distinction for A-bar chains, depending on whether the chain is structurally Case-marked or not. The contrasts between those two sets of examples and those in (32) support the claim that a phrase may move from a position adjoined to S. For only if iterative adjunction from S is possible will a derivation be possible for (29) that doesn't violate Subjacency, the CGC, or the Principle of the Cycle. That the moved phrase adjoins to S in these cases is further substantiated by the ungrammaticality of the examples in (33).

33.
a)*To whom$_i$ was it claimed by Susan that Mary gave a book t$_i$
b)*On what$_i$ was it said that Gary put a vase t$_i$

These examples involve extraction from the sentential subject of a passive predicate. If the derivation illustrated in (29) were available in these cases then their ungrammaticality would be a surprise. But this derivation is not possible when sentential subjects are involved, precisely

because the derivation necessarily involves adjunction to S. Because an S-bar may not remain in subject position (cf. Koster (1978), Stowell (1981)), it must adjoin to S. In (33), it has been extraposed to S. But if the sentential subject has adjoined to S, then nothing else may, for, in general, a phrase may not be adjoined to more than once. For this reason, any phrase moved from a sentential subject must move directly to COMP. Hence either Subjacency or the Principle of the Cycle will be violated.

4.2 Lexical Government

As we have observed above, under the view adopted here, there are two distinct requirements of an A-bar chain; the links in the chain must observe a locality condition, and non pronominal empty categories must have a certain relation to some appropriate governor. We have already witnessed evidence that a locality condition, the CGC, is enforced for all A-bar chains. That there is an independent condition on the relation between a non-pronominal empty category and some governor, is gleaned from the distribution of Focus Movement from subject position. Recall that in 3.3.1 we remarked that subjects could be moved rightward in only two environments: when the subject is contained in a small clause, or in the complement to an Exceptional Case marking predicate. The facts are illustrated in (34).

34.
a) I believe $[[\underline{t}$ to be intelligent$]_S$ [every single one of my relatives]$]_{S*}$
b) I believed $[[\underline{t}$ intelligent$]_S$ [every single one of my relatives]$]_{S*}$
c)*I believe $[[\underline{t}$ is intelligent$]_S$ [every single one of my relatives]$]_{S*}$
d)*I want $[_S$[(for)]$[[\underline{t}$ to be intelligent$]_S$ [every single one of my

relatives]]$_{S*}$]$_{S}$

The CGC is satisfied in all of (34). The property distinguishing (34a,b) from (34c,d) is that the empty categories are governed by a verb only in (34a,b). This, presumably, is required by structural government.

A related phenomenon, where lexical government is in evidence, concerns the asymmetrical boundedness for leftward movement of objects, on the one hand, and subjects and non-arguments, on the other. The greater restrictiveness of extracting subjects and adjuncts is accredited, under more traditional ECP accounts, to the fact that antecedent government is enforced only for phrases of these types. If the CGC replaces the "antecedent government" clause of the ECP, then the difference between extracting objects and non-objects must be due to some other factor. One approach to this asymmetry, originated by Kayne (1984 Ch. 8, see also Jaeggli (1982)), and pursued in a different form in recent work by Luigi Rizzi and Timothy Stowell, employs the idea that the lexical government reqirement on non-pronominal empty categories may be satisfied in one of two ways.

4.2.1 Structurally Case marked empty categories

In this section we attempt to arrive at a definition of lexical government, restricting attention to chains which are structurally Case marked; we shall employ the term "structural government," for reasons that will become clear shortly.[9] The Empty Category Principle will look something like (I).

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9. See Jaeggli (1982) and Kayne (1984a Ch. 8).

I. The Empty Category Principle
A non-pronominal empty category must be s-governed.

We begin with extraction of subjects. S(tructural)-government must distinguish object position and subject position adjacent to an empty COMP, on the one hand, from non argument positions and subject positions adjacent to a filled COMP, on the other; it must capture the "Complementizer-trace" effect (cf. Pesetsky (1982)) With respect to subject position, comparing leftward and rightward movement is especially instructive. Rightward movement from the subject position of a clause containing a COMP is always impossible, whether that COMP is filled or not. But leftward movement is possible just when the adjacent COMP is empty. The asymmetry is due to the ability of leftward movement to move through COMP.

Notice that in the system being developed here, iterative adjunction (leftward) from S is possible. Cyclic application of wh-movement might give rise to a structure like that in (35).

35. Who $[_S$did you say $[_S$that$[_{S*}$ $\underline{t}_t$''$[_S$Mary thought $[_S$that$[_{S*}\underline{t}'$ $[_S$Sam saw $\underline{t}]]]]]]]$

There is no requirement that "long distance" movement arise through iterative movement through COMP. Following Lasnik and Saito (1984), let us adopt a strict version of the Doubly Filled COMP Filter; one that prohibits a COMP-to-COMP derivation of movement when COMP contains an overt complementizer. We adopt (VI).

VI. Doubly Filled COMP Filter (DFCF)

$*[_{COMP}X\ Y]$

With this version of the Doubly Filled COMP Filter we are able to propose a definition of s-government that makes the distinctions outlined above. Consider first a Complementizer-trace violation, illustrated in (36).

36.
a)*Who did you say [$_S$ [$_{COMP}$that] [$_{S*}$ t' [$_S$ t came]]]
b) Who did you say [$_S$ [$_{COMP}$ t'] [$_S$ t came]]]

The difference between (36a) and (36b) that we shall make use of is the position of t'. The ungrammaticality of (36a), we shall hypothesize, is due to the fact that t' is not in COMP. Following a suggestion of Lasnik and Saito's (1984), assume that one requirement of a non-pronominal empty category is that it have a governor which is an X^0. Furthermore, we shall assume that COMP may bear the index of the phrase it contains (cf. Aoun, Hornstein and Sportiche (1981) and Lasnik and Saito (1984)). When t' is in COMP, as in (36b), this requirement is satisfied since COMP, an X^0, receives the index of its contents, t', and governs the subject trace.

Extraction from object position is not affected by the presence or absence of an overt complementizer, we shall hypothesize, because it is governed by a verb and this satisfies the requirement of being governed by an X^0, as cases of Focus Movement from subject position show. We may formulate the ECP in the following fashion.

VII. The Empty Category Principle

For all α_j, α_j a non-pronominal empty category in $\Psi=(\alpha_i, \alpha_{i+1}, \ldots, \alpha_n)$, an A-bar chain:

α_j, α_j in a structurally Case marked position, must be s-governed at s-structure.

α s-governs β iff $\alpha=X^0$ and:
i) α, α a verb, α structurally Case marks β, or
ii) α locally c-governs β

(VII) derives the Complementizer-trace effect in the following manner. In (36a), the subject trace is assigned structural Case, but it is not governed by its Case assigner, AGR, at s-structure. Hence, the trace in subject position fails to meet clause (i) of s-government. It also fails to satisfy clause (ii), because the local c-governer of the subject trace is not an X^0, traces being maximal projections. Therefore, the ECP is violated in (36a). In (36b), however, the local c-governer of the trace in subject position is COMP, and therefore an X^0. The ECP is thereby satisfied.

This account extends to similar cases involving non-finite clauses with overt complementizers at s-structure, as in (37).

37.
a)*Who did you want $[_S[_{COMP}$for$]$ $[_{S*}$t'$]$ $[_S$t to come$]]]$
b) Who did you want $[_S[_{COMP}$t'$]$ $[_S$t to come$]]$

Just as with tensed clauses, only in (37b) will the trace in subject position be s-governed at s-structure.

Rightward movement in these contexts reveals the necessity for specifying

that only verbs may structurally govern.

38.*I wanted [[(for) [t to be intelligent] [every one of my relatives]]

The ungrammaticality of (38) stems from the fact that for, and not want, governs the trace in subject position. A similar conclusion may be reached from (39) (cf. Kayne (1984a Ch.2) and Postal (1974)).

39.
a)??What did you leave Nicaragua [without [Gary seeing t]]
b)* What did you leave Nicaragua [without [t bothering Gary]]

Although (39a) is marginal, because of Subjacency, (39b) is markedly worse. This follows from the ECP; there is no verb assigning structural Case to the subject position in (39b), and therefore (39b) violates both the ECP and Subjacency. The contrast between (39) and (40) illustrates the same conclusion.

40.
a) Who do you remember [PRO visiting t]
b) Who do you remember [t visiting you]

The grammaticality of (40b) stems from the fact that remember assigns structural Case and governs the subject position of the gerund.[10]

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10. This is problematic for an account, like Reuland's (1983), where the subject position of an acc-ing clause is not Case marked from a clause external governor. Kayne (1984a 2.2.1) observes that a contrast parallel to that found in (39) and (40) obtains for rightward movement:

i. I remember [[t telling the stories] [all my aunts in Taos]]
ii.*I'm counting [on [t marrying her] [the man I was telling you about]]
(Kayne 1984 29 (9))

This contrast follows from the ECP.

Consider next the problematic cases for the classical ECP account, discovered by Lasnik and Saito (1984).

41. Who did you say $[_S[_{COMP}$that$]$ $[_{S*}$t''$]$ $[_S$Mary thought $[_{SCOMP}$t'$]$ $[_S$ t had come$]]]]]$

The trace in subject position satisfies the ECP, for it is s-governed by t' in COMP. But what of t' itself? We shall maintain the Lasnik and Saito hypothesis that all non pronominal empty categories must satisfy the ECP, though the phenomenon they based this conclusion on does not, on our assumptions, necessarily support this. This example provides evidence for that clause in (VII) which enforces ECP at S-structure only for empty categories in a Case-marked position. Because t' is not in a structurally Case marked position, it need not be s-governed until LF. We may assume that that-deletion may occur at LF in the environments where it may occur in Syntax.[11] Hence, that-deletion may occur in (41) yielding a representation like (42).

42. Who did you say $[_S[_{COMP}$ $][_{S*}$t''$][_S$Mary thought $[_S[_{COMP}$t'$]$ $[_S$t had come$]]]]]$

Movement is an LF phenomenon, as well as a Syntactic phenomenon, and, following Pesetsky (1982) and Lasnik and Saito (1984), we may assume that movement need not leave a trace where grammatical principles otherwise permit. As a result, the trace adjoined to S in (42) may move into the vacant COMP leaving no trace, (43) results.

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11. This follows from Stowell's (1981) account of complementizer deletion.

43. Who did you say $[_S[_{COMP}t'']][_S$Mary thought $[_S[_{COMP}t']$ $[_S t$ had come]]]]

In (43) each empty category is s-governed, for the local c-governor of each empty category is an X^o. The ECP is obeyed.

(VII) also applies correctly to cases involving extraction from ECM environments, as in (44).

44.
a) Who did you wonder $[_S[_{COMP}$whether] $[_{S*}t'$ $[_S$PRO to believe $[_S t$ to have come]]]]
b) Who did you wonder $[_S[_{COMP}$whether] $[_{S*}t'$ $[_S$PRO to believe $[_{AP}t$ came]]]]

As Pesetsky (1984) observes, these are no worse than parallel cases of extraction from object position of the lowest predicate; the subject/object asymmetry characteristic of ECP phenomena is absent here. The examples in (44) satisfy (VI) since each empty category is s-governed; the lowest trace is s-governed by the Exceptional Case-marker believe, and the highest trace is s-governed by its local c-governor, who.

4.2.2 Non-structurally Case marked empty categories

A central difference with respect to the ECP between empty categories in structurally Case-marked positions and those not, is that only the former require government by a verb. This is straightforwardly demonstrated by the possibility of extraposition from NP.

45. I saw [a man t] yesterday [from England]

But (45) also demonstrates that not all empty categories in

non-structurally Case marked positions need be locally c-governed by an X^0, for nothing c-governs t in (45). We should not wish to permit the moved phrase from England to s-govern its trace, for no apparent explanation for the difference between this situation and cases involving structurally Case-marked traces exists.

We reviewed a case in the previous section that suggested that intermediate traces must be s-governed; and we shall encounter other such cases below. So, we cannot conclude that s-government must hold only of empty categories in structurally Case-marked positions. We shall see that s-government holds of all empty categories in intermediary positions, and of empty categories in non-intermediary positions just when leftward movement has occured. These are contexts in which the empty category in question is c-governed. We shall adopt the following modification to (VII).

VII. The Empty Category Principle (ECP)

For all α in $\sigma=(\alpha_i, \alpha_{i+1}, \ldots, \alpha_n)$, an A-bar chain:

α, α in a structurally Case marked position or c-governed, must be s-governed

α s-governs β iff α is X^0 and:
i) α, α a verb, structurally Case marks β, or
ii) α locally c-governs

As before, we take (VII) to hold of traces in structurally Case-marked positions at S-structure. (VII) holds of all non-structurally Case marked traces at LF and PF. The ECP must hold at PF if cases of stylistic movement, i.e. extraposition from NP, are to be correctly constrained. Hence we follow Jaeggli (1982) in this respect.

We begin with an examination of (VII)'s effects in cases of leftward movement. Howard Lasnik makes the following observation; extraction of PPs out of indirect questions yields very marginal results.

46.
a)?*About whom did you wonder whether to talk t
b)?*To whom did you ask whether to give a book t
c)?*On what did you wonder whether to put the lamp t
d)?*To whom did you find out whether to talk t

These examples are markedly worse than extraction of structurally Case-marked phrases.

47.
a) Who did you wonder whether to talk to t
b) Who did you ask whether to give a book to t
c) What did you wonder whether to put the lamp on t
d) Who did you find out whether to talk to t

We have noted, throughout, that Pied-piping is marginal for most speakers; and yet the ungrammaticality of (46) contrasts sharply with instances of PP extraction from non-indirect questions.

48.
a)?To whom did you say to talk t
b)??To whom did you say I should give a book t
c)??On what did you believe that I had put a lamp t
d)?To whom did you claim to have talked t

A companion fact is that extraction of PPs from Complex Noun Phrases results in ungrammaticality, consider (49).

49.
a)*To whom did you hear [a rumor [that Mary had talked t]]
b)*To whom did you make [the claim [that Gary gave a book t]]
c)*On what do you believe [the statement [that Mary put a lamp]]
d)*To whom did you forget [a suggestion [that I had talked t]]

Although extraction from complex noun phrases constitutes a Subjacency

violation, there is a dramatic difference in grammaticality when structurally Case-marked phrases are extracted. Compare (50) with (49).[12]

50.
a)??Who did you hear [a rumor [that Mary had talked to t]]
b)??Who did you make [the claim [that Gary gave a book to t]]
c)??What do you believe [the statement [that Mary put a lamp on t]]
d)??Who did you forget [a suggestion [that I had talked to t]]

These contrasts follow from (VII). Consider the representation our assumptions give to (51.

51. About whom did [you wonder $[_S[_{COMP}$whether$][_S$t' $[_S$PRO to talk t]]]]

In (51), t' satisfies the ECP, for it is c-governed and locally c-governed by an X^0, the matrix COMP. However, t is not s-governed, in violation of the ECP, for it is c-governed, but its local c-governor, t', is not an X^0. The contrast between (47a) and (49a) obtains because (49a) may have the representation in (52) at LF.

52. To whom$_i$ did [you say $[_S[_{COMP}$t'$_i]_i$ $[_S$PRO to talk t]]]

Similarly, after that-deletion, (50c) may have the LF representation in (53).

53. On what$_i$ did [you believe $[_S[_{COMP}$t'$_i]_i$ $[_S$I had put a lamp t_i]]]

The ECP is satisfied in both (53) and (52) because the local c-governor of

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12. The contrast seems to be sharper in relative clauses, for reasons that I do not understand: "*the guy to whom I heard a rumor that Mary had talked," compared to "??the gal who I heard a rumor that Mary had talked to."

each trace is an X^0. The marginality of (53) and (52) should be accredited to the difficulty that Pied-piping presents for most speakers.

Similarly, the contrasts involving complex noun phrases follows from (VII). Because that may not delete when it Heads the complement to a noun (cf. (54)), the LF representation of (49a), for example, must be as in (55).

54.*I heard [a rumor [[$_{COMP}$] [Mary left]]]
55. To whom$_i$ did [you hear [a rumor [that [$_{S*}$ t'$_i$ [$_S$Mary had talked t]]]]]

In (55), t is not s-governed, in violation of the ECP, because its local c-governor is not X^0.

Because we assume that that-deletion is available in LF only in those contexts where it is available in Syntax, (VII) predicts in extraction of PPs and NPs from clauses where that may not delete. We encountered one such situation in 3.4.1, where extraposed clauses and clausal complements to persuade-type verbs were considered. In these situations, that-deletion is impossible, cf. (56).

56.
a)*It was obvious to Gary [[$_{COMP}$ [Mary likes Bill]]
b)*It was clear [[$_{COMP}$] [Mary likes Bill]]
c)*I suggested to Gary [[$_{COMP}$] [Mary likes Bill]]
d)*I explained to Mary [[$_{COMP}$] [Gary likes Bill]]
e)*I convinced Gary [[$_{COMP}$] [Mary likes Bill]]
f)*I persuaded Mary [[$_{COMP}$] [Gary likes Bill]]

And, as (VII) predicts, extraction of PPs from these clauses is worse than extraction of NPs.

57.
a)*To whom was it obvious to Gary [that Mary gave a book t]
b)*To whom did you suggest to Mary [that Gary gave a book t]
c)*On what did you persuade Gary [that Mary put a book t]

58.
a) Who was it obvious to Gary [that Mary gave a book to t]
b) Who did you suggest to Mary [that Gary gave a book t]
c) What did you persuade Gary [that Mary put a book t]

Finally, (VII) provides a solution to two problems discovered earlier. The first is the contrast in "violations" of the wh-island Constraint in Italian observed by Rizzi (see 3.2.4). Consider the examples in (59).

59.
a)*La macchina che mi domando se Mario creda che potra utilizzare nel week end e la mia
(The car that I wonder whether Mario believes that he will be allowed to use during the week end is mine)

b) Il solo incarico che non saperi a chi avrebbero affidato e poi finito proprio a te
(The only charge that you didn't know to whom they would entrust has been entrusted directly to you)
(Rizzi 56 (19b), 50 (6b))

The grammaticality of (59b) is expected under our account, but the ungrammaticality of (59a) is mysterious. Consider the representation that (59a) has.

60. La macchina $[_S[_{COMP}che_i]$ $[_S$pro mi domando $[_S[_{COMP}$ se$]$ $[_{S*}t''_i$ $[_S$Mario creda $[_S[_{COMP}$che$]$ $[_{S*}t'[_S$pro potra utilizzare t_i nel week end$]]]]]$ e la mia

The intermediary trace, t', in (60) must be s-governed at LF. But because se may not delete, t'' is unable to occupy COMP at LF, and t' will not be locally c-governed by an X^0. The ungrammaticality of (60), then, is due to the ECP; it is not due to an asymmetrical application of Subjacency, as it

might first appear. Notice that this theory precludes the deletion of traces in these environments. If t' deletes in (60), a violation of the CGC results.

A second problem (VII) addresses concerns iterative adjunction. We have observed that iterative adjunction rightwards is always blocked, even when it appears to be possible for movement leftwards. Consider, for instance, the derivation in (61), discussed above and illustrated below.

61. *I $[[_{VP}$believe $[[_{S}[_{NP}$a book $t_i]_j$ to have appeared $t_j]_S$ $t'_i]_{S*}$ very strongly$]_{VP}$ [about sea ducks$]_i]_{VP*}$

In (61), the extraposed PP about sea ducks has adjoined first to S and then onto the matrix VP. Both Subjacency and the CGC are obeyed, and yet (61) is ungrammatical. The ungrammaticality of (61) can now be traced to the ECP. The trace adjoined to S, t', is neither governed by a structural Case assigner, nor locally c-governed by an X^0. Hence, t' is not s-governed, and the ECP is violated. The last two cases, then, show that intermediary traces are subject to the ECP.

The central distinction drawn by (VII) is between PPs and structurally Case-marked phrases, typically NPs. In previous work, the ECP makes a major division between argument and non argument phrases (cf., for example, Huang (1982) and Lasnik and Saito (1984)). The difference in grammaticality between (62a) and (62b) has been accredited to the fact that t in (62a), but not in (62b), is in a theta-marked position.

62.
a) Who did you wonder [whether to visit t]
b)*Why did you wonder [whether to visit me t]

Under the present account, there should be no difference in extraction of a non-structurally Case-marked phrase between non-argument and an argument. This seems to be largely true.

63.
a)?*To whom did you wonder [whether you should give a book t]
  ?*For what reason did you wonder [whether you should give him a book]]
b)?*On what did you ask [whether you should put the varnish t]
  ?*In what way did you ask [whether you should put it on the table t]
c)?*To whom did you make [the claim [that Mary should give it t]]
  ?*For what reason did you make [the claim [that Mary should give it to her]]]

It does appear that extraction of non-argument pronouns gives worse results; I find a contrast between (63) and (64).

64.
a)*Why did you wonder [whether you should give it to him t]
b)*How did you ask [whether you should varnish the table t]
c)*Why did you make [the claim [that Mary should come t]]

I do not know why the examples in (64) should be worse than those in (63), but it does not threaten the hypothesis that the distinction should be between structurally Case-marked phrases and non-structurally Case-marked phrases.

There is one difference between arguments and non-arguments among non-structurally Case-marked phrases. Extraction of PPs from NPs appears to vary with argumenthood. Consider the contrasts in (65).

65.
a)?Of whom did you see [a picture t]
b)??About what did you buy [a book t]
c)?Of whom did you visit [a friend t]

d)*In what style did you see [a picture t]
e)*Under what did you buy [a book t]
f)*From what country did you visit [a friend t]

I do not see how this contrast can be explained.

4.3 Parasitic Gaps

We turn now to the syntax of parasitic gaps, where again the CGC plays a role. We shall consider parasitic gap constructions of, broadly speaking, two types structures exemplified in (66a), where the parasitic gap lies within an adverbial clause, and cases where the parasitic gap rests within an argument of the verb, as in (66b,c).

66.
a) What did you file t [before reading e]
b) Who did you give [a picture of t to t]
c) Who did [a picture of e] bother t

We follow the convention of representing the parasitic gap with an "e," and the trace left by movement of the overt wh-phrase with a "t." The parasitic gap is that gap which cannot stand alone (cf. Ross 1967 p. 191 ff, Taraldsen (1981) and Engdahl (1983)); consider (67).

67.
a)??What did you file it [without reading e]
b)*Who did [pictures of t] bother him

Note that in (66b), either gap can be the parasitic one, since either one

may stand alone:[13]

68.
a)?Who did you give [pictures of t] to him
b) Who did you give [pictures of him] to t

Hence in (66b), we have used a "t" to denote both gaps.

The reason for the inability of the parasitic gap to stand alone in (67a) is due to Subjacency (cf. Chomsky (1982)). In order to see this, a digression is required.

In 3.4.2 we claimed that preposition stranding is permitted only from prepositional phrases that are theta-marked, and hence theta-governed, by a governor, in accordance with Subjacency. There is one uniform exception to this influence of the governing verb on preposition stranding. This is the case of "clausal" prepositions. although, despite, because, absolutive with, without, and the temporal prepositions after, before, until, while, etc. These prepositions may never be stranded.

69.
a)*What did you sleep [$_{PP}$although t]
b)*What did you eat [$_{PP}$after t]
c)*What did you stand [$_{PP}$without t]
d)*What did you sing [$_{PP}$while t]
e)*What did you jog [$_{PP}$before t]
f)*What did you sit [$_{PP}$because t]
g)*What did you walk [$_{PP}$until t]

One solution to this fact might entail stipulating that, perhaps for semantic reasons, prepositions of this class simply cannot be

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13. The marginality of (67a) must be due to the NRBC.

theta-marked.

We shall pursue a different approach. Concentrating on the essentially "clausal" property of these prepositions, let us hypothesize that they are obligatorily Headed by a COMP. [14] The structure of (68a) is (70).

70. What $[_S$did you sleep $[_{CP}[_{COMP}\underline{t}']$ $[_P$although $\underline{t}]]]$

The derivation shown in (70) violates Subjacency, since movement from the COMP of although into the matrix COMP crosses two Barriers: CP and S. The derivation in (71) is blocked, since the complement to the CP may not become Head;[15] instead the preposition must.

Evidence for this analysis of clausal PPs is given by the impossibility of Extraposition from the complements to these prepositions; consider (71).

71.
a)*I left [after [a man $\underline{t}_i$]] yesterday [from England]$_i$
b)*I ran [without [a picture $\underline{t}_i$]] yesterday [of dad]$_i$
c)*I arrived [before [a child $\underline{t}_i$]] yesterday [with brown eyes]$_i$

In 4.1, it was argued that Extraposition from the complements to prepositions was possible by virtue of a rule which allows that complement

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14. Perhaps instead of COMP, we should require that these prepositions have an obligatory SPEC position and permit wh-movement through SPEC, as in Van Riemsdijk (1978). This would permit a more straightforward unification of the ungrammaticality of (70) and (71) below; stranding across a filled SPEC is prohibited. It would also suggest that COMP be replaced by SPEC thoughout, as in Chomsky (1985).

15. We must understand the Head rule to be non-iterative

to become Head. But this rule is blocked, accounting for the ungrammaticality of (71).

Returning to the status of parasitic gaps, consider the required derivation of (62) under these assumptions.

72. What did $[_S$you $[_{VP}$file it $[_{PP}[_{COMP}t'']$ $[_P$without $[_{S*}t'[_S$PRO $[_{VP}$reading $t]]]]]]]$

Neither movement from the object position of reading onto the immediately dominating S, nor adjunction from this position onto PP violates Subjacency. In neither case is more than one Barrier crossed. However, as in (69), movement from the COMP of without into the matrix COMP will invoke a Subjacency violation, since PP and S, both Barriers for t'', intervene.

The inability of the parasitic gap to stand alone in (63c) is due to the CGC, as we have seen in the previous section. Subjacency is not violated in this instance, because the NP hosting the parasitic gap has been moved from a VP internal position.

One property of parasitic gaps in adverbials noted by Kayne (1984a Ch. 8) and Chomsky (1982, 1985) is that a bounding constraint determines the "distance" that the parasitic gap may lie within the adverbial. Consider the following examples.[16]

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16. Note that (73c), in particular, appears to pose a problem for the Connectedness account of the distribution of parasitic gaps (cf. Kayne (1984a Ch. 8)).

73.
a)*What did you file t [before [PRO wondering who read e]]
b)??What did you read t [after [PRO hearing [those rumors [that Bill wrote e]]]]
c)*What did you file t [after [PRO seeing [the woman [who wrote e]]]]
d)*What did you file t [without [[pictures of e having been taken]]
e)*What did you file t [before [PRO leaving [without [PRO reading e]]]]

Chomsky (1985) suggests that these facts may be captured by hypothesizing that parasitic gaps are merely traces left by movement of a null wh-phrase. If some principle requires that this null wh-phrase move to the Head of the adverbial, then the ungrammaticality of the examples in (73) is due to Subjacency or the CGC. In (73a), a violation of the wh-island Constraint obtains; in (73b,c), a violation of the Complex Noun Phrase Constraint arises; and in (73e) the null wh-phrase has been moved out of a non-theta-governed adverbial. In each of these situations, Subjacency is violated. In (73d), the null wh-phrase has been moved from a subject, in violation of the CGC.

There is additional evidence that parasitic gaps involve movement of a phonetically null wh-phrase. We have seen that wh-phrases may only be in COMP at S-structure. Again assuming that some principle requires that the null wh-phrase in these constructions moves to the Head of the adverbial phrase, the difference in grammaticality of (74a) and (74b) is accounted for.

74.
a) Who did you recognize t [without [a description of e]]
   Who did you talk to t [before [PRO recognizing e]]
   What did you read t [despite [a poor review of e]]

b)*Who did you visit t [for [a friend of e]]
  *What did you hammer e [with [a bust of e]]
  *Who did you talk to e [about [a friend of e]]
  *Who did you discuss t [with [a friend of e]]
  *What did you see t [beside [a statue of e]]

Only prepositions that are of the clausal class contain a COMP position, we have assumed, hence only in (74a) will the null wh-phrase have a position to which to move. In (74b), the null wh-phrase may not adjoin to the PP, for this is prohibited of PPs that have complements; and movement of the null wh-phrase into the matrix COMP violates Subjacency.[17] In this way, the fact that it is just those PPs which never permit stranding that are able to host parasitic gaps in their complements is captured by positing that these prepositions necessarily cooccur with a COMP position. But this account relies on the assumption that parasitic gaps involve the movement of a null wh-phrase.

As we have remarked, this account of parasitic gaps relies crucially on the assumption that the null wh-phrase moves to the COMP position of the adverbial PP. A variety of proposals have been made for enforcing this movement. We shall pursue an account making use of the CGC.

4.3.1 Licensing parasitic chains

The approach we take employs the leading idea that an A-bar chain headed by a null wh-phrase must be "connected" to an A-bar chain headed by an overt wh-phrase. In the standard case, the null wh-phrase must be in a certain relation to some member of the "licensing" A-bar chain. We shall argue that the CGC is the relevant relation.

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17. An anti-c-command requirement (see Chomsky (1982, 1985) cannot account for the contrast in (74), for the PPs are in the same structural relationship to the licensing trace; they are both in VP, as VP-Preposing tests confirm. Another promising solution to this contrast can be found in accounts of parasitic gap constructions making use of the Across-the-Board phenomena. See, in particular, Haik (1985).

This is not the only method by which an A-bar chain headed by a null wh-phrase may be licensed, however. If "object deletion" constructions (cf. Lasnik and Fiengo (1974)) and relative clauses with no overt relative pronoun involve movement of an empty wh-phrase (cf. Chomsky (1977)), then these constructions must license the null A-bar chain in some other way. We shall make the assumption that in these cases, the null A-bar chain may be licensed through predication, where predication holds between terms for which mutual c-command holds (cf. Williams (1980), and Rothstein (1983)). So in (75), for example, the null wh-phrase (symbolized with Op) is licensed by virtue of being connected to the argument Gary by way of predication holding between AP and Gary.

75.
a) Gary is $[_{AP}[_{COMP}Op]$ too stubborn [PRO to like e]]
b) Gary is $[_{AP}[_{COMP}Op]$ easy [PRO to like e]]

This method of licensing an A-bar chain is not available in parasitic gap constructions, as (76) demonstrates.

76.*I liked Gary $[_{PP}[_{COMP}Op]$ after [PRO talking to e]]

What distinguishes these two cases remains mysterious.[18] I will simply set this problem aside.

A-bar chains containing a parasitic gap, what we may call "parasitic

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18. One possible solution might employ distinguishing movement of a null wh-phrase in the case of parasitic gaps and movement of PRO in all other cases. The difference between (76) and (75) could then be accredited to alleged government possibilities into the COMP of clausal PPs and tough constructions, relative clauses, and the like. See Levin (1984) for a theory that could be extended along these lines.

chains," are not licensed through predication. Instead, they are licensed by virtue of forming a chain with the chain already formed through movement of the overt wh-phrase. This "chain construction," to borrow Chomsky's (1985) term, is effected by the CGC. Parasitic gaps, on this view, arise as a result of the CGC; where other principles permit, the CGC acts to rescue a parasitic chain by forming one chain from that chain and a licensing chain.

First we defend the claim that the CGC is relevant for licensing parasitic chains, and then turn to a description of the forces at work allowing parasitic chains. Consider the contrasts, noted by Chomsky (1982, 1985), in (77).[19]

77.
a)*these are the articles [$\underline{\text{that}}_i$ $\underline{\text{you}}_j$ knew [$_S\underline{t'}_i$ [$_S$Bill wrote $\underline{t}_i$]]
[$_{PP}$[$_{COMP}\underline{Op}_k$ [$_{PP}$ even without [$_S\underline{PRO}_j$ analyzing $\underline{e}_k$]]]]

*$\underline{\text{What}}_i$ did $\underline{\text{he}}_k$ say [$_S\underline{t'}_i$ [$_S$Mary filed $\underline{t}_i$]] [$_{PP}$[$_{COMP}\underline{Op}_j$
[$_{PP}$ after [$_S\underline{PRO}_k$ reading $\underline{e}_j$]]]

b) these are the articles [$\underline{\text{that}}_i$ you knew [$_S\underline{t'}_i$ [$_S\underline{\text{Bill}}_j$ wrote $\underline{t}_i$
[$_{PP}$[$_{COMP}\underline{Op}_k$ [$_{PP}$without [$_S\underline{PRO}_j$ analyzing $\underline{e}_k$]]]

$\underline{\text{What}}_i$ did he say [$_S\underline{t'}_i$ [$_S\underline{\text{Mary}}_k$ filed $\underline{t}_i$ [$_{PP}$[$_{COMP}\underline{Op}_j$
[$_{PP}$ after [$_S\underline{PRO}_k$ reading $\underline{e}_j$]]]]]
(cf. Chomsky 1982 52 (70c))

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19. As Chomsky (1982 53) notes, the following is less acceptable than (77a): "these are the articles that you knew [t were written by Bill] even without [PRO analyzing e]." In (77a), the licensing trace is marked with Accusative Case, whereas in this example, the licensing trace is marked with Nominative Case. If, as I shall argue, chain construction involves Case-sharing, then this example will involve a "Case clash" violation as well, as Chomsky suggests.

Chomsky observes that when the PRO subject of the adverbial hosting a parasitic gap is controlled by the higher subject in (77), the result is ungrammatical. This appears to be due to the position of the adverbial within the phrase marker, as is indicated in (77) and as (78) demonstrates.

78.
a)*What did you say [$_S$t' [$_S$Mary will buy t] [$_{PP}$Op only after [you had seen e]]
b) What did you say [$_S$Mary$_k$ will buy t [$_{PP}$Op only after [she$_k$ sees e]]]

When the after-clause is construed with the matrix clause, as is the normal interpretation of (78a), it may not host a parasitic chain. But when the after-clause is construed with the complement clause, as in (78b), it may host a parasitic gap. The proper descriptive statement of the condition evidenced by these examples is (VIII), as (79) shows.[20]

79.
a)*Who$_i$ did you convince t$_i$ [$_S$that Mary$_k$ left [$_{PP}$Op$_j$ after [PRO$_k$ talking to e$_j$]]]
b) Who$_i$ did you$_k$ convince t$_i$ [$_S$PRO$_i$ to leave] [$_{PP}$Op$_j$ after [PRO$_k$ talking to e$_j$]]

VIII. The parasitic chain and the tail of the licensing chain must be clause-mates.

The examples in (79) show that it is the position of the lowest member of the licensing chain that determines the position of the adverbial which houses the parasitic chain.

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20. See Aoun and Clark (1984) and Haik (1985) for a different interpretation of the facts.

We have taken the CGC as a well-formedness condition on A-bar chains. Let us take the parasitic gap phenomenon to arise when two A-bar chains are in such a configuration that their union meets the CGC. That is, let us take chain construction to be an operation that arises by virtue of the CGC. Doing so comes close to explaining (VIII). It only comes close for we must stipulate that t', the trace in COMP in (78a), not be able to license a parasitic chain. With this stipulation in mind, we may formulate the following licensing condition for parasitic gaps.

IX. Let $\sigma=(\alpha_1,\ldots,\alpha_n)$ and $\delta=(\beta_1,\ldots,\beta_m)$ be A-bar chains, where α_1 is phonetically overt and β_1 phonetically null. If for some α,β, where α is Case-marked, c-government holds, then $\gamma=(\alpha_1,\ldots,\alpha_n,\beta_1,\ldots,\beta_m)$ is a well-formed chain.

(IX) operates in the following way. Consider (78), repeated here as (80).

80.
a)*What did you say [$_S$t' [$_S$Mary will buy t] [$_{PP}$Op only after [you had seen e]]
b) What did you say [$_S$Mary$_k$ will buy t [$_{PP}$Op only after [she$_k$ sees e]]]

For independent reasons, in (IX) must be the null wh-phrase. Hence, the ungrammaticality of (80a) is due to the fact that c-government does not hold of t, Op. Only t is relevant for (IX) since it is the only member of (what, t', t) that is Case-marked. It is this stipulation, that the licensing trace be Case-marked that prevents traces in COMP from licensing parasitic chains. The grammaticality of (80b), on the other hand, results from the fact that t c-governs Op, for t precedes Op and only one Barrier, namely PP, dominates Op but not t. Similarly, in (79a), two Barriers, PP and VP, dominate Op but not t, in violation of (IX); whereas only one

Barrier, PP, dominates Op but not t in (79b).

(VIII) and (IX) diverge in the case, discovered by Pino Longobardi exemplified by (81).

81. ??the guy [$\underline{\text{who}}_i$ [$_{S*}$[$_{PP}$COMP$\underline{\text{Op}}_k$] whenever [I meet $\underline{e}_k$]] [$_S\underline{t}_i$ looks old]]]]
(compare:"*the guy who whenever I meet he looks old")

In (81), (IX) is satisfied, for c-government holds between Op and t, taking now Op as the governor; Op is dominated by exactly one segment that does not dominate t, namely PP, and exactly one Barrier, namely S, dominates t but not Op. In completely parallel fashion is the relative acceptability of "??the gal who [Op whenever I talk to e] I admire t" derived.[21]

(IX) predicts that pre-verbal adverbials hosting parasitic chains must be within the same clause as the Case-marked member of the licensing chain. The example in (82), then, should be worse than (81).

82.
a)?*a guy [who [$_{S*}$[$_{PP}$Op only when I talk to e] [$_S$I say
[$_S$t' [$_S$I like t]]]]]
b)*a guy [who [$_{S*}$[$_{PP}$Op only when I talk to e] [$_S$I say
[$_S$t' [$_S$I like him]]]]]

I do not find a significant difference between (82a) and (82b), although a slight one does exist. Perhaps some parallelism constraint is responsible

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21. A similar case is discussed by Chomsky (1985 47 125): "these are the articles that you knew [Op without analyzing e] [t were written by Bill]," which, under the assumption that only Chomsky-adjunction to maximal projections is allowed, must have the following structure: "these are the articles that you knew [$_S$t' [$_{S*}$[$_{PP}$Op without [PRO analyzing e]] [$_S$ t were written by Bill]]]."

for the contrast between (82a) and (82b); this is suggested by the ungrammaticality, comparable to (82b) of: "*a guy who [only when I talk to him] I say I like t." Nevertheless, I believe a difference exists between the contrast in (82), and the much more severe disparity shown in (81). Other cases which lend support to (X) are:

83.
a) Who did you [$_{VP}$believe [$_{S}$t to be intelligent] [$_{PP}$[$_{COMP}$Op] after [PRO talking to e]]]
b) Who did you [$_{VP}$believe [$_{AP}$t intelligent] [$_{PP}$[$_{COMP}$Op] after [talking to e]]]

84.
a)??Who did you decide [$_{S*}$[$_{PP}$[$_{COMP}$Op after [talking to e]] [$_{S}$PRO to believe [t to be intelligent]]
b)??Who did you decide [$_{S*}$[$_{PP}$[$_{COMP}$Op after [talking to e]] [$_{S}$PRO to believe [$_{AP}$t intelligent]]

In (83), t is in a Case-marked position and c-governs Op, since only one segment, S, dominates t but not Op, and just one Barrier dominates Op and not t; hence (X) is satisfied. Similarly, in (84), Op c-governs the Case-marked t; just one segment dominates Op and not t, and no Barriers dominate t and not Op. The marginality of (84) must be due to the movement of Who over an adjunction site.

A case problematic for (X) is given by Andrew Barss (cf. Chomsky (1985 46 (123))). Consider (85).

85. which papers did John decide [PRO to tell his secretary [$_{S}$[$_{COMP}$t'] [$_{S}$t were unavailable]] [$_{PP}$Op before [reading e]]]

In (85), it appears that t' is licensing the parasitic chain, for that is the only member of (which papers, t', t) that c-governs Op. Perhaps the

COMP that t' is contained in is Case-marked by tell. Stowell (1981) suggests that tell is able to assign structural Case directly to its second argument, as "I told Gary a story" shows. If the clausal argument of tell in (85) may remain in its D-structure position (in violation of Stowell's Case Resistance Principle), then presumably the COMP of "were unavailable" will receive Case from tell.[22]

Although (X) may arguably be responsible for licensing parasitic chains in the constructions we have just reviewed, it clearly does not account for all cases where parasitic chains are allowed. Consider, for example, (86a,b).

86.
a) Who did you give [a picture of t] to t
b) Who do [pictures of e] bother t

The primary puzzle that the examples in (86) present concerns the location of the null wh-phrase. If wh-phrases may only lie in COMP at S-structure, then the only place that the null wh-phrase may be in (86) is the matrix COMP. But this conclusion is problematic in two respects. First, it violates the Doubly Filled COMP Filter, for it requires that the phonetically null and phonetically overt wh-phrase both occupy the same COMP. And, second, movement of the null wh-phrase in (86b) would presumably violate the CGC.

Consider first the putative violation of the Doubly Filled COMP Filter in (86). There is independent cause for believing that the DFCF may be

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22. See Massam (1985) for a version of the Case Resistance Principle where this possibility is allowed.

circumvented in circumstances akin to (86). Consider (87).

87. That's the guy $[_S[_{COMP}$that$]$ $[_S$<u>t</u> likes chocolate$]]$

Assuming that (87) involves movement of an null wh-phrase, some specific rule must rescue (87) from both a DFCF violation and a Complementizer-trace violation. Following essentially Pesetsky (1981), let us assume that there is a rule which allows a null wh-phrase to give its index to an overt phrase when that overt phrase shares the same COMP with the null phrase. The rule must operate at S-structure, if (87) is not to violate the ECP. We shall adopt (XI).

XI. $[_{COMP}\ X_i\ Y_j] \longrightarrow [_{COMP}Y_{\{i,j\}}]$,
where X is phonetically null and Y phonetically overt

(XI) provides the other method by which parasitic chains may be licensed. Consider the derivation of (86a); suppose that the D-structure representation of (86a) is (88i).

88.
i) $[_{COMP}\ ]$ $[_S$you gave [a picture of <u>Op</u>$_i$] to <u>who</u>$_j$$]]$
ii) $[_{COMP}$<u>who</u>$_j]$ $[_S$you gave [a picture of <u>Op</u>$_i$ to <u>t</u>$_j$
iii) $[_{COMP}$<u>Op</u>$_i$ <u>who</u>$_j]$ $[_S$you gave [a picture of <u>e</u>$_i$] to <u>t</u>$_j$
iv) $[_{COMP}$<u>who</u>$_{\{i,j\}}]_{\{i,j\}}$ $[_S$you gave [a picture of <u>e</u>$_i$] to <u>t</u>$_j$

After <u>who</u> and <u>Op</u> have both moved into COMP, (XI) may apply yielding (88iv). We shall assume that (88iv) is well-formed.[23]

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23. Unless the Bijection Principle (cf. Koopman and Sportiche (1982) is phrased in terms of indices rather than Operator-variable pairs, (88iv) will violate the Bijection Principle.

The problematic (86b) remains unaccounted for. The assumptions we have so far held lead us to posit (89) as the S-structure representation of (86b).

89. $[_{COMP}\underline{Who}_{\{i,j\}}]_{\{i,j\}}\ [_{S*}\underline{e}'_j\ [_S$do [pictures of $\underline{e}_j$] bother $\underline{t}_i]$

In the following section we argue that (89) is the correct representation of (86b), and modify the CGC appropriately.

4.3.2 Parasitic gaps in simple subjects

If (86b) arises by virtue of the null wh-phrase moving into a COMP with the overt wh-phrase, then Subjacency effects should be in evidence for movement of the null wh-phrase. This appears to be the case.

Subjacency prevents movement out of a D-structure subject, for only derived subjects are in a theta-governed position at some point in the derivation. The derivation for (86b), for example, would proceed in the following way. On the first cycle the null wh-phrase adjoins to S, followed by movement of the NP "pictures of $\underline{e}$" into subject position. On the second cycle, the overt wh-phrase moves into COMP, followed by movement of the adjoined null wh-phrase into COMP. Finally (XI) produces (89). (89), as we have observed above, violates the CGC, but it does not violate Subjacency.

As Subjacency demands, under the hypothesis that the null wh-phrase moves into COMP in (86b), parasitic gaps are, with overwhelming frequency, only available in derived subjects. Consider the contrast between (90a) and

(90b).[24]

90.
a) Who do [pictures of e] bother t
   Who do [friends of e] rarely annoy t
   Who were [pictures of e] given to t
   Who were [photographs of e] shown to t

b) ??Who do [friends of e] never slap t
   ??Who did [pictures of e] fall on t
   ??Who did [friends of e] see t
   ??Who do [friends of e] frequently visit t
   ??What do [proofs of e] obscure t
   ??Who do [friends of e] try [PRO to see t]
   ??Who do [friends of e] usually want [t to win]
   ?*Who do [friends of e] claim that Mary saw t
   ?*Who do [friends of e] believe [t should stay]
   ?*Who do [friends of e] deny [PRO talking to t]
   ?*Who do [friends of e] remember [t talking]
   ?*Who were [friends of e] believed [to have kissed t]
   ?*Who did [friends of e] seem [to have entertained t]

The grammaticality of the examples in (90b) seems to vary for reasons that I do not understand; but, in general, they are markedly less acceptable than the examples in (90a). The contrast can be accredited to Subjacency, if, as we have hypthosized, the null wh-phrase which produces the parasitic gap must move into the COMP housing the overt wh-phrase.[25]

Reconsider the case of parasitic gaps contained within the subjects of psi-verbs, as in (91).

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24. Kayne (1984a Ch. 8) provides two counterexamples to this claim (I change his examples to direct questions, to make them parallel with (90), see 4.3.3): "Who do friends of usually end up liking," and "Who do close friends of admire." I find the first to pattern with (90a), and the second to pattern with (90b), though I am uncertain of my judgements.

25. The contrast between "?*Who do friends of e never slap t" and "*Who do friends of t never slap him" is due to the fact that a CGC violation results in greater ungrammaticality than a Subjacency violation. By this account, the contrast in the preceding two sentences is parallel to the contrast between "??Who did you leave town without seeing t" and "*Who did friends of t leave town."

91.
a) Who do [pictures of e] amuse t
b) Who do [friends of e] rarely annoy t

If the relationship between the parasitic gap and the matrix COMP is governed by Subjacency, then these examples should only permit an interpretation where the subject bears a THEME theta-role. Only when the subject of a psi-predicate bears THEME, that is, when the psi-predicate receives a psych interpretation, is that subject moved from a theta-governed position. When the subject of a psi-predicate bears an AGENT theta-role, it is generated at D-structure in subject position (cf. Chapter 2). One method for inducing the agentive reading of a psi-verb is to make it eventive, which can be done by giving the location of the event with a locative PP. By so doing, the availability of a parasitic gap within the subject is degraded, as (92) demonstrates.

92.
a)??Who were [friends of e] amusing t at the party
b)?*Which cowboys did [enemies of e] surprise t at the pass
c)?*Which bookshelf did [an admirer of e] upset t
d)??Which pig did [an owner of e] bother t into the pen

This provides additional support for the hypothesis that a null wh-phrase moves from the position of the parasitic gap into the matrix COMP.

Evidence of a different sort is provided by (93).

93.
a)*Who were [$_{NP}$pictures [$_{PP}$near e]] given to t
b)?*Who did [$_{NP}$badges [$_{PP}$on e]] bother t
c)*Who were [$_{NP}$books [$_{PP}$beside e]] shown to t
d)*What were [$_{NP}$soldiers [$_{PP}$from e]] sent to t
e)?*Who do [$_{NP}$hornets [$_{PP}$around e]] annoy t

In 3.2, we observed that extraction from non-argument PPs within noun phrases yields a Subjacency violation. Because these PPs are not theta-governed by the noun Heading the noun phrase, they are BCs and Barriers; since the PP is a BC the dominating NP is a Barrier as well. Hence, movement of a complement to these PPs out of the NP necessarily crosses two Barriers: PP and NP. This is the situation in (93). The PPs governing the parasitic gap in (93) are not arguments of the head noun. The ungrammaticality of (93) then follows if movement has occured.

A more complicated argument that movement to the matrix COMP is involved in these cases can be derived from (94).

94.*$\underline{\text{Who}}_{\{i,j\}}$ [[were [pictures $\underline{t}_k$] given $\underline{t}_i$]$_S$ [of $\underline{e}_j$]$_k$]$_S$*

Under the assumption we are arguing for, the ungrammaticality of (94) follows from the ban against double adjunction. The only derivation by which the null wh-phrase could be licensed would involve the following steps. On the first cycle, the null wh-phrase first adjoins to S, then the extraposed PP adjoins to S and finally the NP raises to subject position. But the first two steps violate the prohibition against double adjunction.

Less direct evidence that (90) is the correct representation of constructions involving parasitic gaps in simple subjects, comes from a dialect of English in which (95a) receives an interpretation where the two variables independently refer.[26]

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26. My thanks to Robin Clark and Timothy Stowell for bringing these facts to my attention.

95.
a) Who did you give [pictures of $\underline{t}$] to $\underline{t}$
b) $[_{COMP}\underline{Who}_{\{i,j\}}]_{\{i,j\}}$ [did you give [pictures of $\underline{t}_i$] to $\underline{t}_j$]

In this dialect, (95a) can be answered with "I gave a picture of Gary to his mother, a picture of Mary to her mother, a picture of John to his mother ...." Recall that (XI) allows (95a) to have (95b) as its representation. Suppose that, just as (95b) indicates, $\underline{i}$ and $\underline{j}$ may be distinct for this dialect. For those speakers who cannot interpret (95a) in this way, we might suppose that COMP may only bear one index.[27] As a result, for theses speakers $\underline{i}$ will necessarily equal $\underline{j}$ in (95b).

Interestingly, this "independent" interpretation of parasitic gaps is not available when the parasitic chain is contained within an adverbial clause, as in (96).

96. What did you file $\underline{t}$ without reading $\underline{e}$

In (96), $\underline{t}$ and $\underline{e}$ must covary. It appears, then that the independent reading arises by virtue of (XI). If this conclusion is correct, then the availability of this reading may be used as a diagnostic for when the null wh-phrase and the overt wh-phrase are moved into the same COMP, and thereby fall within the scope of (XI). In fact, for speakers of the relevant dialect, an independent interpretation of parasitic gaps within simple subject NPs is possible. (97a) may be answered in the same way that (95a) may be.

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27. Or, alternatively, that (XI) applies only when X and Y bear non-distinct indices.

97.
a) Who were [pictures of e] given to t
b) $[_{COMP}\underline{Who}_{\{i,j\}}]_{\{i,j\}}$ $[_{S*}\underline{e}'_i$ $[_S$were [pictures of $\underline{e}_i$] given to $\underline{t}_j]]]$

If our reasoning to this point has been correct, then (97a) can have the representation in (97b), suggesting that the null wh-phrase has moved into COMP.

But if (97b) is the representation that examples such as (97a) receive, then the CGC must be modified. The CGC is violated in (97b) between e' and e, for between this link lie two segment-barriers: NP and S. The idea that guides our reformulation is that the CGC is the condition by which heads of A-bar chains are licensed. In (97), the head of the composed A-bar chain, who, is licensed by virtue of forming a well-formed chain with the object position to the verb. For this reason, who need not enter into a well-formed chain with the position occupied by e.

We have suggested that the CGC is a well-formedness condition on A-bar chain formation, but we have not yet provided any principle which requires that A-bar chains be formed. Suppose that all moved elements must be connected to the position from which they are licensed. For non-structrually Case-marked phrases (i.e., PPs and S-bar arguments to nouns) that have been moved, the licensing position will be a theta-marked position, or the position from which they receive their interpretation. For phrases moved from a structurally Case-marked position, the licensing position will be the position to which Case is assigned. Let's call this position an l-position. We may now adopt the formulation of the CGC in (XII).

XII. **Chain Government Condition (CGC)**

In an A-bar chain $\tau=(\delta_i, \alpha_{i+1}, \ldots, \alpha_n)$, for all α, α not a non-pronominal, α must be c-connected to an l-position.

α_i is c-connected to α_n iff there is a $\sigma=(\alpha_i, \alpha_{i+1}, \ldots, \alpha_n)$ such that for every α_j, α_j c-governs α_{j-1} or α_{j+1}.

α c-governs β iff α governs β, and
i) no more than one γ dominates α but not β, and
ii) no more than one γ-barrier dominates β but not α, where
γ=segment, if τ is structurally Case marked
γ=category, otherwise.

(XII) requires that there be a sub-chain for every non-trace member of an A-bar chain every member of which satisfies c-government. We must include one additional assumption in order to insure that the null wh-phrase heading a parasitic chain in an adverbial clause must c-connect with the parasitic gap; consider (98).

98. Who did you see t [Op before [meeting e]]

In (98), Op is c-governed by the l-position occupied by t. And yet, we must enforce c-connectedness between Op and e, as the ungrammaticality of (99) indicates.

99.*Who did you see t [Op before [[pictures of e] were sold]]

We assume (XIII).

XIII. an l-position licenses no more than one head.

(XIII) prevents the l-position in (99) occupied by t from licensing both Who and Op. As a result, either Who or Op will remain unlicensed in (99).

An interesting case, supporting our analysis, is provided by (100).

100. *[[$_{COMP}$Who$_{\{i,j\}}$]$_{\{i,j\}}$ [did you [$_{VP}$[$_{VP*}$give [$_{NP}$pictures t_k] to t_i]$_{VP}$ [of e_j]$_k$]$_{VP*}$

One derivation for (100) involves the following steps. On the first cycle, the PP is adjoined rightwards to VP. On the second cycle both the overt and null wh-phrases are moved into COMP and (XI) applies. Under this derivation, the CGC is violated, for two segment-Barriers intervene between who and both t and e. Hence, Who is not c-connected.

On another derivation for (100), the null wh-phrase remains in situ. Extraposition moves the PP onto VP either in Syntax or in PF. In either case the null wh-phrase will not be licensed at S-structure, because neither it nor the Case-marked trace following to c-govern the other. All other derivations are blocked by the Cycle.

4.3.3 Parasitic gaps in complex noun phrases

Kayne (1984a Ch. 8) observes that parasitic gaps may reside within subject relative clauses, as in (101).

102. ??The man [who [everyone who meets e] usually admires t
(Compare: "*the man who everyone who meets e usually admires him")

This construction cannot arise by virtue of the CGC, nor by virtue of (XI). I do not know how these constructions arise, but there are reasons for believing that they fall within a domain different than that occupied by other parasitic gap constructions. There are a host of properties that constructions like (102) display that other parasitic gap constructions do not. We review a few here.

First, the grammaticality of these constructions sharply declines when the licensing trace is bound by a question wh-phrase; compare (102) with (103).

104.
a) *Who does [everyone who meets e] usually admire t
b) *I wonder who [everyone who meets e] usually admires t

Second, the Head of the relative clause in these constructions must be quantificational; consider the contrast in (105).[28]

106.
a) ??the man [that [everyone who meets e] usually admires t
b) *the man [that [that woman who met e] usually admired t

Third, these constructions cannot involve a non-relative complex noun phrase.[29]

107.
a)??the man [that [every rumor which reaches e] usually bothers t
b) *the man [that [every rumor that one dislikes e] usually bothers t
(Cf."the man [that [every rumor that one dislikes him] usually bothers t)

Fourth, the NP hosting the parasitic chain must be in subject position; consider (108).

108.
a)*the guy [that I try to show [anyone who admires e] to t]
b)*the gal [that I gave [every book that pleases e] to t
c)*the guy [that it was apparent to t that you knew [everyone who admires e]]

This is not the case with parasitic gaps within simple NPs:

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28. See Cowper (1984) and Stowell (1985).

29. See Stowell (1985).

109.
a)?Who did you show friends of e to t
b) Who did you give a picture of e to t
c) Who was it apparent to t that you knew [friends of e]

Fifth, as Chomsky (1985) observes, the relative clause hosting the parasitic chain must have a relative pronoun related to the subject position:

110.
a)*This is a book that [any man to whom we'll give e] will like t
b)*He's a man that [any present [they'll give to e]] will please t
(Chomsky 49 (134ii,iii))

Finally, these constructions do not appear to require the presence of a licensing trace. In English the normal case is that a wh-phrase must be related to a non-pronominal empty category. It is only in this way that a wh-phrase will avoid quantifying vacuously at LF. However, under certain conditions, a wh-phrase may be licensed by a resumptive pronoun. Notice that this account for these cases of parasitic gaps, does not require the presence of a licensing trace. When the resumptive pronoun strategy is employed in English, the resumptive pronoun is not normally capable of licensing a parasitic gap, as (111) indicates (cf. Chomsky (1982)).

111.
a) *the guy [that I wondered whether or not you saw him before talking about e]
b)??the guy [that I wondered whether or not you saw him before talking about him]

The resumptive pronoun strategy does not result in full grammaticality, as (111b) demonstrates. Nonetheless, (111a) contrasts sharply with (111b). However, with parasitic gaps in subject position, the resumptive pronoun strategy may be employed.

112.??The guy [that [everyone who meets e] usually ends
up wondering whether or not he'll ever leave MIT.

The marginality of (112) is comparable to (111b) contrasting with (111a).

In sum, these examples illustrate that some privileged relationship exists between an empty category within a relative clause modifying a subject and a relative pronoun; but this relationship has properties very different from that of parasitic gap constructions. I see no way of collapsing these two constructions. See Stowell (1985) and Haik (1985) for accounts that each derive in part these properties.

4.4 Conclusion

We have argued for a revision of the Empty Category Principle that, among other things, strips away the requirement of "antecedent government." This requirement, it is argued should be rephrased as the CGC, so as to hold of A-bar chains. By so doing, the differences, and similarities, of rightward and leftward movement can be derived. The remainder of the Empty Category Principle is sensitive to the Case-bearing properties of the empty category.

Both the CGC and the Empty Category Principle might be view as well-formedness conditions on chains. The CGC is straightforwardly a well-formedness on chains, but the Empty Category Prirciple might also be seen in this way as well. The ECP has essentially two parts. One part requires that each c-governor be locally c-governed by an X^0. Imagine that

the Principle of Full Interpretation requires than just that an phrase in an A-bar position be licensed by some empty category in l-position, but makes a narrower requirement: that the l-position and the phrase in an A-bar position enter into a well-formed A-bar chain, as (XII) formalizes. Further, suppose that every empty category must be licensed by some appropriate X^{O}. Notice that this is very similar to the Projection Principle. The Projection Principle merely enforces the presence of certain traces in A-positions. It does so, informally speaking, by requiring that a certain relation hold between argument and theta-position. The ECP should be viewed in exactly the same way. It enforces the presence of certain traces in A-bar positions so that a certain relation between an argument or modifying expression and l-position holds, where l-position is the position where the expression receives its interpretation. Notice that GB says nothing about this situation. There is nothing that requires a moved non-argument receive its interpretation from its D-structure position. Under this view, the ECP has this effect. We are now in a position to answer the primary question that the ECP presents: Why does it exist? Why should there be a condition on non-pronominal empty categories, rather than say on all empty categories. But non-pronominal empty categories are just traces of movement. If the ECP is an extension of the Projection Principle, then this is explained.

The second part of the ECP is stranger. This part requires that structurally Case marked chains have an l-position governed by a Case-marking verb. Recall that we have assumed that A-chains meet the following well-formedness condition: their heads must be in (structurally) Case-marked position. Imagine that this requirement is actually that the

head of a chain bear Case; and that one reflex of chain formation is that structural Case is "transmitted" from tail to head. If this is how chain formation is defined, then the fact that only the head of an A-chain is in a Case-marked position can be derived. Suppose that this holds of A-bar chains as well. The special status of verbs for the ECP might stem, then, from the fact that they are prototypical structural Case assigners. If this extension of the Case requirement on heads of A-chains is extended to heads of A-bar chains, a number of additional facts might be derived. If the Case-requirement on heads is an S-structure condition, as it seems to be for A-chains, then the fact that the CGC and ECP hold for structurally Case-marked chains and empty categories (respectively) follows. Similarly, that parasitic gaps are solely an S-structure phenomenon follows, in so far as they arise by virtue of the CGC.

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