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Richard S. Kayne

# Connectedness and Binary Branching



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## Introduction

The first part of the title of this collection of articles is taken from chapter 8 ("Connectedness"), the second from chapter 7, in which *binary branching* plays a central role. Both of these chapters make use of *paths*, i.e. of the idea that it is proper to think of linguistically significant relations as being mediated by the path of nodes that runs from one member of the relation to the other, e.g., from a governed NP to its governor, from an empty category to its antecedent, from one Wh-phrase to another (in multiple interrogation).

That path must, in the last two cases, meet a certain condition involving government and directionality of branching. If the path meets that condition along its entire length, then the relation is legitimated (with respect to the condition in question). If it does not, then the relevant sentence is ungrammatical. With one kind of exception: Let a given antecedent be the closest binder for two distinct empty categories such that the path from one to the common antecedent is entirely legitimate, but the path from the other not. Find the largest initial segment of the latter path which is legitimate. Ask if that segment 'connects with' the first path, i.e. forms a subtree with it. If it does, then the relation taken as a whole between the antecedent and the two empty categories is legitimate; otherwise not. This is the essence of the Connectedness Condition (CC) of chapter 8.

The CC covers the general case of an antecedent and  $n$  empty categories, as well as multiple interrogation structures involving two or more Wh-phrases, and wide scope negation with one or more negative phrases. Unlike the Empty Category Principle (ECP), the CC is thus not specific to empty categories.<sup>1</sup>

The path that mediates the government relation, from governee to governor, is argued in chapter 7 to be subject along with others to a non-ambiguity condition (inspired by a property of the standard dominance relation) which has the principled effect of broadly limiting syntactic representations to binary branching structures. Such a limitation constitutes a step towards a solution to the learnability problem for phrase structure (How does the language learner know what tree representation, of all those available in theory, to associate with a given sentence?), by reducing the set of permissible hypotheses.

The restriction to binary branching has other more specific advantages: Assume that, apart from the case of subject NPs, V can assign a thematic role to NP only if NP is its sister.<sup>2</sup> Consider now the fact that in English, apart



from instances of Heavy-NP-Shift, an adverb may not intervene between a verb and its direct object:

- (1) \*John dictated carefully the message.

By the assumption about thematic role assignment, '[V Adv] NP' is not possible, since NP would receive no  $\theta$ -role. Similarly, '[V[Adv NP]]' is impossible. That leaves '[V Adv NP]', with a flat structure, which is in turn eliminated by the binary branching requirement. Thus 'V Adv NP' can be associated with no viable structure (abstracting away from Heavy-NP-Shift), as desired. This account, dependent on binary branching, should render unnecessary Stowell's (1981) adjacency condition on Case assignment.<sup>3</sup>

Binary branching is incompatible with a flat SVO or SOV structure. Thus, it comes as no surprise that Saito and Hoji (1983) have discovered evidence in Japanese for a VP constituent.<sup>4</sup>

The English particle construction of the form 'V NP Prt' cannot now be flat. Assume that particles, being dependent on V, must be strictly *c*-commanded by V. Then 'V [NP Prt]' is the only available structure, one containing a small clause with a NP subject, in the sense of Stowell (to appear).<sup>5</sup> This accounts for Fraser's (1970, 92) observation in terms of the analyses developed in §7.4:

- (2) \*The looking of the information up took three hours.

Consider further the non-occurrence of 'V PP Prt' and 'V  $\bar{S}$  Prt' in English:

- (3) \*They ganged on John up.  
 (4) \*They found that they were wrong out.

This now reduces to the impossibility of 'V[PP/ $\bar{S}$  Prt]', i.e. to the absence of small clauses with PP or  $\bar{S}$  in subject position, which is in turn related to the lack of PP or  $\bar{S}$  in true subject position in ordinary clauses – cf. Koster (1978c) and Stowell (1981). Without the small clause variant of the binary branching hypothesis for these particle constructions, little sense could be made of the fact that the only admissible way of combining PP/ $\bar{S}$  and particle is 'V Prt PP/ $\bar{S}$ ' (with [V Prt] as a subconstituent).

The small clause structure for 'V [NP Prt]' means that V must govern NP across the small clause boundary. Taking small clauses to be maximal projections in  $\bar{X}$  terms, contrary to Chomsky (1981b, 169), and maximal projections to be transparent to government only when the governor and the maximal projection are sisters, we conclude that if one small clause is embedded inside another, the subject NP of the inner one will be ungoverned. Thus in 'V [[NP XP]Prt]', NP will be unable to receive Case. Whence an account of (5):

- (5) \*They're trying to make John a liar out.

With NP equal to [e], there will be an ECP violation:<sup>6</sup>

- (6) \*John was being made a liar out.  
 (7) \*John turned intelligent out.  
 (8) \*John ended well-known up.

As far as we can see, the small clause hypothesis must be correct both for particle constructions and for [NP AP] and [NP NP<sub>pred</sub>], if such facts about the positioning of particles are to be properly understood.

It was noted above that in '[V XP]NP', with NP not a subject, NP should not be able to receive a  $\theta$ -role from V. This, combined with the binary branching restriction, points to 'V[NP NP]' as the structure for *give John a book*. But since V cannot assign a  $\theta$ -role to either NP in such a structure, and since both are referential (as opposed to predicative) and hence need  $\theta$ -roles, there must be a  $\theta$ -assigner within the small clause, i.e. the correct structure should more exactly be 'V[P<sub>e</sub>-NP NP]', where P<sub>e</sub> is a phonetically unrealized (empty) preposition. This structure yields an explanation of (9) in terms of the CC (since *how many people* originates as a proper subpart of a left branch), both for sentences having a 'V NP *to/for* NP' counterpart and for those not having one:<sup>7</sup>

- (9) \*How many people did that recent cold spell give the flu?

The binary branching, small clause analysis of *give John a book*, combined with that of 'V[NP Prt]', yields in addition an account of (10) and (11) in terms of the double small clause impediment to government discussed above.<sup>8</sup>

- (10) \*They sent John the sandwiches up.  
 (11) \*They read John the figures off.

The empty preposition P<sub>e</sub> whose existence is called for by binary branching plus a principle of thematic role assignment will need to function as a Case transmitter, for Case to be assigned correctly to the first NP in 'V [P<sub>e</sub>-NP NP]'. A reasonable restriction on such Case transmission is that it be limited to prepositions otherwise capable of assigning objective (rather than the usual oblique) Case. It is shown in §9.1 that this is what is responsible for the absence of a word-for-word counterpart in French to *give John a book*. The (objective) Case on the second NP can be taken to come directly from V, now that adjacency is unnecessary.

The idea that cross-linguistic differences can often be made sense of, rather

than just observed, is central to chapter 5 also, where it is argued that the absence in French of (12) can be attributed to an independently existing difference with respect to government between French and English prepositions:

(12) I believe John to have made a mistake

This account depends crucially on and hence supports a clausal analysis of [<sub>S</sub> *John to have made a mistake*].

It should be noted that a 'raising' analysis of (12), if by raising we mean an instance of Move- $\alpha$  that moves the subject NP out of its S to a position immediately dominated by a projection of *believe* without affecting linear order, is prohibited by the binary branching requirement. This is so, since the most frequently assumed derived structure has the moved NP attached as a sister to both V and S: [*believe* NP<sub>i</sub> [<sub>S</sub> [*e*]<sub>i</sub> to-VP]], in which binary branching is not respected. (The alternative structure '[[*believe* NP<sub>i</sub>] [[*e*]<sub>i</sub> to-VP]]' is excluded by virtue of the fact that the moved NP does not strictly *c*-command its trace.)<sup>9</sup>

The impossibility of raising with *believe* carries over, for the reasons given, to SVO languages other than English. But it does not carry over to SOV languages, in which 'NP<sub>i</sub>[[NP<sub>j</sub> VP]V]' could be mapped into 'NP<sub>i</sub>[[NP<sub>j</sub>[[*e*]<sub>j</sub> VP]V]]' without affecting linear order, yet with NP<sub>j</sub> now attached to a V-projection (in a position congruent to the target position of Heavy-NP-Shift in English). Thus, there may well be evidence for this type of raising in an SOV language, yet it would be illegitimate to argue from such evidence to any comparable conclusion concerning English or any other SVO language.

Raising to subject position with verbs like *seem* is compatible with binary branching in SVO languages, and is supported sharply by the Italian facts of § 5.1.

The government difference between English and French prepositions alluded to above is discussed in § 5.4 in part in terms of an English rule of V...P reanalysis (cf. also § 3.2.1). This rule is abandoned in chapter 8 (a government difference remains). The insufficiency of a reanalysis rule is shown by parasitic gap constructions:

(13) ?a man who close friends of admire

(14) ?Who(m) did your interest in surprise? (cf. Chomsky (1982b, 51))

There is no plausible licensing verb for the preposition in (13) or (14), yet stranding is possible in English, and again impossible in the French equivalent.

Despite not allowing *I believe John to* . . . , French does have the corresponding construction with Wh-movement of the embedded subject, as discussed in § 5.3. The distinction is drawn in terms of government: Verbs like *believe* cannot govern the embedded subject position in French, but they can govern

the embedded Comp position, into which they can assign objective Case. This Case-into-Comp analysis, which supports the general idea of cross-boundary government, is introduced in § 1.1. It has application to English, too, which displays data similar to those of French, with a small number of verbs:

(15) John Smith, who I assure you to be the best student in the class, . . .

(16) \*I assure you John Smith to be . . .

*Assure* cannot assign Case to the embedded subject position, but can to a phrase in Comp. Thus (16) violates the Case filter, whereas (15) does not.

It is notable that a similar contrast exists in the corresponding passives:

(17) John Smith, who I've been assured to be one of the very best students in the class, . . .

(18) \*I've been assured John Smith to be . . .

Consequently, the passive past participle *assured* must be capable of assigning Case<sup>10</sup> (into Comp), at least when the subject NP is not expletive. Since English adjectives may not assign Case, (19) is ungrammatical:

(19) \*John Smith, who I'm sure to be one of the very best students in the class, . . .

The Case-assigning ability of the participle in (17) makes it straightforward to have the participle assign (non-oblique) Case directly to *a book* in (20):

(20) John has been given a book.

Chapter 1 is reprinted from *Linguistic Inquiry*, 11 (1980), 75-96; chapter 2 from A. Belletti, L. Brandi and L. Rizzi, eds., *Theory of Markedness in Generative Grammar: Proceedings of the 1979 GLOW Conference*, Scuola Normale Superiore di Pisa (1981), 317-346; chapter 3 from *Linguistic Inquiry*, 12 (1981), 93-133; chapter 4 from F. Heny, ed., *Binding and Filtering*, Croom Helm, London and The MIT Press, Cambridge, Mass. (1981), 191-211; chapter 5 from *Linguistic Inquiry*, 12 (1981), 349-371; chapter 6 (original title: "Comments on Chomsky's Chapter 'On the Representation of Form and Function' ") from J. Mehler, E.C.T. Walker and M. Garrett, eds., *Perspectives on Mental Representation*, Lawrence Erlbaum Associates, Hillsdale, New Jersey (1982), 453-456; chapter 7, from R. May and J. Koster, eds., *Levels of Syntactic Representation*, Foris, Dordrecht (1981), 143-183; chapter 8 from *Linguistic Inquiry*, 14 (1983), 223-249; chapter 10 (Copyright © 1983 by D. Reidel Publishing Company, Dordrecht, Holland) from *Natural Lan-*

## XIV Introduction

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### NOTES TO THE INTRODUCTION

1. On the ECP, cf. chapter 3. On lack of specificity to empty categories, cf. Bouchard (1982) and § 10.5. The domain of significance of the notion of path introduced here has been extended to include 'crossing effects' by Pesetsky (1982), who also proposes further applications of the CC proper. Other CC effects are proposed by Longobardi (to appear), who suggests also a modification of the path condition (in the terms of chapter 8, of the definition of g-projection) that bears on extraction from adverbial clauses.
2. Cf. Chomsky (1981b, 38).
3. Something extra must be said under both this account and Stowell's about (certain) adverbs in German and French (cf. chapter 10, note 18). From our point of view, '[NP PP]V' in German is unproblematic.
4. Cf. chapter 10, note 18. On VP in VSO languages, cf. Emonds (1980b). On 'NP[INFL VP]', cf. chapter 3, note 17 and Pesetsky (1982, chapter 3, section 1).
5. Chapter 7 has small clauses as being of category S; it now seems preferable to follow Stowell (to appear) and take them normally to be projections of their right branch, here the Prt (nor should they contain an empty V).
6. For example, *John<sub>i</sub> turned [[<sub>i</sub>e]<sub>i</sub> intelligent]<sub>out</sub>]*. Rightward movement of the head of the inner small clause will nullify its opaque character: *They're trying to make John out a liar, John turned out intelligent*, etc; we pursue this analysis in more detail in Kayne (to appear-). Williams (1983, 293) claims that certain scope facts require a non-small-clause analysis of *John seems intelligent*. But by parity of reasoning, the contrast in scope possibilities between *The election of no candidate is probable* and *No candidate's election is probable* (from Liberman (1974); cf. chapter 2, note 15) would imply that *no candidate's election* is not a constituent. An alternative is to look more carefully at the question of what kinds of constituents qualify as scope domains - cf. Fiengo and Higginbotham (1981).
7. The desirability of such a unified account is emphasized by Oehrle (1983). For further details, cf. chapter 9. In chapter 7, P<sub>e</sub> has not yet been hypothesized.
8. On *They sent John up the sandwiches*, cf. note 6. Emonds's (1976, 81-86) analysis doesn't cover (5)-(8).
9. Chomsky (1981b, 38) gives a different account of the impossibility of this kind of raising in English. His is also compatible with the discussion of the next paragraph.
10. Cf. Pollock (1981; 1983b).

## Chapter 1

# Extensions of Binding and Case-Marking\*

### 1.1. ENGLISH

#### 1.1.1. NIC Subsumes the That-Trace Filter

The following paradigm has been analyzed recently by Chomsky and Lasnik (1977) and Bresnan (1977), in different ways:

- (1) Who do you believe Mary likes most?
- (2) Who do you believe left first?
- (3) Who do you believe that Mary likes most?
- (4) \*Who do you believe that left first?

The two analyses have in common that they treat (4) as, in some sense, "the surprising fact", relative to (2).<sup>1</sup>

In the framework of Chomsky (1980), there is another way to look at the problem. One can take (4) to be "unsurprising" and place the burden of "surprise" on (2). We shall argue that turning the problem around in that way has several advantages.

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

- (5) Who do you believe to have left first?

This recalls (6) and (7):

- (6) \*John decided would leave.
- (7) John decided to leave.

In Chomsky (1980), the crucial difference between (6) and (7) is that the (null) embedded subject in (6) is nominative (since the embedded S is tensed),

\* This article, which has benefited from comments by Guglielmo Cinque, Jean-Yves Pollock, Luigi Rizzi, Knut Tarald Taraldsen, Jean-Roger Vergnaud, and Edwin Williams, was originally written in the summer of 1978. A slightly revised and shortened version appeared in French as Kayne (1979a). The present version incorporates some further revisions, primarily in section 1.1.

whereas in (7) it is not nominative. Control of a nominative is excluded by the Nominative Island Condition (NIC).

Now (4) vs. (5) also involves a nominative/nonnominative contrast with respect to the embedded subject. It is thus natural to attempt to attribute the ungrammaticality of (4) to the NIC. If that attempt is successful, then some "special provision" must be made for (2), which also has a nominative embedded subject; in this way, (2) can become "surprising".

We adopt in its essentials Chomsky's (1980) theory of Case-marking, and in particular the idea that of the series of traces left by successive cyclic *Wh* Movement, only<sup>2</sup> the original one is indexed with Case. (The *wh*-phrase itself has Case too.)

Consider now the following definition, parallel to that of "free(i)":... Then  $\alpha$  is *Case-free(i)* in  $\beta$  if there is no  $\gamma$  in  $\beta$  with index  $i$  that  $c$ -commands  $\alpha$  and that is indexed (marked) with Case.

We suggest the following restatement of the NIC: A nominative anaphor cannot be Case-free in  $\bar{S}$ .

In other words, we propose that the NIC be strengthened to require not simply a "proper binder" but a Case-marked "proper binder".

It follows immediately from this revised NIC that (4) is ungrammatical, since the only available  $\gamma$  within  $\beta$  (= S) is the trace in COMP, which is not marked for Case.<sup>3</sup>

The contrast between (4) and (8) follows from the fact that in (8) the available  $\gamma$  is the (Case-marked) *wh*-phrase itself which is in COMP (deletion being on a different track from the NIC):

- (8) a. I know the man that left first.  
b. A book has come out that should please you.

Thus there is no need for the "unless"-clause Chomsky and Lasnik (1977, 456) were forced to add to their filter.

### 1.1.2. Case Assignment into COMP

We return to the question of (2), the grammaticality of which seems "surprising", in view of the exclusion of (4) via the NIC. Let us begin by reconsidering the generalization that seems to be implicit in discussions of (2) vs. (4), i.e. the idea that (1)-(2) are representative of the application of *Wh* Movement to tensed complements lacking *that*. We repeat the earlier data:

- (9) I believe Mary likes John most.  
(10) Who do you believe Mary likes most?  
(11) Who do you believe likes John most?

It is usually assumed that given a source without *that*, like (9), one can extract subject or object with equal success.

As Bresnan (1977, 194, n. 7) has noted, judgments on such sentences are made delicate by the danger of taking *do you believe* as a parenthetical.<sup>4</sup> As a means of minimizing the danger, she found the device of having a negation in the matrix and a negative polarity item in the embedded S:

- (12) the one who I don't think anybody likes  
(13) the one who I don't think likes anybody

Further examples are:

- (14) the only one who she didn't claim there was anything wrong with  
(15) the only one who she didn't claim had anything wrong with him  
(16) John, who I don't believe she'll leave anything to, ...  
(17) John, who I don't believe has any money left, ...  
(18) John, who she didn't know I had any quarrel with, ...  
(19) John, who she didn't know had any reason to be angry, ...  
(20) the one who Mary didn't say anything had happened to  
(21) the one who Mary didn't say had done anything wrong  
(22) John I don't imagine anything would faze.  
(23) John I don't imagine would have gotten any of them right.

What we would like to argue is that (12)-(23), in which there is no subject-object asymmetry, are not fully representative, in the sense that with other matrix predicates, there is significant subject-object asymmetry:

- (24) The only person who it's not essential she talk to is Bill.  
(25) \*The only person who it's not essential talk to her is Bill.  
(26) John it's not obvious/clear anybody gets along with. (esp. with stress on *anybody*)  
(27) \*John it's not obvious/clear gets along with anybody.  
(28) Your son, who it is (in my opinion) not possible any girl could fall in love with, ...  
(29) \*Your son, who it is (in my opinion) not possible could fall in love with any girl/anyone, ...  
(30) What is it likely Max will forget to bring?  
(31) \*Who is it likely will forget the beer?

(The last pair is from Haiman (1974, 79)). Although "\*" vs. "OK" may perhaps be overstated, it seems clear to us that there exists differential

behavior here which is not accounted for either by Chomsky and Lasnik's (1977) universal filter or by Bresnan's (1977) language-particular constraint on variables.

Within the present framework (i.e. with the modification of the NIC proposed above), we would expect all the odd-numbered sentences of (12)-(31) to be ungrammatical, as violations of the NIC. That is, our analysis makes the correct prediction for (24)-(31), while the odd-numbered examples of (12)-(23) remain "surprising".

If we compare the two sets, we notice that the first contains simple matrix verbs, whereas the second contains adjectives with extraposition. Put another way, the first set contains matrix predicates (verbs) that can assign (objective) Case, in Chomsky's (1980) framework. The second set does not, since adjectives in general do not assign objective Case:

(32) \*It's not possible John to have arrived.

(Cf. *Nobody believes John to have arrived.*) Assume that the following generalization holds: The only matrix predicates that allow extraction of the embedded subject are ones of a type that could otherwise assign (objective) Case.

If this is basically correct,<sup>5</sup> an explanation for it immediately presents itself: Given the modified NIC, the odd-numbered examples of (12)-(23) seem to be incorrectly ruled out, but that is only on the assumption that the trace in the embedded COMP is not marked for Case. If that trace were marked for Case, the sentences would correctly be allowed. But by the above generalization, the Case-marking properties of the matrix predicate do seem to correlate with the possibility of extraction.

We conclude that the matrix predicate has assigned Case to the NP in the embedded COMP in the (well-formed) odd-numbered examples of (12)-(23) (but not in the (ill-formed) odd-numbered examples of (24)-(31)).

This recalls (and supports) Chomsky's (1980) claim that certain matrix verbs can assign Case to the embedded subject. Given his definition of "government", those verbs must have the property of being able to "ignore" the embedded  $\bar{S}$  and S nodes. For Case assignment to the NP in COMP, only  $\bar{S}$  need be ignored.

The preceding analysis appears to say something interesting about one basic question underlying (2) vs. (4), namely, why the presence vs. absence of *that* should make any difference to the possibility of extraction of the subject. Chomsky and Lasnik's (1977) filter states that it does, but does not relate that to any other property of universal grammar. Bresnan's (1977) constraint has to stipulate that, in certain languages, a variable under certain conditions cannot end in a terminal COMP (although a null COMP yields no comparable violation).

Our analysis can achieve the desired effect if Chomsky's (1980) definition of government is modified to:  $\alpha$  is governed by  $\beta$  if  $\alpha$  is *c-commanded* by  $\beta$  and no major category or major category boundary or *branching minor*

*category boundary* appears between  $\alpha$  and  $\beta$ .<sup>6</sup> The point is that the notion of branching has independently been argued to play a significant role in the theory of government (somewhat different from Chomsky's) proposed by Rouveret and Vergnaud (1980).<sup>7</sup> If that is correct, then the role of *that* in (2) vs. (4) is a special case of a more pervasive aspect of universal grammar, under our analysis.<sup>8</sup>

### 1.1.3. *Successive Cyclicity*

Case assignment from a matrix verb to an NP in COMP seems appropriate for the following examples:

(33) John, who I assure you to be the best...

(34) \*I assure you John to be the best...

(35) Jean, que Marie croit être intelligent,...

'John, who Mary believes to be intelligent...'

(36) \*Marie croit Jean être intelligent.

The ungrammaticality of (34) and (36) should be attributed to Chomsky's (1980) Case filter, which requires (simplifying somewhat) that every lexical NP be marked for Case. If we assume with Chomsky that the subject of an infinitive does not receive Case from any element within the infinitival  $\bar{S}$ , and that, furthermore, *assure (you)*, *croire* (contrary to English *believe*) cannot assign objective Case to the subject of their embedded  $\bar{S}$  complement, we achieve the desired result.

The grammaticality of (33) and (35) can be accounted for if objective Case can be assigned from *assure (you)*, *croire* to an NP contained in the COMP of the  $\bar{S}$  embedded under them, subsequent to the application of (successive cyclic) *Wh* Movement.<sup>9</sup>

Consider now the variety of English that allows (37) (but not, we surmise, (38)):<sup>10</sup>

(37) a. the man whom I believe has left  
b. the man whom I think is quite intelligent  
c. the people whom you say are extremely bright  
d. the people whom they tell me are extremely bright

(38) a. \*the people whom it is obvious like you  
b. \*the man whom it is likely admires her

These judgments repeat those of (12)-(31) and, if accurate, support the analysis developed so far. It is, furthermore, tempting to claim that the presence of *whom* in (37) is itself explicable, at least in part, as a function of objective Case-marking in COMP.<sup>11</sup>

After first-cycle *Wh* Movement, the structure of (37) is: *the man* [ $\bar{S}$ COMP

$e$ ]I believe [ $\bar{S}$ [COMP *who* <sub>$i$</sub> ] [ $S$ [NP <sub>$i$</sub>   $e$ ]left]]. Chomsky's (1980, (108)) convention for assigning Case with *Wh* Movement suffices with one modification. We "assign Case under [a marked case of objective Case assignment]. adjoin  $\alpha$  [here *who* <sub>$i$</sub> ] to COMP [here the higher one], coindexing, with the assigned Case as part of the index".

However, this convention can now not be limited to movement from  $S$  to COMP. Rather, it must take effect whenever  $\alpha$  (the phrase being moved to COMP) is subject to Case assignment (which seems natural). For example, it will take effect on both cycles in (37) and (12)-(23)).

In (38) (and (25), (27), (29), (31)), it applies on the first cycle, but not on the second (adjectives do not assign Case), so that the intermediate trace is not indexed for Case (both the original trace and the *wh*-phrase itself are indexed as nominative), whence a violation of the revised NIC.

In (24), (26), (28), (30), the convention likewise applies on the first cycle only, so that the intermediate trace is again not indexed for Case (the original trace and *wh*-phrase are objective or perhaps oblique). This time though, there is no violation of the NIC, since the original trace is not nominative.

In both (3) and (4), the convention applies on the first cycle, but not on the second, since the presence of *that* "shelters" the NP in the lower COMP from Case-marking. Thus there is a violation of the NIC in (4), where the original trace is nominative (but no violation in (3), which has no nominative trace).

To restate the convention, then, movement of a phrase  $\alpha$  to COMP leaves behind a trace bearing no features (the trace does of course have a referential index), unless  $\alpha$  is in a Case-marking environment, in which case the trace is coindexed with the appropriate Case.

We note that our analysis, if correct, provides a strong argument for successive cyclicity.

Furthermore, the crucial data can be reproduced in relatives with *that* or a null complementizer (notice that the latter reduces interference from parentheticals, and hence yields sharper judgments):

- (39) a. Here's something (that) it's absolutely essential she read.  
b. \*Here's something (that) it's absolutely essential be read to her.
- (40) a. The table (that) he said it was self-evident nobody wanted is about to break.  
b. \*The table (that) he said it was self-evident wouldn't find a buyer is about to break.
- (41) a. Anyone it's likely she'll fall in love with she avoids.  
b. \*Anyone it's likely is fond of her she avoids.

(Cf. *Anyone she thinks is fond of her she avoids*.) Thus we have clear evidence for successive cyclic *Wh* Movement in relatives with no overt *wh*-phrase.<sup>12</sup>

Before going on to consider the NIC in Italian and French, we shall comment briefly on the implication of our analysis for the notion of "Case

conflict". In the derivation of *the man who(m) I don't think has any friends*, the *wh*-phrase is apparently marked nominative on the first cycle, and objective on the second. Thus, conflict of Case assignment could not be taken to necessarily impose "\*".

Consider the following way of limiting the effects of Case conflict: the application of Case assignment to an NP previously marked for Case deletes the prior marking, replacing it with the new one. If the deletion is "unrecoverable", we get "\*" (as before). If it is "recoverable", there is no violation. Assuming deletion of oblique Case to be unrecoverable, but that of nominative and objective to be recoverable, we maintain the idea of "conflict" in part, while allowing the *wh*-phrase in *the man who(m) I don't think has any friends* to change from nominative to objective.<sup>13</sup>

## 1.2. FRENCH AND ITALIAN

### 1.2.1. NIC vs. Filter

In § 1.1. we argued that Chomsky and Lasnik's (1977) *that*-[NP  $e$ ] filter can be dispensed with, advantageously, in the framework of Chomsky (1980), if the NIC is revised to make reference to Case. The discussion in § 1.1. was based essentially on English. In this section, we extend our analysis to French and Italian.

The revised NIC excludes English sentences such as (42):

- (42) a. \*John it's not obvious (that) gets along with anybody.  
b. \*Anyone it's likely (that) is fond of her she avoids.

The trace of the embedded subject is nominative in (42), and is not bound within its  $\bar{S}$  by any Case-marked  $\gamma$ . Therefore it is in violation of the NIC.

The dual possibility represented in (43) is not available in French:

- (43) It's likely (that) John is fond of her.

That is, French does not allow a null complementizer for a tensed  $\bar{S}$  (see Kayne (1976)):

- (44) a. Il est vraisemblable que Jean l'aime bien.  
b. \*Il est vraisemblable Jean l'aime bien.

Thus, the question of whether counterparts to the *that*-less sentences of (42) exist in French cannot be asked in such a way as to bear on the validity of the revised NIC in French.

Counterparts to the sentences of (42) that contain *that* are clearly ungrammatical in French, just as in English:

- (45) a. \*le garçon qu'il n'est pas évident que s'entend avec...  
the boy that it neg. is not evident that gets along with  
b. \*Qui est-il vraisemblable que l'aime bien?  
who is it likely that her-likes well (i.e. likes her)

These French sentences are correctly excluded by the revised NIC.<sup>14</sup>  
Comparable sentences in Italian are, however, grammatical:

- (46) a. Il ragazzo che è ovvio che le piaccia...  
the boy that (it) is obvious that to-her pleases  
b. Chi pensi che sia partito?  
who you-think that has left

In the filter framework of Chomsky and Lasnik (1977), this property of Italian is attributed to a rule that can delete the embedded subject in (46), thereby removing (46) from the domain of the filter. The presence of such a rule in Italian (vs. its absence in French or English) is made plausible by the fact that Italian allows simple subjectless sentences such as (47):

- (47) Si ammirano troppo.

French and English do not:

- (48) \*S'admirent trop.  
(49) \*Admire themselves too much.

Thus a single deletion rule can be said to account for both (46) and (47). Put another way, Chomsky and Lasnik (1977) succeed in expressing a generalization due to Perlmutter (1971, chapter 4), to the effect that languages that allow extraction of a post-complementizer subject are languages that otherwise allow simple subjectless sentences.

On the basis of French and Italian, we shall argue as follows: (45), (48) vs. (46), (47) is a correct grouping of the data that does reflect a single more abstract difference between the grammar of French and that of Italian. However, this difference manifests itself elsewhere too; that is, one can find other contrasting pairs of French and Italian sentences that can reasonably be analyzed as part of the same generalization.<sup>15</sup> But the filter/deletion analysis of Chomsky and Lasnik (1977) expresses this now wider generalization less well than the NIC approach of § 1.1.

Consider the Italian sentences of (50)-(52):

- (50) Hanno telefonato molti amici.  
have telephoned many friends  
(51) Sono arrivati molti amici.  
have arrived many friends

- (52) Ne sono arrivati molti.  
of-them have arrived many  
'Many have arrived.'

These involve movement of the subject NP to the right, and, in (52), subsequent cliticization of part of the displaced NP.<sup>16</sup> All three are ungrammatical in French:

- (53) \*Ont téléphoné beaucoup d'amis.  
(54) \*Sont arrivés beaucoup d'amis.  
(55) \*En sont arrivés beaucoup.

Now this French-Italian contrast looks very much like the other two, in that Italian again allows a construction with a surface subject position unfilled, while French does not.<sup>17</sup>

The problem for Chomsky and Lasnik (1977) is that the application of their deletion rule in (50)-(52) cannot be said to remove (50)-(52) from the domain of their filter, as could be said for (46), since the filter is not relevant to complementizer-less (simple) sentences; in particular, the filter cannot be extended to account for (53)-(55).

At first glance, it appears that (53)-(55) should be attributed to a violation of "proper binding", with the trace in subject position not "properly bound" by its "antecedent" to the right. But if this is true, then the same would seem to hold of (50)-(52). However, in the framework of Chomsky and Lasnik (1977, 431) and Chomsky (1980), a violation of "proper binding"<sup>18</sup> cannot be affected by the application of a deletion rule, since deletion rules are on a different track from logical form (LF).

Our analysis is the following: The ungrammaticality of the French (45), (48), (53)-(55) is a single phenomenon (i.e. we maintain the attempt to unify what might otherwise seem disparate phenomena), attributable to the violation, in each case, of the NIC. The same is true of the English (42), (49), (56)-(57):

- (56) \*Have telephoned lots of people (who...).  
(57) \*Have arrived lots of people (who...).

(Put another way, the impossibility of applying "Heavy NP Shift" to the subject of a tensed S is a consequence of the NIC).

The grammaticality of the Italian (46), (47), (50)-(52) can now be expressed as following from a single difference: in Italian, the NIC holds only for nominatives that are nonnull. In other words, we are suggesting that what the learner of a "language that doesn't need a surface subject" (a "subject pronoun drop language") learns is that for his language, the NIC is silent on

null nominatives. That is, "nominative" vs. "nonnull nominative" in the statement of the NIC is one of the parameters with respect to which languages can vary.<sup>18</sup>

The way in which the English and French *wh*-constructions in (42) and (45) are excluded by the revised NIC is clear (see § 1.1.), as is the way in which the comparable Italian (46) is allowed, if the NIC in Italian is inapplicable to null anaphora.

As for (47)-(49), we assume that they are simply generated with a null subject NP (within the framework of Chomsky (1980), we would expect such structures to be generable as a matter of course). In English and French, they are excluded as violations of the NIC. In Italian, they are not. Under this analysis, there is no apparent need for a deletion rule in these cases.

As for the interpretation of (47)-(49), we assume the existence of an appropriate (universally available) convention sensitive to the morphological indications of the verb, but we will not pursue the matter here.<sup>19</sup>

### 1.2.2. NIC and Logical Form

We return now to the construction with rightward moved subject:

(58) Sono arrivati molti ragazzi.

(59) \*Sont arrivés beaucoup de garçons.

(60) \*Have arrived many boys.

The basic idea to be developed is that this construction is in potential violation of the NIC, since it contains a null nominative that is not properly bound.

In French and English, then, we simply attribute the ungrammaticality of (59), (60) to the NIC. In Italian, the same structure is not in violation of the NIC, because the NIC is not applicable in Italian to null anaphora.

In the following discussion, we shall concentrate on French (rather than English) vs. Italian, since this construction is much richer in French than in English, in ways which will become clear.

Turning to (59), then, we want to say that the nominative trace is not well-bound, or, more precisely, that it is (Case-)free in  $\bar{S}$ . By the definition of (Case-)free, the question is whether there exists a phrase  $\gamma$  in  $\bar{S}$  coindexed with that trace (and marked for Case), such that  $\gamma$  *c*-commands  $\alpha$  = the nominative trace.

In the structure  $[_{NP_i} e] \text{ sont arrivés } [_{NP_i} \text{ beaucoup de garçons}]$ , there is clearly a  $\gamma$  coindexed with  $[_{NP_i} e]$ , namely  $\gamma$  = the postposed subject.<sup>20</sup> Thus, to have a violation of the NIC, either  $\gamma$  must not be marked for Case, or  $\gamma$  must not *c*-command  $[_{NP_i} e]$ , or both.

The likelihood of achieving the violation via lack of Case seems negligible.<sup>21</sup> Hence, the violation of the NIC requires that the NP not *c*-command its

trace. Assume that NP movements are limited to substitutions and adjunctions (cf. Chomsky (1965, 144)). Then the subject NP in moving rightward past the verb cannot be attached as a daughter to S or  $\bar{S}$ . Assuming further that the only base-generated NP position is inside VP, the moved NP cannot end up at the S or  $\bar{S}$  level by substitution either. But to *c*-command its trace it must be at least as high as S. Therefore, the only way left for it to possibly *c*-command its trace is by adjunction to S.

In other words, if there existed some principle (or principles) having as a consequence that a subject NP cannot be adjoined to S (but only to VP, for example) then, given the above assumptions, it would follow from linguistic theory that rightward movement of a subject NP must yield a configuration illicit from the point of view of the NIC. That is, we would have an explanation for the ungrammaticality of (59) (and (60)).

A candidate for such a principle is one proposed by Van Riemsdijk (1978, 284), to the effect that adjunctions be prohibited from adjoining a category X to a category Y that dominates X. If correct, this principle would prohibit adjoining the subject NP to S (or  $\bar{S}$ ), as desired, while allowing it to be adjoined to VP (perhaps better:  $V \neq 0$ ).<sup>22</sup>

Returning now to the French-Italian contrast of (59) vs. (60), we recall that the basic claim is that a violation of the NIC in French is not translated into one in Italian because Italian does not apply the NIC to null anaphora.

We shall now attempt to account for a more opaque difference between French and Italian with the same approach.

In French, rightward movement of the subject NP yields a violation of the NIC in the simple case of (59), but evidently does not in (61):

(61) le jour où sont arrivés beaucoup de garçons  
the day when have arrived many boys (i.e. when many boys arrived)

We shall broach this question shortly. Before doing so, we note that when French has a grammatical output with this construction, as in (61), it obviously no longer contrasts with Italian, which has the comparable (62):

(62) il giorno in cui sono arrivati molti ragazzi

However, we can revive the contrast by constructing parallel examples involving clitic placement:

(63) ??le jour où en sont arrivés beaucoup  
the day when of-them have arrived many (i.e. 'when many arrived')

(64) il giorno in cui ne sono arrivati molti

Similarly:



- (65) \*le seul jour où en sont arrivés vraiment  
the only day when of-them have arrived really (i.e. 'when any really arrived')
- (66) il solo giorno in cui ne sono arrivati veramente

The point is that against the background of (61), (62) it is far from obvious that the contrasts of (63) vs. (64) and (65) vs. (66) have anything to do with the NIC, or (put more neutrally) are in any way related to the systematic difference between French and Italian concerning a null subject position.

We shall begin with French, and specifically with the sharpest contrast, that between (61) and (65). The problem is essentially to account for the impossibility of (65), given the existence of (61).<sup>23</sup> We recall that our analysis of (59) (\**Sont arrivés beaucoup de garçons*) led to the conclusion that rightward movement of the subject NP must yield a configuration in which the moved NP does not *c*-command its trace, whence a violation of the NIC, in French. Now apart from the relative element *où*, there is no essential difference between (61) and (59); that is, following our reasoning, *beaucoup de garçons* in (61) must not *c*-command its trace. So (61) should apparently constitute a violation of the NIC, yet it obviously does not.

Our idea is that (61) would violate the NIC, but for one twist, and that that twist doesn't suffice to save (65), which then "falls back" into constituting a violation of the NIC. The contrast between (65) and (66) then follows from the inapplicability of the NIC to null anaphora in Italian.

The relevant part of the surface structure of (61) is:  $[\bar{S}[\text{COMP } \textit{où}]] [\bar{S}[\text{NP}_i \textit{e}]] [\gamma \dots [\text{NP}_i \textit{beaucoup de garçons}]]]$ . The null nominative NP is not *c*-commanded by the other. Since it is not coindexed at all with the *wh*-phrase in COMP, the null nominative is without a  $\gamma$  that both is coindexed with it and *c*-commands it. However, the NIC is not a condition on surface structures.

Let us recast the reasoning into the terms of the learner constructing a grammar of French. He learns that French has a Rightward NP Movement rule and general principles give him the derived structure of that rule, at least to the point of ensuring that the moved NP is not a proper binder for its trace. The NIC tells him that such a configuration is illicit. Yet he knows that (61) is well-formed. Consequently, he must alter the surface structure of (61) to bring it into accord with the NIC. Thus he postulates a rule that puts the already displaced subject NP into a position that does properly bind its original trace.

We conclude that there exists a rule (of LF—see note 18) that applies to the surface structure of (61), moving  $[\text{NP}_i \textit{beaucoup de garçons}]$  into a position *c*-commanding  $[\text{NP}_i \textit{e}]$ . Since we may not want to allow NP-adjunction to  $\bar{S}$  or  $\bar{S}$ , as discussed above, let us propose, in part on the analogy of the rule for multiple-*wh* constructions suggested by Chomsky (1973, 282), that this rule adjoins NP to COMP. This yields the structure:  $[\bar{S}[\text{COMP}[\text{NP}_i \textit{beaucoup de garçons}] [\text{COMP } \textit{où}]] [\bar{S}[\text{NP}_i \textit{e}] \dots [\text{NP}_i \textit{e}]]]$ .

The nominative trace in subject position is now *c*-commanded by the coindexed phrase (*beaucoup de garçons*),<sup>24</sup> which must be marked with nominative Case (cf. note 21).<sup>25</sup> Therefore, that trace is not Case-free in  $\bar{S}$ , and there is no violation of the NIC.

Consider in this light (65). In this example, the rightward moved subject NP has been cliticized. After cliticization, the structure is:  $[\bar{S}[\text{COMP } \textit{où}]] [[\text{NP}_i \textit{e}] \dots \textit{en} \dots [\text{NP}_i \textit{e}]]]$ . Thus, (65) differs from (61) precisely in that the postverbal  $\text{NP}_i$  is null in the surface structure of (65), and nonnull in that of (61). In (65), NP-to-COMP yields:  $[\bar{S}[\text{COMP}[\text{NP}_i \textit{e}] [\text{COMP } \textit{où}]] [\bar{S}[\text{NP}_i \textit{e}] \dots ]]$ . The trace in subject position has again become licit, just as in (61), since it is *c*-commanded by the (nominative)  $\text{NP}_i$  in COMP. However, that  $\text{NP}_i$  in COMP is itself illicit in (65), since it is null and nominative, and is itself not *c*-commanded by any coindexed phrase within  $\bar{S}$ . The result is a violation of the NIC, and an explanation for the contrast between (61) and (65).

The Italian counterpart to (65), i.e. (66), is possible because the NIC never excludes null anaphora in Italian (notice too that in Italian there is no need to postulate an NP-to-COMP rule in the first place, since there is no risk of an NIC violation in (62) – this will play a role later).

Turning now to (63), we see that given the NP-to-COMP rule that "saves" (61), (63) will also be "saved" from the NIC, since like (61) but unlike (65), it has a nonnull postverbal NP. Since (63) is itself deviant, we must appeal to at least one other principle to distinguish it from (61). Assuming that principle to extend to (65), we can consider that the NIC (applied to the NP in COMP) accounts for the extra deviance of (65) over (63).

Our approach to (63) (*le jour où en sont arrivés beaucoup*) will be to attempt to integrate its analysis with that of a problem in Italian brought to our attention by L. Rizzi and A. Belletti, namely that the grammaticality of (64) (and (52)) is typical only of verbs that are conjugated with auxiliary *essere* 'to be'. Verbs conjugated with *avere* 'to have' do not readily allow extraction of *ne* from the postposed subject:

(67) Ne sono arrivati molti. (= (52))

(68) \*Ne hanno telefonato molti.  
of-them have phoned many

(Compare (50): *Hanno telefonato molti amici.*)

We suggest that a solution to (68) should have the following form: There exists a constraint such as that proposed by May (1977a) prohibiting NPs which are to serve as "names" ("names" are to include indefinite "specifics") from containing a "free variable". The subject of a verb like *telefonare*, when postposed, must be a "name".<sup>26</sup> But in (68), that subject is  $[\text{NP } \textit{molti } \textit{e}]$ , where *e* is the trace of *ne* and *e* is not bound within NP. Therefore, it cannot be a "name". Whence the ungrammaticality of (68).

In the framework of Chomsky (1980), May's constraint can be thought of as another binding condition, akin to Opacity:<sup>27</sup>

- (69) An anaphor
- $\alpha$
- cannot be free in
- $\beta$
- ,
- $\beta$
- a "name".

The question now is: How does "Name-Opacity" (as we shall call it) shed any light on the contrast between (67) and (63), that is, why do those verbs that allow *ne*-extraction from their postposed subject NP in Italian, not allow it readily in French? The question is complicated by the observation that these verbs do allow *en*-extraction in French if *il* is inserted in the empty subject position:

- (70) le jour où il en est arrivé beaucoup
- 
- the day when there of-them have arrived many

Compare again:

- (71) ??le jour où en sont arrivés beaucoup (= (63))

The solution we propose is as follows: With such verbs, simple postposition does not force the subject NP to be a "name" either in Italian or French. (Thus, (67) and (70) are straightforwardly possible.)<sup>28</sup> NP movement into COMP does force "name" status. But NP-to-COMP is necessary (to "escape" the NIC) only in (71). Therefore, only in (71) is there a violation of "Name-Opacity".

We recall that NP-to-COMP is not required in Italian since there is no NIC for null anaphora that could be a potential problem. In French, it is required to nullify the potential violation of the NIC in (71).<sup>29</sup> In (70), however, the subject is *il*, not *e* (i.e. not an anaphor), so again the NIC is irrelevant. Consequently, no rule need apply after surface structure to the postposed NP, which remains adjoined to VP, and retains the possibility of being a "non-name".

That a (non-*wh*) NP in COMP must be a "name" correlates well with Cornulier's (1973, 354ff; 1974, 157-162) claim that the postposed NP in (72), (73) must be "specific":

- (72) ?Quand est venu quelqu'un?
- 
- when has arrived someone
- 
- 'When did someone arrive?'
- 
- (73) ce que ne m'a pas caché quelqu'un
- 
- that which neg. me has not hidden someone
- 
- 'that which someone has not hidden from me'

(72) is unnatural, compared to *Quand quelqu'un est-il venu?* and *Quand est venu Jean?*, presumably because it is difficult to take *quelqu'un* as a "name" with *venir*. (Cf. the more natural *ce que m'a dit quelqu'un*.) In (73), it is not possible to interpret *pas...quelqu'un* as *personne* 'no one', presumably because that correspondence requires "non-name" *quelqu'un*.<sup>30</sup>

The "name" requirement on non-*wh* NPs in COMP in French can perhaps be looked at in the following way: Since in the simplest case, *\*Sont arrivés beaucoup de garçons* (= (59)), the result of postposing the subject NP can evidently not be saved by the NP-to-COMP rule, let us suggest that the configuration [COMP NP [COMP...], where NP is non-*wh*, yields, in the absence of any further development, no interpretation.

This absence of interpretation might be thought of as following from the illicit LF [COMP *beaucoup de garçons*] [S[NP *x*] ...] (illicit because it contains a variable *x* with no associated quantifier), if variable insertion is obligatory for any Case-marked trace.

In any case, but especially if the preceding suggestion is correct, we can claim now that an NP in COMP is licit only if it is developed so as to bind the variable. If so, then in a well-formed sentence like *Quand est parti Jean?*, not only must *Jean* be in COMP for the NIC, but there must be a representation of the form [COMP *Qx, x=Jean* [COMP *quand*]] [S *x est* ...]. To simplify, we shall write *For x=Jean...x...* If something like this is correct, then we can say that any NP in the environment *x=\_\_\_* must be a "name".

### 1.2.3. An Argument for Trace Theory

In this section, we shall try to set out somewhat more clearly what we envision as the proper approach to the problem of distinguishing (74) from (75):

- (74) \*Est parti Jean? (like (59))
- 
- (75) Quand est parti Jean?
- 
- when has left John
- 
- 'When did John leave?'

We shall then try to account for certain differences between French on the one hand, and Italian, English, German, and Scandinavian on the other, arguing that therein lies a particularly interesting argument for trace theory.

The postposition of the subject NP can take place in interrogatives beginning with a *wh*-word, as in (75), but is impossible in yes-no questions, as seen in (74). Within the analysis we have sketched, in a way essentially determined by the NIC, the contrast between (74) and (75) can be stated by saying that a non-*wh* NP in COMP is licit only in the presence of a *wh*-phrase (in that COMP). But that is not fine enough: If we take the interrogative corresponding to *In what sense do flowers speak?*, we can have *En quel sens les fleurs parlent-elles?*, but not at all naturally (76) (cf. Cornulier (1974, 142)):

- (76) \*En quel sens parlent les fleurs? ,

The patterning of (76) with (74), in opposition to (75), is, crucially, found elsewhere:

- (77) When did you go where?
- (78) a. \*Did you go where?  
b. \*I don't know whether he went where.
- (79) \*In what sense do flowers speak what language?

Interpreted as multiple-*wh* questions (rather than echo-questions), the above examples are deviant except for (77), and the same holds for French. Chomsky (1973, 282) has proposed a rule for multiple-*wh* questions that depends on a "uniform interpretation" for the two *wh*-phrases. In particular, the second phrase can be assigned to COMP and replaced with a variable only if it can be interpreted "uniformly" with the first.

(If we limit ourselves to (77)-(79), we might make the following proposal: The second phrase can be replaced by a variable (and an appropriate quantifier assigned to COMP) only if the first (and its trace) have been expanded themselves as *wh*-*x*...*x*... (78) can plausibly be said not to be of that form, and so perhaps can (79), if *wh*-*x*, *x* 'a sense', *flowers speak in x* cannot be an appropriate representation of (79)).

Assuming this to be on the right track, let us reconsider (75) vs. (74), (76), recalling our earlier idea that a non-*wh* NP in COMP is licit only if expanded by *For x=*,... Let us now say that the NP in COMP can be so expanded, only if it can be interpreted "uniformly" with another phrase in its COMP (i.e. only if the other phrase enters into a configuration of the form ...*wh*-*x*...*x*...).

Then the presence of *quand* in (75) will allow the licit expansion of NP, just as the presence of *when* in (77) allows the assignment of a quantifier corresponding to *where* to its COMP. Conversely, the NP in COMP in (74), (76) will remain illicit, much as the multiple-*wh* interpretation in (78), (79).

Continuing to assume that we are on the right track, we conclude that the "uniform interpretation requirement" must be given by universal grammar as a requirement on the insertion into COMP of any quantifier or quantifier-like expression (*For x=*,...) other than one that simply stands for a *wh*-phrase in that COMP. Put another way, quantifiers seem to occur in COMP only through replacement of a *wh*-phrase or in parallel with an already occurring quantifier.<sup>31</sup>

The contrast between (75) and (74), (76) does not hold in Italian, where all three are grammatical:

- (80) Quando è partito Gianni?
- (81) E partito Gianni?
- (82) In che senso parlano i fiori?

This follows from the fact that in Italian, postposition of the subject NP does

not yield a potential violation of the NIC, since null anaphora are not subject to it in Italian.<sup>32</sup> Consequently, there need be no "assign NP to COMP" and hence none of the ensuing complications that come from the requirement on uniform interpretation.

With respect to these data, English is more like Italian than like French, in the sense that there is no such contrast in English either:

- (83) When did John leave?
- (84) Did John leave?
- (85) In what sense do flowers speak?

This might appear surprising, since English has the full NIC, just like French. However, the English interrogatives, it is generally agreed, do not involve postposition of the subject, but rather pre-positioning of the Aux.<sup>33</sup> In other words, the formation of (83)-(85) does not involve movement of the subject NP; hence, there is no possible violation of the NIC. Consequently, there is no need for assigning that NP to COMP, and there are no ensuing complications.

Like English, except that it is the main verb rather than Aux that is preposed, are German and the Scandinavian languages. Consequently, they too show no contrasts of the French type.

The relative complexity of French in this domain of data, as compared with the "simplicity" of the Germanic languages, is thus attributable to the difference between French's NP-postposing and the Germanic V/Aux preposing, with the former "running into trouble" with the NIC. Taking the simple minimal pair of (86) vs. (87), we can say that the differential behavior is due to the difference in surface structure, in the framework of trace theory:

- (86) \*Est Jean là? - 'e<sub>i</sub> est Jean<sub>i</sub> là'
- (87) Is John there? - 'is<sub>i</sub> John e<sub>i</sub> there'

(e<sub>i</sub> the trace of *Jean* in (86) and of *is* in (87)).

A transformational (or nontransformational) theory without traces would not be able to make the proper explanatory distinction.<sup>34</sup>

1. This informal notion of "surprising" cuts across the universal grammar/particular grammar distinction.

2. This will be modified somewhat below. On successive cyclicity in French, see Kayne and Pollock (1978) and Milner (1978).

3. Our revision, as stated, does not specifically mention "null", so that the "Case requirement" is also extended to the antecedents of nonnull nominative anaphors; whether this is more plausible than keeping "null" distinct from "nonnull" is left an open question.

The idea of reducing Chomsky and Lasnik's (1977) filter to the NIC was arrived at indepen-

dently by Taraldsen (1978), who developed it along different lines. Taraldsen's work led to that of Pesetsky (1978). For some relevant discussion, see § 3.3.

4. We do not consider that "interference" is limited to those sentences for which a reading with a parenthetical is perfectly acceptable, however.

5. We find intermediate: ?*John I'm not sure has any friends.* (Cf. Chomsky and Lasnik's (1977, 488) (?)*Who are you glad left yesterday?* (vs. the perfect *Who did he tell you would leave?*.)

We suggested in Kayne (1979a) that *be sure* might be reanalyzable as V and thereby able to assign Case. However, that failed to account for *\*I'm not sure John to have any friends*, *\*John, who I'm not sure to have any friends*, . . . , etc. Furthermore, *\*John it's not sure has any friends at all* indicates that it is not a lexical property of certain adjectives that is at stake, but rather a difference between  $\bar{S}$ s corresponding to extraposed subjects of adjectives (as in the text), and  $\bar{S}$ s that are actual complements of adjectives.

Assume the following refined generalization: Subject-extraction from  $\bar{S}$  is (a) "OK" if  $\bar{S}$  is a complement to V (b) "??" if  $\bar{S}$  is a complement to Adj, (c) "??" if  $\bar{S}$  is extraposed after Adj. Then we might interpret these judgments as (a) "OK" if COMP is governed by a matrix predicate that can assign (objective) Case (to the NP in it), (b) "??" if COMP is governed by a matrix predicate that cannot assign Case, (c) "??" if COMP is not governed by the matrix predicate at all. (This interpretation of (c) requires either the structure for extraposition considered in Chomsky and Lasnik (1977, 485) or else the (partial) linking of government and subcategorization, as suggested by Chomsky in his 1979 Pisa lectures.)

The generalization of the preceding paragraph leaves unaffected the need for Case-marking in COMP and the argument for successive cyclicity.

Distinctions such as in (a)–(c) are found in French, too, as noted in Kayne (1976, (text to) note 19): (a) *la fille que je crois qui viendra la première* 'the girl that I believe that/who will-come (the) first'; (b) *la fille que je suis sûr qui arrivera la première*; (c) *\*la fille qu'il est évident qui arrivera la première*. These distinctions can again be analyzed in terms of the NIC and Case-marking into COMP—see Kayne (1978, note 22).

In French, *\*la fille qu'il me semble qui est arrivée la première* is most often rejected. Cf. Haiman's (1974, 79) *\*Who does it seem wouldn't bother wearing gloves*, although some English speakers find some comparable sentences acceptable. This may be a case of interference from parentheticals, and/or due to an ambiguity in the status of the  $\bar{S}$  with *sembler* 'seem' (complement or extraposition, i.e. (b) vs. (c); see Ruwet (1976) and Rouveret and Vergnaud (1980, note 39).

6. We are assuming [COMP[NP e]] for the non-*that* case, rather than [COMP[NP e]] [COMP e]]. If the latter, then "branching" could be replaced by some notion of "terminal-branching" (cf. Chomsky (1973, 252) on "L-contain").

*\*I know whom left* might indicate that "+wh" suffices for "branching". Alternatively, there may be a link between this and the impossibility of narrow scope in *We acknowledge no one to have arrived*—see § 2.2.2.

The "ignoring" of  $\bar{S}$  and S is independent of branching.

In § 3.3.3 we suggest a simplified way in which "branching" can exclude (4).

7. Their definition of government draws the distinction between *that* and its absence correctly, with no modification, except perhaps that of the first paragraph of note 6. The two theories of government differ in that for Chomsky government of an NP in COMP is "marked".

8. In § 2.2, we suggest that the *for-to* filter of Chomsky and Lasnik (1977) can also be reduced to (a generalization of) the NIC; see also § 3.3.3.

Notice that the *for-to* filter, but not Bresnan's (1977, 173) constraint, extends to *\*For to win the man I was telling you about would be surprising*. The contrast between this and *For there to become available a large number of seats would be highly desirable*, in which Rightward NP Movement is followed by *There-Insertion* (see Kayne (1979b)), is expected under a filter or LF approach, but not under a "constraint on transformations" approach.

Bresnan's (1977, note 6) examples appear to reflect a marginal cliticization of *that* out of COMP onto a pre-subject adverbial phrase; cf. § 3.3.2 on French *combien*.

9. The contrast between (35) and (36) was noted by Gross (1968, 118–119; 1975, 72, 179). Cf. Greville (1964, sect. 1007). For relevant and detailed discussion, see Rizzi (1981; 1982, chapter III), especially his remarks on the marginal status of (the Italian equivalent of) *?Marie le croit être intelligent*.

In § 5.3 we attempt to account for the difference between *believe* and *croire*, as well as for the Case-marking asymmetry (into subject position vs. into COMP) assumed in the text.

10. Note that (38) is another example of "immunity from interference with parentheticals", given *\*the man whom has left*; the immunity seems particularly strong here since *\*whom* is a grammatical violation. Unacceptability of a parenthetical reading for reasons having to do with choice of lexical item, presence of negation, etc., may be extragrammatical—see Cornulier (1978).

(38) contrasts as expected with *the people whom it is obvious you like*.

11. Our analysis has something in common with that of Jespersen (1975, appendix). Klima (1964, sect. X) tried to show that Jespersen's analysis is not sufficient to account for all the *who/whom* alternations in recent stages of English. However, Jespersen's analysis, as well as ours, is not fundamentally incompatible with Klima's, and seems in any case necessary for earlier stages.

The contrast between (37) and *\*I believe him has left* can be analyzed parallel to that between (33), (35) and (34), (36): Matrix verbs can assign objective Case into the COMP, but not into the subject position, of a tensed  $\bar{S}$ .

12. Bresnan and Grimshaw's (1978) recasting of successive cyclicity could probably not incorporate the text Case-marking analysis without becoming a notational variant of Chomsky's original position.

In connection with free relatives, note: *Her father is willing to invite whoever it's not likely she would be interested in* vs. *\*Her father is willing to invite whoever it's not likely would be interested in her*; that is, there must be successive cyclic movement there, too.

The same holds for topicalization, on the basis of (23) vs. (27), etc.

The same kind of contrast appears again in the construction discussed by Bresnan (1977, 186): *In this room I don't believe can be found a single painting by Picasso* vs. *\*In this room it's not obvious/sure/likely/possible can be found a single painting by Picasso*. Thus, the absence of *that* is again not sufficient, and we must again attribute a role to Case-marking into COMP (or government of a phrase in COMP—see note 5). An NIC treatment of these would require either that the lowest preverbal trace of the PP be nominative, or that a rule of LF comparable to the one postulated for French in § 1.2 be involved.

13. Notice that the only change at issue is from nominative to objective. Now there is probably some sense in which nominative is the "least marked" Case, e.g. there exists Left-Dislocation in Russian (Chvany (1975, 180–181) and German (Van Riemsdijk (1978, 167–168)), with a dislocated nominative "matched" with a nonnominative NP, but no know of no such dislocated objectives. This suggests the possibility of strengthening the recoverability requirement to allow one Case to be deleted by another only if the deletee is not more marked than the deleter, i.e. to exclude in principle a change from objective to nominative.

Alternatively, the Case conflict problem might simply dissolve if Hornstein and Weinberg (1981) are correct in having (nominative and objective) Case-marking entirely at surface structure.

14. French differs minimally from English in not allowing the counterpart to (8) of section 1: *\*Je connais l'homme que l'aime bien* 'I know the man that likes her'. See chapter 4, note 30.

15. Much as Perlmutter (1971) did in contrasting French and Spanish.

16. That the cliticization is subsequent to the movement of the subject is suggested by: *Molti amici sono arrivati*, *\*Molti ne sono arrivati* (without stress on *molti*, and without left-dislocation intonation (Cinque (1977)) (actually the argument is better made in French—see Kayne (1975, 192–193, 382)). The cliticization shows (independently of ordering) that (52) is not to be analyzed as right-dislocation; similarly, scope (and intonation) considerations suggest that (50) and (51) must admit an analysis other than dislocation.

17. In this article we shall not consider the "list" construction: *N'ont embrassé la jeune mariée que le père et la mère* 'neg. have kissed the young bride but the father and the mother'—see Kayne and Pollock (1978, note 11).

18. Notice that we have arrived at a position which seems to say that the NIC is a constraint provided by linguistic theory that corresponds closely to the informal notion "needs a surface subject". Put another way, Perlmutter (1971) was very much on the right track, although his formulation of the constraint was not adequate. If we are correct, then what he lacked was the

notion "condition on anaphora" (vs. filter) and more specifically the notion of "binding". That is, universal grammar makes available a condition of the type "needs a (well-)bound surface subject" (on 'subject' vs. 'nominative', see chapter 2) rather than one of the type "needs a surface...".

Actually, since the NIC must not apply at surface structure, a conclusion most clearly drawn by the French *Quand est parti Jean?* (see § 1.2.2 and 1.2.3 below), another lack was that Perlmutter (1971) did not have available the notion LF (Chomsky (1976, 305 ff.)).

19. For relevant discussion, see Taraldsen (1978).

20. We assume that phrase to be within (the minimal)  $\bar{S}$ ; that is, we assume adjunction to  $\bar{S}$  to be implausible for (58) and for the grammatical French examples below.

21. Nominative Case is visible in Italian: *Sono arrivato io* 'have arrived I', \**Sono arrivato me*. Compare also German *Es hat gestern mit dem Kind ein/einen Mann gesprochen* 'there has yesterday with the child a (nom./acc.) man spoken'. And French: \*\**Quand l'est arrivé?* 'when him<sub>acc.</sub> has arrived'.

We assume that Case-marking takes place in the same way for Rightward NP Movement as for *Wh* Movement.

22. A more general formulation of Van Riemsdijk's principle would be that transformations of any kind must have a structural description of the form: ...X...Y..., with analyzability as usual and no bracketing allowed—see Chomsky (1976).

A problem for the principle (unless modified to "immediately dominates") is the extraposition of PP or S complements of NPs contained in VP, if such extrapositions are adjunctions. Similarly for V<sup>1</sup>-preposing in Rouveret and Vergnaud (1980).

If the principle is valid for NP adjunctions in its strong form, then "Heavy NP Shift" of object NPs cannot exist (assuming no substitution into an  $\bar{S}$  position (Emonds (1976)), in which case \**I spoke to about Harry the man who...* would reduce to the impossibility of insertion into PP.

An alternative approach to the constraint on adjunctions might be in terms of government, if adjunction to S or  $\bar{S}$  could be excluded as not yielding proper government.

If the NIC required that  $\gamma$  precede  $\alpha$ , the question of the precise derived structure produced by the rightward movement of the subject NP would diminish in importance (here), in which case we could envisage reinterpreting the NP-to-COMP rule below as an adjunction of NP to the left of S, which would make it look more like May's (1977a,b) QR rule, and lead to various modifications elsewhere.

23. Note that there is no comparable asymmetry for objects: *le jour où elle a vu beaucoup de garçons* 'the day when she saw many (of) boys', *le seul jour où elle en a vu vraiment*.

24. Adjunction to COMP requires that *c*-command be able to ignore the node COMP itself. See, however, the last paragraph of note 22. An alternative would be to consider that the NP is "stacked" alongside the *wh*-phrase (cf. Williams (1978)).

25. It seems possible to consider the NP-to-COMP rule as an application of "Move  $\alpha$ ", applying in LF (see notes 18 and 22).

26. Actually, (68) becomes less sharp in the future tense, as noted by L. Rizzi: ??*Ne telefoneranno tre* 'of them will-telephone three'. If future tense allows "nonspecificity" more readily than past tense, this contrast could become understandable.

We are not, however, in a position to propose an analysis capable of accounting for the near-obligatory "name"-character of the subject NP of verbs like *telefonare* (when that NP becomes an "object" of the *fare*-V complex, in the sense of Rouveret and Vergnaud (1980), it need not be a "name": *Ne ho fatti telefonare molti* '(I) of-them have had telephone many (i.e. I have had many of them phone)', nor to eliminate the nearprimitive status of "name". See, however, chapter 3, Appendix.

Our analysis should cover additional facts found even with *essere* verbs: *Essendone uscite tre...* 'having of-them left three (i.e. three (of them) having left)' vs. \**Essendone tre uscite...* We assume with Rizzi (1982, 83) that the V-initial gerundive construction is derived by V-preposing (*Essendo tre delle ragazze uscite...* 'having three of the girls left'), i.e. that the subject NP is not moved. Then *Essendo uscite tre delle ragazze...* involves (both V-preposing and) NP-postposing. If we assume further that in Italian a subject NP in place, i.e. nonpostposed, must, at least with gerunds, be a "name", we account for the facts at the head of this paragraph.

The "name" assumption for nonpostposed subject NPs with gerunds is supported by \**Non essendo niente successo* vs. *Non essendo successo niente* 'neg. having happened nothing', if *niente* cannot be a "name".

The ungrammaticality of \**Essendo tre uscite...* (vs. *Tre sono uscite*) should be attributed to the obligatory character of Clitic Placement (Cl-Pl) in Italian with *ne*, and would then imply the applicability of Cl-Pl to the output of V-Preposing (cf. Rouveret and Vergnaud (1980, section 4.2)).

27. We thus expect it to have an effect even with the rule of Disjoint Reference, which does not involve a "free variable". A plausible candidate is the following contrast: ?*I'm sure she<sub>i</sub> will find a picture of her<sub>i</sub> somewhere in this mess* vs. *I'm sure she<sub>i</sub> will find that picture of her<sub>i</sub> near where I left it*.

\**Mary, who I purchased this picture of two days ago...* suggests that the trace of *Wh* Movement does count as an anaphor for "Name-Opacity".

28. (67) shows that it would be incorrect to require "name" status of every NP binding a (null) anaphor. Similarly, *A book was published of mine recently, How many books have appeared of yours this year?*

29. Although the rule can be considered optional. If it does not apply, there is a violation of the NIC, rather than of "Name-Opacity".

30. Similarly for the unnaturalness of *Où a coulé le sang?* 'where has flowed the blood' in the idiomatic reading, as noted by Cornulier (1974). In the same vein, we can exclude \**le jour où a été mise fin à la guerre* 'the day when has been put end to the war', since *fin* could not be a "name".

There is a curious contrast between (73) and *ce que n'ont pas eu beaucoup d'enfants* 'that which neg. have not had many (of) children', which can have the 'not-many' reading (see Attal (1972)), as if *pas* could be transported to COMP along with *beaucoup d'enfants* (this may be related to *Not many people came* vs. \**Not someone came*), though that does not yield an obvious "name".

31. "In parallel with" needs to allow for the case in which the other phrase in COMP is the trace of a *wh*-phrase: *Quand penses-tu qu'est parti Jean?* 'when think-you that has left John' (vs. \**En quel sens penses-tu que parlent les fleurs?*)—see Kayne and Pollock (1978). The facts with *pourquoi* 'why' will require further refinement, as will others.

One of the main arguments in Kayne and Pollock (1978) for successive cyclicity is based on the ungrammaticality of sentences like \**Qui pense qu'est parti Jean?* 'who thinks that has left John'. In the analysis we have outlined here, this gives: If *Jean* is put into the higher COMP, the NIC violation in the lower S is not lifted. If *Jean* is put into the lower COMP, it remains illicit since there is no *wh*-phrase or trace of one there.

32. If we analyze Old French like Italian with respect to the NIC, we can explain why the equivalent of (74) was grammatical in Old French.

Put another way, the at first glance mysterious evolution of French with respect to subject inversion in yes-no questions can be explained as a necessary consequence of the change that made subject pronouns obligatory, i.e. of the change that saw French begin to apply the NIC to null anaphora. Cf. Kayne (1972, note 33).

33. This is supported by \**Where has gone John?* vs. *Où est allé Jean?* (cf. \**Où est Jean allé?*).

34. Note the contrast between (86) and *Est-il là?* 'is-he there', and similarly (76) vs. *En quel sens parlent-elles?* That is, "Subject Clitic Inversion" displays the unexceptional behavior of the Germanic constructions. Given the analysis of subject clitics of Kayne (1972), one might propose that the result of the inversion rule applied to [<sub>NP</sub> [<sub>NP</sub> e] [<sub>SCL</sub> il]] V is [<sub>NP</sub> [<sub>NP</sub> e] [<sub>SCL</sub> e]] V+il, and that [<sub>NP</sub> e] is an anaphor only if free of intermediate structure. This, combined with a maximality requirement on the nominative of the NIC, would suffice.

Alternatively, if one retains the derivation in Kayne (1972) of *Danse-t-il?* from *Lui-il danse* 'him-he dances', via deletion of *lui* (and inversion), there is no problem except that such a deletion rule is not in the spirit of our analysis of Italian. It may in fact not be possible to extend this alternative to *Est-ce vrai?* 'is it true', if Kayne (1972) is right about *ce*.

A second alternative would be to reanalyze Subject Clitic Inversion as V-Preposing to COMP, as in Den Besten (to appear); cf. chapter 10.

On the ungrammaticality of \**As dansé-tu?*, see Emonds (1978, 167).

## Two Notes on the NIC\*

### 2.1. NIC VIOLATIONS IN LF (LOGICAL FORM)

The binding conditions (NIC, opacity) proposed in Chomsky (1980) are considered there to function on the LF wing of the grammar; in particular they come into play subsequent to the coindexing rule(s) operative in control and reciprocal/reflexive constructions and subsequent to the structure-building LF rule(s); furthermore, their application has an effect on interpretation in the case of disjoint reference.

In § 1.2.2 and 1.2.3, we proposed an analysis of French rightward NP movement that reinforces the LF status of the NIC. Essentially, we argued that the NIC, in combination with a certain movement rule of LF, provides a revealing account of (1) vs. (2):

- (1) \*A parlé Jean de cela?
- (2) A qui a parlé Jean de cela?  
'To whom has spoken J (i.e. has J spoken) of that?'

The rightward movement of the subject NP in (1) yields a configuration in which the trace of that movement, a nominative anaphor, is not properly bound by the moved phrase itself, and hence not properly bound at all, whence a violation of the NIC. In (2), a comparable violation is avoided through the application of a rule of LF which we called 'NP-to-COMP', the essential effect of which is to put the previously rightward moved subject NP into a position that c-commands (as well as precedes) its trace. The successful application of this LF rule depends on the presence in COMP of a (certain kind of) WH-phrase; hence the violation in (1) cannot be avoided in the same way.

This implies, of course, that the NIC not come into play until after the LF rule 'NP-to-COMP' has applied, i.e. that the NIC must follow at least one instance of a movement rule in LF.

In (2), the application of an LF movement rule prior to the NIC thus

\*We are indebted to Richard Carter for numerous helpful comments.

eliminates a potential NIC violation. We shall now argue that there also exist derivations in which the application of an LF movement rule creates an NIC violation.

The first example of such comes from negation, in both French and English. We begin with French:

(3) ?Je n'ai exigé qu'ils arrêtent personne.  
'I neg have required that they arrest nobody'

(4) \*Je n'ai exigé que personne soit arrêté.

In (3), there is, informally speaking, some kind of link between a negative marker 'ne' and a negative word, or phrase, 'personne'. In (4) a comparable link is impossible, despite the fact that 'ne' and 'personne' are nearer to one another in (4) than in (3). We suggest that the crucial factor is that 'personne' is the subject of the embedded S in (4), but not in (3).

There is, however, no general prohibition against negative 'personne' in embedded subject position:

(5) J'ai exigé que personne ne soit arrêté.  
'I have required that nobody Neg be arrested'

In other words, 'personne' is excluded from subject position in (4) because the 'ne' it is linked to is in a higher S. When the 'ne' is in the same S, as in (5), there is no restriction.

Consider the following informal analysis: In the 'ne'... 'personne' construction, 'ne' reflects the scope of 'personne' which we take to be quantifier-like. In a two-tiered structure, with 'personne' in the embedded S (in surface structure), 'personne' can have either narrow scope (over that S) or (with certain matrix elements) wide scope (over the matrix S). If it has narrow scope, the 'ne' must be in the embedded S; if 'personne' has wide scope, the 'ne' must be in the matrix S.

On this view, 'personne' has narrow scope in (5) and should have wide scope in (3) and (4). When the embedded S is tensed, the possibility of wide scope is somewhat marginal with object 'personne' (judgments vary on (3)), and impossible with subject 'personne'. It is this last object-subject asymmetry which we would like to account for.<sup>1</sup>

Assume that in LF, when scope is to be assigned to a quantifier like phrase, it is assigned by movement rule, much as in May (1977); following May (1977), let us call this rule QR, and let us assume that it adjoins the phrase in question to the left of some S, with the adjoined phrase then having scope over that S. Assume further that the trace, or variable, left behind by QR counts as an anaphor for the NIC, and that the NIC comes into play subsequent to QR. Then the asymmetry between (3) and (4) follows.

The post-QR representation of (4) is approximately:

[<sub>S</sub> personne<sub>i</sub> [<sub>S</sub> je ne ai exigé [<sub>S</sub> que [<sub>S</sub> x<sub>i</sub> soit arrêté]]]]

The nominative variable has as antecedent the phrase 'personne' which will be rewritten as a quantifier expression binding that variable. However, that variable is not bound within its own  $\bar{S}$ , and so is in violation of the NIC.<sup>2</sup>

For (3), we have:

[<sub>S</sub> personne<sub>i</sub> [<sub>S</sub> je ne ai exigé [<sub>S</sub> que [<sub>S</sub> ils arrêtent x<sub>i</sub>]]]]

which is allowed by the NIC since the variable is not nominative.<sup>3</sup>

For (5) we have:

[<sub>S</sub> je ai exigé [<sub>S</sub> que [<sub>S</sub> personne<sub>i</sub> [<sub>S</sub> x<sub>i</sub> ne soit arrêté]]]]

Here we have a nominative variable which is well-bound, since its binding quantifier is within the embedded  $\bar{S}$ .

Like (5) in this respect is (6):

(6) Personne ne sera arrêté.

Also well-formed, of course, is the simple object counterpart to (6):

(7) Ils n'arrêteront personne.

And similarly for an object 'personne' embedded in an infinitival complement:

(8) Marie ne compte voir personne.  
'M Neg plans (to) see nobody'

However, (9) is ill-formed:

(9) \*Personne compte ne voir Marie.

Here 'personne' is in the matrix and 'ne' in the embedded sentence. The reason cannot be linear order, given (6). The contrast between (8) and (9) follows, however, from the hypothesis that 'ne' reflects the scope of 'personne', and that the scope of 'personne' depends on QR.

The LF structure of (9) would have to be as follows, for the scope of 'personne' to match 'ne':

[<sub>S</sub> x<sub>i</sub> compte [<sub>S</sub> [<sub>S</sub> personne<sub>i</sub> [<sub>S</sub> e<sub>i</sub> ne voir Marie]]]]

But this is a violation of the NIC, and of the general requirement that every variable must be bound by some c-commanding phrase.<sup>4</sup>

The sensitivity to the NIC of the output of QR as applied to 'personne' thus

strengthens the LF status of the NIC. We now turn to English, where we find, if our judgments are accurate, an essentially similar phenomenon:<sup>5</sup>

- (10) ?He's suggested that they write not a single term paper.  
 (11) \*He's suggested that not a single term paper be written.  
 \*He's suggested that not a single student come to see him.

In favorable contexts, it seems to us that (10) is fairly acceptable in the wide scope reading, e.g. 'In all these weeks, . . .'; but (11) seems to resist the construction of any favorable context, in the wide scope interpretation. Both (10) and (11) are acceptable, of course, with narrow scope for the negative phrase.<sup>6</sup>

Assuming that the assignment of wide scope to a +Neg phrase from the embedded S requires the application of an LF movement rule, we again have an account of the object-subject asymmetry in terms of the NIC, as before.

Consider now embedded multiple interrogation, for which we find (in agreement with Hankamer (1974, sect. 2.1)) comparable asymmetry, and the same seems to hold for French:

- (12) ?I know perfectly well who thinks that he's in love with who.  
 (13) \*I know perfectly well who thinks that who is in love with him.  
 (14) ?I know perfectly well which man said that he/I was in love with which girl.  
 (15) \*I know perfectly well which man said that which girl was in love with him/me.  
 (16) ?Je sais très bien qui pense qu'il aime qui.  
 (17) \*Je sais très bien qui pense que qui l'aime.

This too follows from the NIC, in particular if we follow Chomsky (1973, p. 282) in postulating (the equivalent of) an LF movement rule for multiple interrogation (whether the derived position is in COMP or adjoined to S, or to  $\bar{S}$ , is immaterial here). Again, we must take the NIC to be applicable subsequent to the movement in LF.<sup>7</sup>

Notice that echo questions do not display any object-subject asymmetry:

- (18) You think that you're in love with WHO?  
 (19) You think that WHO is in love with you?

It is thus natural to propose that echo questions are not to be represented in

LF via QR, or by a rule like that of multiple interrogation, if that is distinct from QR.

This leaves open the possibility that echo questions are to be subject to a rule like QR, but such that with echo questions the rule applies after the NIC. If we take the NIC to be applicable to the output of LF, then this is equivalent to attributing LF-like properties to some other level of representation, e.g. SI-2 (Chomsky (1976, p. 336)). Alternatively, it could be that a movement rule, with its associated quantifier-variable output representation is simply not appropriate for echo questions.

Whichever alternative one adopts, one has admitted (assuming the above analysis correct) the existence of a significant distinction between multiple interrogation and echo questions. This result seems plausible.<sup>8</sup>

Just as the NIC forces a distinction between multiple interrogation and interrogative echo constructions, so does it force us to distinguish the LF syntax of (certain) negative phrases from that of phrases with 'any—'. Thus (11), which illustrated the impossibility of a embedded negative subject phrase having wide scope, contrasts sharply with (20):

- (20) She didn't say that anyone was at the door.  
 She didn't say that anyone had called.

We conclude that, at least here, 'anyone' is not subject to a QR (—like) rule that would assign it wide scope, over the matrix S. From which it follows that there is no general solution to the 'not . . . anyone' problem possible in terms of a wide scope analysis of 'anyone', at least not in LF.<sup>9</sup>

Similar remarks hold for a wide scope analysis of the relevant reading of 'I believe that everyone is a spy', etc.<sup>10</sup>

## 2.2. GENERALIZING THE NIC

### 2.2.1. *Subjects of Gerunds and of for-to Infinitivals*

Against the background of the preceding argument for the LF status of the NIC, let us ask the question 'Why nominative?'. In chapter 1, we suggested that the NIC should be looked at as a (much improved) reformulation of Perlmutter's (1971) constraint against 'missing subjects' (rather than as a descendant of the TSC/PIC). If that is correct, then the fact that there is an NIC and not an OIC reduces to the observation that whereas 'subject' can be considered 'essential', at least in certain languages, it is unlikely that some language would have a constraint against sentences 'lacking an object'.

Assuming this to be correct, that the NIC reflects the (yet to be made precise) especially prominent status of 'subject' (cf. the special status of subject with respect to 'opacity'), there still remains the question, 'Why not an SIC?'.<sup>11</sup>

Descriptively speaking, the most obvious reason why it seems impossible to formulate an SIC is the contrast found with respect to control:



- (1) John decided to leave.  
John doesn't know where to go.
- (2) \*John decided would leave.  
\*John doesn't know where should go.

In (1), the null subject NP is not bound within its  $\bar{S}$ , yet the sentences are well-formed. In (2), the opposite holds, and the difference is obviously storable in terms of the nominative Case of the subject NP in (2) (vs. the absence of nominative Case on the subject NP in (1)).

However, it is not clear that that is the optimal way to draw the distinction. Recall that §2.1 showed the NIC to be applicable to nominative variables. Now if there were necessarily a variable in the embedded subject position in (2) in LF, then we could draw the distinction in terms of 'x' vs. 'e', since there cannot be a variable in subject position in (1), due to the lack of Case.<sup>11</sup>

In other words, (1) vs. (2) does not force abandonment of the SIC possibility, if we agree that 'x' counts as an anaphor for the SIC but 'e' does not.

Of course, there are some clear empirical differences between the NIC and the SIC (which requires now that any (non-'e') *subject* anaphor be bound within  $\bar{S}$ .) Consider, for example, embedded gerundive sentences with objective subjects:

- (3) I'm counting on him marrying her.  
We're in favor of him studying linguistics.

Our judgments on WH-movement are given in (4) and (5):

- (4) Mary is the one who I'm counting on him marrying.  
Linguistics in what we're in favor of him studying.
- (5) \*John is the one who I'm counting on marrying her.  
\*The only one who we're in favor of studying linguistics is John.

(Like 'count on' are 'bank on', 'bet on'). Given the LF structure for (4): '... what<sub>i</sub> ... of [ $\bar{S}$ [ $S$  him studying  $x_i$ ]]' vs. that of (5): '... who<sub>i</sub> ... of [ $\bar{S}$ [ $S$   $x_i$  studying linguistics]]', the distinction follows simply from the SIC.<sup>12</sup>

Consider further:

- (6) They're counting on pictures of each other being on exhibition.  
We're very much in favor of each other's children being sold as slaves.
- (7) ??They're counting on each other arriving late.  
??We're very much in favor of each other being sold as slaves.

??We're very much against each other being drafted.  
??We're certainly leaning toward each other getting promotions.

- (8) ??He's in favor of himself being sold as a slave.  
\*John is counting on himself leaving tomorrow.

The difference between (6) and (7) seems similar to that between '??They think that pictures of each other are on exhibition' and '\*They think that each other are at a party'. The latter pair constitute a strong argument for the NIC over the Tensed-S Condition, and (6) vs. (7)-(8) seems to favor the SIC over the NIC.<sup>13</sup>

Furthermore, the SIC accounts for the inapplicability of 'Heavy-NP-Shift' (= 'move NP') to the embedded subject NP in (3), as seen in (9):

- (9) \*I'm counting on marrying her the man I was telling you about.  
\*We're in favor of studying linguistics each and every honors student.

(cf. (1) of § 2.1.)

All the examples we have given so far of objective subjects of gerunds have had the gerundive complement as the object of a preposition. Postal (1974, p. 90) gives facts like (9) for gerunds object of a V:<sup>14</sup>

- (10) \*I favor studying linguistics each and every honors student.

As Postal notes, WH-movement with 'favor' is acceptable. And we do find a sharp difference between (5) and (11):

- (11) The only one who we would favor studying linguistics is John.

(Postal assigns '?' to the prepositional example he gives). However, we find little difference with 'each other' and 'himself':

- (12) ??They would very much favor each other being sold as slaves.  
??They would appreciate each other going to bed.
- (13) ??He favors himself being sold as a slave.

If we took (10), (12), (13) to be ungrammatical and (11) to be grammatical, we would have the generalization that the subject of the gerund can escape the SIC only via WH-movement.<sup>15</sup> This could then be accounted for by allowing 'favor' in (11) to assign objective Case to the WH-phrase in the lower COMP - v. Chapter 1.

The contrast between (11) and (5) might, looking ahead somewhat, then be related to the fact that the so-called 'raising' construction (which in Chomsky's (1973; 1980) framework requires objective Case assignment across  $\bar{S}$ ) doesn't appear to exist with prepositions:

- (14) \*My belief of John to be a fool.  
\*You'd better not bank on there to be another riot.

(vs. 'my belief that John is a fool', 'You'd better not bank on there being another riot').

Chomsky (1973, p. 251) points out a pair of sentences that resemble (6) vs. (7):

- (15) They were quite happy for pictures of each other to be on sale.  
(16) \*They were quite happy for each other to win.

Assuming the usual structure '... happy [ $\bar{S}$  for [ $S$  ...]], this follows from the SIC.<sup>16</sup>

Similarly, we derive the ungrammaticality of (17):

- (17) \*They were quite happy for to win the man we like so much.

And we account for the deviance of (18):

- (18) \*?I know perfectly well which man would be happy for which woman to accompany him.

(We agree here with the judgments of Postal (1974, 232).) We account similarly for the contrast in wide scope possibility between (19) and (20):

- (19) ?In all these years, we've desired for you to read not a single linguistics book.  
(20) \*In all these years we've desired for not a single linguist to talk to you.

Finally we derive from the SIC the ungrammaticality of (21):

- (21) \*Who would you be happy for to win?  
\*Who do you desire for to speak to her?

As far as (21) and (17) are concerned, then, there is no longer any need for Chomsky and Lasnik's (1977) 'for-to' filter.

The contrast between (22) and (23) follows, too, from the SIC, if non-deleted 'for' necessarily assigns Case to the null subject NP (see fn. 11):

- (22) We would like to leave.  
(23) \*We would like (very much) for to leave.

(On a deleted 'for' in (22), see fn. 36 below). Thus the 'for-to' filter seems unnecessary for (23).

The fact that Dutch 'om' is not subject to such a filter is stipulated by Chomsky and Lasnik (1977, p. 455), but follows from the SIC, since the NP in question is an object, not a subject.<sup>17</sup>

The only remaining potential justification for the 'for-to' filter comes from (24) vs. (25):

- (24) I found someone for him to play with.  
(25) \*I found someone for to play with him.

and from the perhaps similar (26) vs. (27) (cf. Chomsky (1980):<sup>18</sup>

- (26) I bought it for him to play with.  
(27) \*I bought it for to be played with.  
\*I bought it for to go in the vase.

If the proposal concerning (24)-(27) that we will make in § 3.3.3 is correct, then the 'for-to' filter is entirely superfluous. (This would parallel the conclusion we reached in chapter 1 with respect to the 'that'-trace filter.)

### 2.2.2. *Alpha-sensitivity to Case*

What Postal (1974) calls B-verbs obviously have sharply different behaviour from the constructions considered until now. In particular, they differ from (16), (17), (18), (20), (21) in allowing reciprocals, Heavy-NP-Shift, multiple interrogation, wide scope negation and WH-movement:

- (28) They believe each other to be happy.  
(29) I believe to be wealthy more than 40% of the expected guests.<sup>19</sup>  
(30) I know perfectly well which man believes which woman to be beautiful.  
(31) In all these years, she's believed not a single argument to be valid.  
(32) Who do you believe to be the most intelligent of the lot?

The compatibility of the embedded subject position in (28)-(32) with anaphors of various kinds does not follow from the SIC as formulated so far, given the structure '... believe [ $\bar{S}$  [ $S$  NP to VP]]'.

Taking the above as the appropriate deep structure, we see two lines of argument: On the one hand, we could adopt Postal's (1974) position and

claim that the corresponding surface structure, and hence LF structure, differed from the deep structure as a function of the application of a rule of 'raising'. Such a rule would remove the relevant NP from embedded subject position and thereby from the domain of the SIC. Within the framework we have adopted, a raising rule would presumably be another manifestation of 'move NP', but still would appear to have a certain disadvantage, one with respect to derived structure. Known instances of 'move NP' are either substitutions, as in the object preposing part of the derivation of passives, or adjunctions, as in rightward movement from subject position (Kayne and Pollock (1978), Kayne (1979b)). Assuming the above deep structure, substitution seems out of the question.<sup>20</sup>

There remains the possibility of adjunction to  $\bar{S}$ ,  $\bar{S}$  or COMP.

However, allowing 'move NP' to have this effect in the case of a non-quantifier-like phrase would, by allowing a wider use of 'escape hatches', substantially increase the possibilities of evading the strictures of subjacency (and opacity).<sup>21</sup> It would furthermore make it more difficult to account for the absence of (33) (v. chapter 1, note 11):

(33) \*I believe him is intelligent.

And it would make it harder to relate (34) to opacity (v. chapter 4):

(34) \*Je l'ai voulu faire.  
\*Je le veux que tu fasses.

Let us, then, tentatively abandon the 'raising' approach in favor of another.

This second approach that comes to mind involves a modification of the SIC, but no modification of the underlying 'believe'  $\bar{S}$  structure. Comparing (32): 'Who<sub>i</sub> do you believe [ $\bar{S}$  [ $S$  x<sub>i</sub> to . . .]]' with (21): '\*Who<sub>i</sub> do you desire [ $\bar{S}$  for [ $S$  x<sub>i</sub> to . . .]]' we note that 'x<sub>i</sub>' is free in  $\bar{S}$  (v. fn. 2) in both, and marked with objective Case in both. The two differ, however, in that the objective Case was assigned in (21) by an element within  $\bar{S}$  and in (32) by an element outside  $\bar{S}$ . This suggests that the SIC be modified as follows:

A subject anaphor that has a Case assigned from within  $\bar{S}$  cannot be free in  $\bar{S}$ .<sup>22</sup>

Since in the 'believe'-structures, no Case can be assigned to the subject NP by 'to VP' and since there is no 'for', the SIC will never come into play, as desired.

This modified SIC has the further desirable consequence that control structures, with a Case-less subject anaphor, automatically escape the SIC.

We note that this modification of the SIC leaves intact the status of the relevant NP as subject of the embedded S, as is desirable for opacity.

The choice of thus modifying the SIC, as opposed to admitting 'raising', leads to an interesting problem when it comes to an argument given by Postal (1974, 6.3.) and Bach (1977, 642 ff.) based on the incompatibility of the 'believe'-construction with narrow scope, in sentences like the following:

(35) She believes/suspects/acknowledges not a single linguist to be on the committee

It does not seem possible to interpret (35) as parallel to 'She believes/suspects/acknowledges that not a single linguist is on the committee' (see fn. 10). If this is correct, and if narrow scope must involve QR adjoining the negative phrase to the lower S, then a raising analysis can account for it, as long as the raising is not itself adjunction to S (but rather higher up), since the variable in the raised position would have no c-commanding quantifier antecedent (cf. the discussion of (9) of § 2.1).

If there is no raising, then the question is how to exclude the structure: 'She believes [ $\bar{S}$  [ $S$  not a single linguist; [ $S$  x<sub>i</sub> to be . . .]]] while allowing 'She would like very much for not a single person to be there' with narrow scope.

One possibility is to generalize the SIC as follows (see fn. 22).

A subject anaphor that has a Case that is  $\alpha$  free in  $\bar{S}$  must itself be  $\alpha$  free in  $\bar{S}$ ,  $\alpha = +$  or  $-$ .

We shall tentatively adopt this formulation of the SIC, compatible with the absence of raising derivations for B-verbs.

### 2.2.3. *Let- and want-type Verbs*

In this final section, we shall consider how we might integrate into the framework so far developed an analysis of what Postal (1974) calls W-verbs, and an analysis of what we might call L-verbs ('let' . . .). We begin with the latter.

L-verbs obviously differ from B-verbs with regard to the absence vs. presence of 'to':

(36) Mary let John leave.  
They made him confess.  
The priest had them repent.  
Her stupidity got us thrown in jail.  
I saw her jump up and down.  
They watched him dive into the pool.

Keeping that in abeyance, let us compare the properties of this construction with those of the B-verb construction. For example, can (36) have a negative embedded subject with narrow scope? It seems to us that the answer is yes, contrary to the case of B-verbs illustrated by (35). There are, however, heavy semantic constraints that make many candidates for narrow scope difficult or impossible. Thus 'They were watching noone dive into the pool' seems to make little sense with narrow scope, but for that matter 'They were watching John not dive into the pool', is not natural, and neither is, with narrow scope, 'They were watching John dive into none of the pools'.

Consider, however, (37), which we find ambiguous:

- (37) I saw noone step forward.

The wide scope reading is prominent in a context such as 'Did you see anyone step forward (and steal the jewels)? No, sir...'. The narrow scope reading seems to us fairly admissible in a context in which one is, for example, reporting one's watching a platoon of soldiers being asked to volunteer for a dangerous mission, such that one had the expectation that at least some soldiers would step forward (to volunteer): 'It was the scandal of the year and I was there myself. It was hard to believe but I actually...' or: 'Much to my dismay, I was there to see noone step forward'. Compare 'I regret to have to acknowledge noone to have stepped forward', which seems incompatible with narrow scope, even in a favorable context.

With 'let', 'make', 'have', there are again restrictions on embedded negation, not limited to subject position. Thus 'Mary let John not leave', 'They made him not publish the paper'. 'They had him not publish the paper' do not seem perfectly natural (cf. for French, Kayne (1975, p. 231)). But again there seem to be some contexts in which narrow scope for a negative subject is possible. For example, (38) seems natural:

- (38) She wants to have noone be there when she arrives.

Furthermore, the range of embedded S's with 'let' and 'make' is expanded if the matrix subject is especially powerful. Thus, 'John let there be a snowstorm' is less natural than 'Please, God, let there be a snowstorm'. Similarly, 'Please, God, let/make there be lots of people at my birthday party', or '... let/make/have there be 12 people in the room', the latter in the context of a wish about what one is about to discover upon opening the door.

In this kind of context, we find fairly acceptable:

- (39) Please (God) make nobody be at her birthday party. ... make nobody like her.
- 
- Don't let nobody be at my birthday party.

Compare 'Please force nobody to be at her party', 'Don't permit nobody to be at my party', which seem impossible with narrow scope.

The possible narrow scope reading of (37)-(39) supports the structure '... V  $\bar{S}$  ...' (as opposed to '... V NP  $\bar{S}$  ...'). In a raising framework, we would conclude that raising does not, or at least can fail to, apply with L-verbs. Given our most recent formulation of the SIC, we conclude similarly that the surface structure is '... make [ $\bar{S}$  [ $\bar{S}$  nobody be...]],<sup>23</sup> and moreover, that the embedded subject must receive its Case from within the embedded  $\bar{S}$ .

The contrast between (37)-(39) on the one hand, and (35) on the other, thus translates into a difference with respect to Case-marking, since the embedded subject with B-verbs must not receive its Case from within the embedded  $\bar{S}$ . This difference in Case-marking should obviously be related to the presence vs. absence of 'to'.

In effect, Case can be assigned from within the embedded  $\bar{S}$  to the embedded subject when 'to' is absent, but not when it is present (apart from the 'for' construction with W-verbs). We can describe this by postulating an abstract morpheme INF, to occur in the same PS-position as 'to', and presumably as Tense, such that INF, like Tense, but unlike 'to', can assign Case to the subject.<sup>24</sup>

The difference in Case-marking between infinitival complements with and without 'to' would appear to account for the contrast between (40) and (41):

- (40) John is believed to have stepped forward.
- 
- (41) \*John was let leave.
- 
- \*He was made confess.
- 
- \*They were had repent.
- 
- \*He was gotten thrown in jail (by her stupidity).
- 
- \*Mary was seen jump up and down.
- 
- \*John was watched dive into the pool by his children.

In (41), the trace of 'move NP': 'John<sub>i</sub> was let [ $\bar{S}$  [ $\bar{S}$  [ $\text{NP}_i$  e]...]] will be marked with objective Case from within  $\bar{S}$ , but will be free in  $\bar{S}$ , whence a violation of the SIC.<sup>25</sup> In (40), the corresponding trace is also free in  $\bar{S}$  but there is no violation, since no Case is assigned from within  $\bar{S}$ .

The problem of L-verbs is of course more complicated than this. In particular, wide scope negation seems possible in (42):

- (42) In all these years, he's let/made not a single student take a make-up exam.
- 
- In all these years, I've seen not a single person succeed in solving this puzzle.

Thus, by our analysis, it must also be possible to assign Case to the embedded subject from outside  $\bar{S}$ . This conclusion is reinforced by (43):

- (43) They were making each other laugh.
- 
- They let each other get away with murder.

The question is how to allow (42)-(43) while continuing to exclude (41). Consider the following proposal: Case is always assigned to the embedded subject by INF. But L-verbs are also marked '+F' in Chomsky's (1980) sense, i.e. as able to assign objective Case across an S boundary. When they do (optionally), they 'override' the Case assigned by INF. Since the two Cases are the same, i.e. both objective, there is no Case-conflict, in Chomsky's (1980) sense. But when Case is so assigned by an L-verb, the Case on the embedded subject changes from not free in  $\bar{S}$  to free in  $\bar{S}$  and thereby allows (42)-(43). The reason that (41) is still disallowed is that objective Case is never assignable by passive participles (v. Rouveret and Vergnaud (1980, Appendix A)), so that the Case on the embedded subject trace in (41) remains not free in  $\bar{S}$ .<sup>26</sup>

The acceptability of (44) can be treated in the same way as that of (42) and (43):

- (44) John, who they made write an extra term paper, ...  
 John, who Mary always lets read her linguistics books, ...  
 John, who Mary wants to have photographed in the nude, ...

There are, however, instances of WH-extraction of the embedded subject which are much less acceptable, to our ear:

- (45) ??John, who Mary's accident has made want to quit school, ...  
 ??John, who this new law will let sell the company at a great profit, ...  
 ??Her new car, which she had broken into twice yesterday, ...  
 ??John, who that piece of bad luck got fired from the committee, ...

We can relate this to (41), if the (overriding) assignment of Case from L-verb to the embedded subject establishes a certain semantic relation between the verb and that subject.<sup>27</sup> Notice especially, that the sources of (45) are well-formed:

- (46) Mary's accident has made John want to quit school.  
 This new law will let John sell the company at a great profit.  
 She had her new car broken into twice yesterday (in the 'happen to' sense)  
 That piece of bad luck got John fired from the committee.

In (46), the embedded subject receives Case from INF, and is grammatical. In (45), if it receives Case only from INF, it is in violation of the SIC, by virtue of being free in  $\bar{S}$ . (If it receives Case from the matrix V (in either (45) or (46)), then since the appropriate semantic conditions are not met, the result is "??").

We note that (41) and (45) constitute strong evidence for a  $V-\bar{S}$  structure (as opposed to a V-NP-VP structure – cf. fn. 23). In effect, the paradigm (41)-(46) constitutes an argument for a  $V-\bar{S}$  structure plus optional 'raising' (where 'raising' under our analysis, following Chomsky (1980), is realized as Case-reindexing). Thus we have in essence an argument for all the pieces of a 'raising' (i.e. Case-(re) indexing) analysis of B-verbs, i.e. an argument against the approach of Brame (1976) and Bresnan (1978).

Notice furthermore that whereas the notion of optional raising is perhaps expressible in Postal's (1974) framework, the particular restriction illustrated in (41), which we can express naturally as a function of the Case-marking properties of (adjective-like- v. Chomsky and Lasnik (1977, 475)) passive past participles and of INF is unexpected in Postal's (1974) framework, since there is no reason why an optional raising transformation could not be followed by passive.<sup>28</sup>

French 'laisser', 'regarder', 'écouter' display the (36) vs. (41) contrast:<sup>29</sup>

- (47) Jean a laissé/regardé/écouté Marie lire le journal.  
 'J. has let/watched/listened (to) M. read the newspaper.'

- (48) \*Marie a été laissée/regardée/écoutée lire le journal (par Jean).

Thus we are led to postulate for French the same INF morpheme capable of assigning Case to an embedded subject. As in English, this INF will occur in complements of L-verbs but not of B-verbs; in fact it will be limited to the complements of L-verbs.<sup>30</sup>

The English (44) vs. (45) can be mimicked in French. Thus while both of (49) are possible, (50) is unnatural compared with (51):

- (49) Marie a involontairement laissé les assiettes me tomber sur la tête.  
 'M. has involuntarily let the plates me-fall on the head (i.e. fall on my head).'  
 Marie a volontairement laissé les soldats me tirer dans le ventre.  
 'M. has voluntarily let the soldiers me-shoot in the stomach (i.e. shoot me...).'

- (50) ??Les assiettes que Marie a involontairement laissé(es) me tomber sur la tête.  
 ??Marie les a involontairement laissé(es) me tomber sur la tête.

- (51) Les soldats que Marie a volontairement laissés me tirer dans le ventre.  
 Marie les a volontairement laissés me tirer dans le ventre.

Thus in French 'laisser' can assign Case to the embedded subject, the result being successful if certain semantic conditions are met (which we shall not attempt to make precise – except to note that (51) is closer to 'give permission' than (50) is – cf. fn. 27). The contrast between (51) and (52), (48) indicates clearly that it is the passive status of the latter pair, not the null status of the embedded subject in surface structure, that is crucial.<sup>31</sup>

- (52) \*Les soldats ont été laissés me tirer dans le ventre (par Marie).

Let us now turn our attention to W-verbs.<sup>32</sup> To begin with, we have (53) vs. (54):

- (53) Everybody wanted John to leave.

- (54) \*John was wanted to leave (by everybody).<sup>33</sup>

Thus, W-verbs cannot be analyzed as taking complements of the form '[ $\bar{S}$  [ $\bar{S}$  John to leave]]'. This was appropriate for the B-verbs, but these allow passives, as in (40). Rather (54) recalls (41), with L-verbs.

We recall that (41) was accounted for in terms of its embedded subject receiving objective Case from within the embedded  $\bar{S}$ . However, the Case assigner in (41) is INF, which is incompatible with 'to' i.e. (54) cannot have its embedded subject be assigned Case by INF. Nonetheless, we can unify the treatment of (41) and (54) at a slightly more abstract level, if the embedded subject in (54) does receive Case from within  $\bar{S}$ , though not from INF. Obviously, we want to follow Bresnan (1972) in distinguishing B-verbs from W-verbs by considering that the latter take '[ $\bar{S}$  for [ $S$  John to leave]]'.

Thus, in both (41) and (54), the embedded subject receives (objective) Case from within  $\bar{S}$ , from INF and 'for' respectively. In (40), no Case is assigned to that subject from within  $\bar{S}$ . If 'for' were present in LF, when the SIC applies, we would have 'John<sub>i</sub> was wanted [ $\bar{S}$  for<sub>j</sub> [ $S$  [ $N^4$  [ $N^3$   $e$ ] [ $C_{Case}$ , OBJ]]]]', with a straightforward violation of the SIC, since the subject anaphor 'e' is free in  $\bar{S}$  while its Case is not.

However, if 'for' were always present in LF with 'want', with the above indexing, then we could not account for the contrast between (54) and the following:

- (55) Who do you want to speak to her?  
 (56) I know perfectly well which man wants which woman to accompany him (cf. Postal 1974, 230).  
 (57) They want each other to be happy.  
 (58) In all these years, he has wanted not a single person to see his albums.

These constitute minimal pairs with the corresponding sentences in which 'for' is present in surface structure; v. (21), (18), (16) and (20). Rather, the facts of (55)-(58) vs. (54) recall the L-verb facts of (42)-(44) vs. (41).

Let us, then, attempt to extend our proposal concerning L-verbs to the case of W-verbs. We begin as follows: (54) requires the postulation of an underlying 'for', which will assign objective Case to the underlying subject.<sup>34</sup> To allow (55)-(58), we want that Case to be 'overridden' by Case from 'want'. 'Overriding' will be impossible in (54) because the passive past participle cannot assign Case, so that (54) will remain excluded (v. also fn 25). However, we can't allow the Case assigned by 'for' to be overridden in (21), (18), (16) and (20).

Assume then that this 'overriding' is optional, but that when it takes place, 'for' must be deleted. Thus: 'They want<sub>i</sub> [ $\bar{S}$  for<sub>j</sub> [ $S$  each other - Case<sub>j</sub> to . . . ]]' → 'They want<sub>i</sub> [ $\bar{S}$  for<sub>j</sub> [ $S$  each other - Case<sub>j</sub> to . . . ]]' → 'They want<sub>i</sub> [ $\bar{S}$  [ $S$  each other - Case<sub>j</sub> to . . . ]]'.

Assuming 'for'-deletion to be limited to the environment '... for<sub>x</sub>  $N^3$  - Case<sub>y</sub> . . . ,  $x \neq y$ , we now see (54) as an instance of illicit 'for'-deletion (as well as an SIC violation).<sup>35</sup>

We note that this analysis allows 'for'-deletion to be in the 'phonology',

assuming 'overriding' to be at surface structure. It also indirectly limits 'for'-deletion to contexts in which  $\bar{S}$  is governed by a Case-assigning element, as is desirable.<sup>36</sup>

1. For at least one speaker, this asymmetry manifests itself in a different way: He finds some cases of (4) not to be impossible, but then accepts equally well: '?Je n'ai exigé que personne ne se tue', with two 'ne'. This suggests that for him, (4) can be analyzed as itself containing a second 'ne', which drops, as 'ne' usually does in colloquial French (v. fn 4). This second 'ne' presumably allows 'personne' to be assigned narrow scope, as in (5). The first of two such 'ne' must then be an unusual kind of expletive 'ne' (v. fn. 4).

That the object-subject asymmetry is still present is shown by his rejecting the double 'ne' counterpart of (3): '\*Je n'ai exigé qu'ils n'arrêtent personne'. It looks as if this ('marked') double 'ne' construction can be appealed to by such a speaker, only when the normal single 'ne' (in the matrix S) would lead to an NIC violation.

2. The essential idea is that the subject trace/variable is not properly bound. Whether the rule extracting 'personne' from its S in (3) and (4) is really the same as May's (1977) QR is a separate issue. One could imagine that QR is always strictly S-bound (cf. Chomsky (1975, 105)) and that the assignment of wide scope, at least in tensed cases, necessarily involves the application of a distinct rule, perhaps with different properties. In the present article, we shall assume that it is QR.

If QR applies successive cyclically (v. fns 7,8), then it must be the case that the trace in the lower COMP not qualify as an adequate binder. Since that trace will not be converted into a quantifier, this would follow from the assumption: A variable  $x_i$  is free(i) in  $\beta$  if there is no  $\gamma_i$  in  $\beta$  that c-commands  $x_i$ , where  $\gamma_i$  is a quantifier (—phrase). In other words, the only valid binder for a variable would be a quantifier.

This assumption about variable binding would be relevant to our analysis in chapter 1 of '\*Who do you think that left?'. For further discussion, see chapter 3, which draws on Chomsky (1981). (The present article, written prior to those lectures, does not).

3. Nor must opacity exclude (3). Therefore opacity cannot count variables as anaphors if it follows QR; see fn. 31, last paragraph.

4. This latter requirement is necessary for '\*Je dirai à personne de ne partir'. Cf. May (1977). Not all 'ne' act as scope markers, in particular those usually called 'expletive' do not - v. Muller (1978).

In literary French, one cannot have 'Personne sera arrêté', 'Ils arrêteront personne', 'Marie compte voir personne'. This kind of restriction can be stated informally as: Any basic S to which a phrase bearing the feature + Neg has been adjoined must have a 'ne'.

We might want to allow QR to apply to 'jamais: 'Marie n'a jamais dit cela' with 'ne' obligatory in literary French. 'Jamais' can also be initial in surface structure 'Jamais elle n'a dit cela'. If the LF movement of 'jamais' is subject to the frequently more severe limitations on preposing adverbs across  $\bar{S}$  (v. Chomsky (1977, 96)), we may account for '\*Elle n'envisage de jamais revenir' vs. 'Elle n'envisage de voir personne'.

The slight contrast '?Elle n'a envie de rien voir' vs. 'Elle n'a envie de parler de rien', 'Elle n'a envie de voir personne' suggests that once moved by L-Tous, 'rien' has at least partly adverbial behaviour (with respect to QR). (Also fine is 'Elle a envie de ne rien voir').

Note further: 'A aucun de ces garçons elle ne veut que tu parles' vs. '?A aucun de ces garçons elle veut que tu ne parles' and: 'A aucun de ces garçons elle ne veut parler' vs. '\*?A aucun de ces garçons elle veut ne parler'. This last sentence is excluded parallel to the first example of this footnote, if the initial PP cannot in LF be put back down into its original position. The '?' of its tensed counterpart is a problem, however, unless it involves a stylistic PP rule. Alternatively, the tensed S vs. infinitive contrast recalls expletive 'ne' but how to effect the junction is unclear.

A problem brought to our attention by J.C. Milner (who has presented a different analysis of French negation in Milner (1979a)) is solved by the QR analysis: 'personne que tu (\*n') aimes', i.e. a negative head of a relative is not sufficient for 'ne' within the relative S. The reason is that if 'personne' were lowered into S, the head itself would be an unbound variable, much as in (9).

We might treat *\*Marie ne part* by considering (informally) that in the absence of a '+ Neg' phrase adjoined to S, or a 'pas'/'plus', (*v ne . . .*) is necessarily expletive, i.e. acts like a polarity item: *'Je crains que Marie ne parte'* (see also Milner (1978a)). If cliticization to V is a necessary condition for such an interpretation then we account for *\*Je crains de ne partir*, given Kayne (1975, chap. 2, fn. 18).

As 'contradictory' negation of *'Tu n'as vu personne', 'Je n'ai pas vu personne'* should probably be considered well-formed. The impossibility of *\*Personne ne m'a pas vu* as the contradictory negation of *'Personne ne t'a vu'* can be attributed to the relative order of 'personne' and 'pas', under the assumption that even 'contradictory' 'pas' is not subject to QR. Hence a bridge to *\*Grand'chose n'a pas été fait* vs. *'On n'a pas fait grand'chose.'*

The inapplicability of QR to 'pas', 'plus' should be related to their not belonging to major categories (perhaps 'jamais' can have that property, too). It may be that 'pas', 'plus' are introduced only in conjunction with 'ne'.

In literary French, 'personne' can also be a polarity item like 'anyone': *'Je ne veux pas que personne vienne'*, (cf. Gaatone (1971, 162)) but not in the same simple S as 'ne . . . pas'. This could perhaps be treated like disjoint reference: Coindex freely 'personne' with any c-commanding 'pas', delete the index of 'personne' subject to binding conditions, interpret the presence of a remaining index as incompatible with polarity (a supplementary principle would be needed here for *\*Je ne veux pas voir personne*). In all our previous examples, 'personne' corresponded much more closely to 'nobody' ('pas' is itself like 'not' and 'ne', under this analysis, has no English counterpart).

5. Luigi Rizzi tells us that the data are similar in Italian: « Non voglio che venga nessuno » (like (3) and (10)) vs. *\*Non voglio che nessuno venga* (*\*with 'nessuno' having wide scope; possible in the sense of 'Je ne veux pas que personne ne vienne'*); cf. Rizzi (1982, chapter IV). Thus the NIC in Italian is suspended only for anaphors null in surface structure – v. § 1.2 and Taraldsen (1978) for relevant discussion.

6. Since the polarity phrase 'in all these weeks' can be prefixed to (10) but not to (11) (even in the latter's narrow scope interpretation), it must be that the distribution of 'in all these weeks' is determined after LF extraction.

7. N. Chomsky has pointed out to us that (13) and (15) are improved by the addition of another Wh-phrase to the most embedded S: (a) *'?I know perfectly well which man said that which girl was in love with which boy'* (cf. Hankamer (1974, sect. 2.1.)). The following seems worse again, however: *\*I know perfectly well which man told which boy that which girl was in love with him/you'.*

If this judgment is accurate, it suggests that (a) is improved because 'which boy', in moving up in LF toward the COMP of 'which man', leaves a trace in the lower COMP containing 'that', with this trace then serving as a link between the higher COMP above it and the phrase 'which girl'; in other words, the trace of 'which boy' makes it possible for 'which girl' to be linked to the higher COMP without having to be extracted from its S. Cf. § 8.2.2.

This should be compared to the possibility for the trace of Wh-movement in an intermediate COMP to serve as a 'trigger' for 'stylistic inversion' – v. Kayne and Pollock (1978).

8. Echo questions have the property that there exist no embedded counterparts to (18)-(19). That is, as *'What did you do?'* is to *'I wonder what you did'*, so is *'You did what?'* to *\*I wonder Ø/that/if you did what'*. Put another way, to the extent that scope is an appropriate term for non-Wh-movement interrogatives, the scope of the Wh-phrase can only be the matrix S, not an embedded S. Thus *'He wonders if you did what'* is possible in a sense parallel to that of *'?What does he wonder if you did?'*, but impossible in the sense of *'He wonders what you did'* (Cf., with echo intonation, *'WHAT did you do?'* vs. *\*I want to know WHAT you did'*).

A consequence of this is that in a sentence such as *'Where did John put what?'*, 'what' could be an echo-Wh-phrase with 'scope' comparable to that of the COMP containing 'where', whereas in *'I know perfectly well where John put what'*, an echo interpretation of 'what' would give it 'scope' distinct from 'where'. In other words, non-embedded multiple interrogation 'overlaps' with echo questions in a way that fully embedded multiple interrogation does not.

This may be why (13) and (15) are more sharply unacceptable than their non-embedded counterparts (and similarly in French): *'?Which man said that which girl was in love with him?'*

(Bresnan (1977, 191)) considers a comparable example perfect.) That is, the non-embedded example might have its second Wh-phrase counted as akin to those of 'echoes', or, to put it another way, have its acceptability be 'parasitic' on constructions like (18)-(19).

For further remarks on echo questions, in a somewhat similar vein, see Kayne (1972, sect. III, pp. 96-97).

If (15) and (13) are better without 'that', as they tentatively seem to be, (cf. Kuno and Robinson (1972, 466 fn.)), Hankamer (1974, 66, ex (28)), and if the following is valid: *'?I know perfectly well which man says he thinks which girl is in love with him'* vs. *\*I know perfectly well which man says it seems which girl is in love with him'* (vs. *'? . . . which man says it seems I'm in love with which girl'*), then we have the germ of an argument for successive cyclicity plus (a generalized) Case marking into COMP, in LF, parallel to § 1.1.

9. Unless we are mistaken, Quine's (1960, sect. 29) analysis of 'any' is inconsistent with his analysis of opaque contexts (ibid., sect. 31). Consider (20), as well as *'She didn't say that there was anyone at the door', 'She didn't say that anyone was a spy'* (the latter in the sense ' . . . that there were any spies'). These all seem typical examples of 'non-exportation', e.g. the example before last seems clearly unlike *'Noone was said by her to be at the door'*. Yet Quine's analysis of 'not . . . any' forces the 'any'-phrase out to the left of 'not'.

The force of examples like *'If anyone knocks, give him a quarter'* as evidence for giving 'any' wide scope seems weak, given *'Whenever someone knocks, we give him a quarter'*. The assignment of wide scope in LF in these 'if' examples is ruled out by the NIC, in any event.

The difference between 'any' and 'no' with respect to QR correlates with the following if QR obeys subadjacency: *I can't find a book that has any pages missing* vs. *\*I can find a book that has no pages missing* (*\*in wide scope reading*).

10. Similarly for the ambiguity attributed by Postal (1974, 222) to *'Melvin showed that none of the formulas were theorems'*, i.e. whatever ambiguity there may be is not to be represented by QR in LF. Cf. also May (1977, 3.3.).

11. N. Chomsky (1980).

We shall assume in the text that variable insertion for a nominative null NP is obligatory. If that is not correct, we could make the same point with respect to a distinction between a Case-marked null subject NP and a non-Case-marked one. See below, § 2.2.2.

12. But not from the NIC, since the subject position is not marked nominative. We assume that gerunds can also have Case-less subjects, as in *'We're in favor of studying linguistics', 'I'm counting on winning'*. It might be that the binding domain in (5) is determined by NP rather than by S.

13. Disjoint reference appears to fall the other way: *\*John<sub>i</sub> is in favor of him<sub>i</sub> being sold as a slave'*, but there are cases for which the NIC fails too: *'John<sub>i</sub> wishes (that) I/she/he<sub>j</sub>/\*he<sub>j</sub> would leave'* (cf. Postal (1970, 468-476, 488) and Jenkins (1972, chap. 4)). Hopefully the two sets can be integrated.

The multiple interrogation facts are not as sharp as we would like: *'?I know perfectly well which man is leaning toward which woman getting a promotion', '? . . . which girl is in favor of which boy losing his job'*.

The negation facts actually seem somewhat sharper. Thus we perceive a difference between *'?In all these years, she's been in favor of him marrying not a single girl'* and *\*?In all these years she's been in favor of not a single girl marrying him'* (cf. (10)-(11) of § 2.1).

The 'each other' facts of (7) seem less sharp than the extraction facts of (5) (compare, though (7) with *'They're counting on each other's help', . . . on each other to help*). This may be related to the problem for the NIC (and SIC) posed by *'?We always like to know where each other are staying'* vs. the \* of extraction – cf. Jespersen (1975, 224), and perhaps Matthei (1978).

14. His (1974, principle (2), 83) is now seen to follow from the SIC. Bresnan's (1976c, 486) example *'Near that town was situated . . . an old ruin'* bears on the SIC exactly as does (2) of § 2.1, and may be amenable to the same type of analysis, with 'NP-to-COMP' in LF rendered successful by the preposed locative.

We find more acceptable than Bresnan (1976c, 487) examples such as *'?I finally convinced to move on most of the passersby who had gathered at the fire', '?I'm going to force to attend my party not only all the linguists but also . . .'*, i.e. they seem clearly better than (9) and (10).

Bresnan (1976c, 487, (10)) is another instance of (10). The problem is rather with her example 'I don't want myself getting stuck with all the work' (cf. 'I would hate for myself to get stuck with all the work') – v. the last paragraph of fn. 13.

15. Since NP's, unlike S's, don't normally 'need a subject', we would not expect the subject of a NP to fall in the domain of the SIC, i.e. there should be no prohibition against an anaphoric subject of a NP being free in that NP. This seems to hold: 'We're counting on each other's success/presence', 'I know perfectly well who's counting on whose presence', '... who approves of whose destruction of entire cities'. And wide scope negation is perfectly possible too: 'John bemoans nobody's absence'.

The impossibility of '\*Whose do you bemoan absence?', '\*I bemoan absence my very best friend's' may be related to the Case filter.

Note that 'John is bemoaning nobody's presence' cannot have the narrow scope reading found in 'John is bemoaning the fact that nobody is present'. Similarly for 'Mary's dismissal of not a single linguist is widely appreciated', 'I disapprove of Mary's criticism of not a single linguist'. This would follow if QR could not adjoin to NP; cf. the lack of COMP in NP. Cf. Liberman (1974).

We find wide scope in the last two examples to be unnatural, too, compared with 'I disapprove of criticism of not a single linguist'. This recalls '\*?Who did you buy John's picture of?', but cannot be attributed to opacity – v. fn. 3.

Actually this difference between a NP determiner and an article appears with narrow scope negation too: 'In the event of a riot, the/\*John's

|  |    |  |          |                         |
|--|----|--|----------|-------------------------|
| { destruction<br>disappearance<br>survival } | of | { this windowfront<br>no windowfront } | is quite | { likely!<br>unlikely } |
|--|----|--|----------|-------------------------|

Returning to the main point of this footnote, consider: '\*?We're counting on each other's being successful/present', 'John is made unhappy by nobody's love for him (only wide scope)' vs. 'John is made unhappy by nobody's loving him' (? narrow scope, \*? wide scope). Thus the subject of 'poss-ing' acts more like the subject of 'acc-ing' (and that of regular S's) than like the subject of true nominalizations (we agree here with Liberman (1974, note 3)). That is, the subject of 'poss-ing' is in the domain of the SIC.

16. If the 'for'-phrase of 'John is easy for Mary to please' is in the matrix (cf. Chomsky (1977)), then the SIC does not cover Chomsky's (1973, 265) '\*The men are easy for each other to please'. Nor would it necessarily have to, given 'They would be quite happy for each other's wives to be invited' vs. '\*They would be easy for each other's wives to fall in love with'.

These recall 'Nobody<sub>i</sub> is anxious for his<sub>i</sub> children to grow up' vs. '\*?Nobody<sub>i</sub> is easy for his<sub>i</sub> children to dislike' (like '\*?I know nobody<sub>i</sub> who his<sub>i</sub> children dislike'), suggesting in fact an infinitival relative containing the 'for'-phrase.

Perhaps the 'for'-phrase must be in the embedded  $\bar{S}$  to permit 'easy' to govern the COMP in which Wh-deletion occurs. This would make sense of the English-French contrast: 'Jean est facile (\*pour Marie) à contenter' (v. Kayne (1975, chap. 4, n. 76)), given that French has no such prepositional complementizers.

17. The difference between standard English and Ozark English can obviously not follow from the SIC alone. For (23), we could say that Ozark allows 'for' not to assign Case, even when not deletable. But that would not cover (21). A more interesting possibility is that Ozark has structures of the form: ... [ $\bar{S}$  [ $\bar{S}$  [NP] for to VP]], which are attested in an earlier stage of English, according to Curme (1977 (1931), sects. 49 2a, 24 III d), who gives an example from Chaucer '... and gan (began) *hir for to (...) calle*.' Cf. German 'Sie fängt an, ihn zu V'.

If Ozark doesn't have 'We would like him for to leave', 'He's wanted for to leave', then (21b) must be an instance of objective Case assigned from 'desire' into COMP (v. chapter 1). In which case, we would expect (21a) only if 'for' were in the matrix, as it must be in Chomsky and Lasnik's (1977, 501, (215)). '\*For to win the man in the blue shirt would be surprising' should be impossible in Ozark, as well as in standard English.

On the problem of '\*John<sub>i</sub> would like very much for him<sub>i</sub> to leave', see fn. 13. Note also the

improved 'She<sub>i</sub> has recently requested for her<sub>i</sub> to be allowed to attend the meeting'. (cf. 'John wishes he could attend the meeting').

On Postal's (1974, 77 fn.) 'They arranged for each other to live in comfort', clearly better than (16), there should be some relation with 'They arranged for each other's comfort' vs. '\*They would be happy for each other's victory', though the contrast with WH is still problematic – v. fn. 13.

18. Both (25) and (27) are possible without 'for', as is usual for control. A control analysis of 'Someone to fix the sink' eliminates the problem of 'for'-deletability noted in Chomsky (1980).

19. We agree with Postal's (1974, 4.1.) judgments vs. some of those of Emonds (1976, p. 113); cf. fn. 14.

20. Subcategorization of 'believe' for a deep structure '... V NP  $\bar{S}$ ' seems implausible, especially given '\*I believe John that he's intelligent', '\*What I believe John of is that...', '\*What I believe John of is to be intelligent' (vs. 'convince').

21. That is, if a NP is moved to a COMP-like (v. fn. 15, 3rd para.) position, it must be convertible (or 'converted', which would require the cyclical construction of LF) into a quantifier expression.

22. If the Case-marking rule coindexes the element assigning Case and the Case itself, e.g.: ... V [ $N^i N^j$ ] [ $Case_i$ ] – V<sub>i</sub> [ $N^i N^j$ ] [ $Case_i$ , OBJ]] (adopting here Siegel's (1974) representation of Case), then we could have the SIC read:

A subject anaphor that has a Case that is not free in  $\bar{S}$  cannot itself be free in  $\bar{S}$ .

The relationship between such Case indexing (cf. also fn. 4, last para.) and Rouveret and Vergnaud's (1980) Argument Indexing Convention would call for exploration. This revised SIC is, furthermore, significantly similar to their (1980, Appendix A) Case Island Condition.

23. These scope facts seem sharply incompatible with Akmajian, Steele and Wasow's (1979, 42) 'V NP V<sup>2</sup>' structure. Note that their (p. 41, (117)) argument seems to be invalidated by the context appropriate for (39), which allows, to our ear, 'Please, God, make him have arrived, by the time I get there', 'Please let them have left by the time I get there', and even 'Please make there have been a mistake'. Similarly, their claim (p. 37) about imperatives seems incorrect: 'Please have arrived, by the time I get there' (in a 'wish' context); the syntactic restrictions remain firm: '\*Please can help me' vs. 'Please be able to help me'.

24. Presumably objective Case, as with the subject of gerunds.

One might wonder now what blocks '\*John be here is surprising', etc, which cannot now be excluded by the Case filter. Note, however, '\*Be here is unpleasant', '\*I'm happy be here', '\*I don't know when leave', etc., so that a NP Case filter solution seems insufficiently general, i.e. with INF there are not the same 'lexical vs zero' contrasts as those that motivate the Case filter solution to the distribution of subjects of 'to'-VP. Rather INF itself seems in English to be restricted to the complements of a small number of verbs (for reasons unclear).

25. And of a requirement that the trace in passives not be Case-marked. Note that as usual Case-marking must be obligatory.

'John was made to confess', 'He was seen to be a liar' are correctly allowed by this approach; similarly, the distinction is drawn between 'I've been helped to understand' and '\*I've been helped understand' (Gee (1975; 1977)). The absence of '\*They made him to confess' recalls Chomsky's (1980) discussion of 'allege'; cf. Postal (1974, 9.3).

26. Also the violation of fn. 25 is unaffected. In terms of fn. 22, this 'overriding' becomes the replacement of one index by another: 'They<sub>i</sub> let<sub>j</sub> [ $\bar{S}$  [ $\bar{S}$  each other<sub>i</sub> – Case<sub>k</sub> INF<sub>k</sub> ...]]' – 'They<sub>i</sub> let<sub>j</sub> [ $\bar{S}$  [ $\bar{S}$  each other<sub>i</sub> – Case<sub>j</sub> INF<sub>k</sub> ...]]'.

27. Cf. Postal (1974, chap 11) and Kayne (1975, chap 3, fn. 31). More precisely, we would want to say that Case-coindexing of a NP to a V has semantic consequences; informally speaking, the NP becomes a 'derived argument' of the verb – v. Rouveret and Vergnaud (1980).

The deviance of (45) is set off by the possibility of extracting the embedded object: 'the only thing that Mary's accident has made John want to forget...'. 'His father's company, which the new law will let John sell at a great profit...', 'He's the guy she had her car broken into by', 'This committee, which that piece of bad luck got John fired from'.

Similarly: 'The only elected official that the law permits to/allows to/??? lets do as he pleases is the mayor', 'The only person that the recent bombings have caused to/??? made become a revolutionary is John'. Cf. fn. 25.



28. This argument may carry over to a relational grammar analysis of L-verbs.

29. (48) is '?' with 'voir' and 'entendre' (Kayne (1975, chap. 3, fn. 27)) which suggests that French infinitival complements can also (partially) correspond to English '-ing': 'John was seen/heard leaving', 'Who was John seen/heard/\*watched/\*listened to kissing?' (Gee (1975, chap 6)); these '-ing' structures with 'see' and 'hear' must not always be of the form "V  $\bar{S}$  with Case assigned obligatorily to the embedded subject by '-ing'"; cf. Kayne (1975, chap 3, fn. 35) on French 'V-ant'.

30. Thus '\*Jean arriver serait suprenant'.

31. As has been suggested for English. Note that Heavy-NP-Shift applied to the embedded subject in (46) yields a result at least as bad as (45), as expected – cf. (17) and (9) of § 2.2.1. The Shift equivalents of (44) seem better: 'We make write extra term papers those students who . . .', '?Mary always lets read her books those of the children who . . .', 'Mary wants to have photographed in the nude those of the men who . . .'. Like (29), they imply, given the SIC account of (35), that the shifted NP, if it counts as an antecedent, must be outside the embedded  $\bar{S}$  (cf. Rouveret (1977; 1978)).

French infinitives without INF do not assign Case to their subjects, thereby allowing 'Faire cela serait difficile pour Jean' (On \*Je crois Jean être intelligent', v. chapter 5). Like French in not frowning on INF-less bare infinitives is Icelandic, which admits (40) with no 'to' (Andrews (1976, 8)).

If Case is assigned to the embedded subject in (49a) by INF, it is plausible that the same would hold in 'Marie a laissé/fait tomber les assiettes'. However, here that subject (and it must be one for opacity – v. Kayne (1975), Rouveret and Vergnaud (1980)) is extractable: 'les assiettes que Marie m'a laissé/fait tomber sur la tête'. Consequently, when the V-raising rule applies, 'laisser', 'faire' can apparently assign Case to the embedded subject without the semantic constraints of (50). Thus, the Case of the embedded subject must change from ( $C_{Case_i}$  OBJ), i the index of INF, INF within  $\bar{S}$  to ( $C_{Case_j}$  OBJ), j the index of 'faire', 'laisser', which are outside  $\bar{S}$ .

This is similar to Rouveret and Vergnaud's (1980) 'thematic rewriting' approach, but in part since it is formulated entirely in terms of Case, makes at least one prediction different from those of 'thematic rewriting', namely that the Case index of the embedded subject will remain that of INF if 'laisser', 'faire' are passive past participles. In other words, under the above assumptions, the ungrammaticality of '\*Les assiettes m'ont été fait(es) tomber sur la tête (par Marie)' would be a consequence of the SIC (v. also fn. 25). However, this leaves open '\*Ce gâteau a été fait manger à Marie (par Jean)', unless the infinitive in French (vs. Italian) necessarily assigns Case to the trace of its object.

If the 'faire'-infinitive rule raises V or  $\bar{V}$  to a position still within the embedded  $\bar{S}$ , as proposed by Quicoli (1976) and Rouveret and Vergnaud (1980), and if Case-override is obligatory in that construction, then the surface structure of 'On a fait partir Jean' is: 'On a fait; [ $\bar{S}$  partir [ $\bar{S}$  Jean – OBJ; . . .]].

That is, the Case of the embedded subject is free in  $\bar{S}$ . Consequently, if the embedded subject were an anaphor, then by the alpha-formulation of the SIC above, that anaphor would have to be free in  $\bar{S}$ .

Whence the ungrammaticality of '\*On a fait le partir' (vs. 'On l'a fait partir'). And similarly for '\*On a fait lui manger une tarte', if the trace of 'lui' receives its Case from 'faire'.

Consider now the surface structure 'On a fait; [ $\bar{S}$  acheter ce livre–OBJ; [ $\bar{S}$  à Jean]], under the assumption that the underlying object 'ce livre' receives its Case from 'faire', and that it is still in the opacity domain of the subject 'Jean', as in Rouveret and Vergnaud (1980). Then the ungrammaticality of '\*On a fait l'acheter à Jean' (vs. 'On l'a fait acheter à Jean') follows from giving opacity an alpha-formulation, too. That is: If an anaphor in the domain of the subject of  $\bar{S}$  has a Case that is  $\alpha$  free in  $\bar{S}$ , then that anaphor must itself be  $\alpha$  free in  $\bar{S}$ .

This correctly distinguishes the preceding from '?On a fait en acheter trois à Jean', since the Case of the trace of 'en' is presumably not necessarily assigned by 'faire'.

Combining this (in a way that we will not attempt to make precise here) with Rouveret and Vergnaud's idea that the 'opacity domain' (perhaps also 'domain of freedom') is extended by cliticization of the newly-dative subject, we might account for the contrast '\*On a laissé manger à Jean' vs. '?On lui a laissé les manger'.

This formulation of opacity avoids the need for the minimality requirement proposed in Chomsky (1980), since a Case-less anaphor is now exempted from opacity. The minimality had to be restricted to null anaphora, given '\*Mary expects John to believe herself to be intelligent'.

If opacity and the SIC are similar in this respect, the asymmetry of fn. 3 is bothersome. Combining the idea of fn. 2 on variable binding with that of Chomsky (1973) on 'possible controller', we suggest the following: Opacity is to be partially restated as 'If an anaphor in the domain of the subject . . . such that the subject is a possible binder for that anaphor . . .', i.e. a variable escapes opacity because a subject NP is never a possible binder for a variable, although it is for all other kinds of anaphora. Then we can consider that both opacity and the SIC apply to the output of LF, and that variables uniformly count as anaphora.

32. Note that both W-verbs and L-verbs sometimes have embedded  $\bar{S}$  with a passive past participle without 'be': 'Mary's mistake got John thrown in jail', 'Everybody wants John arrested immediately', The impossibility of '\*John was gotten thrown in jail (by Mary's stupidity)' implies the presence of INF (and the  $\bar{S}$ ). Similarly, '\*John is wanted arrested immediately (by everyone)' implies an underlying 'for' (see below). Whether there is a deleted 'be' or a zero copula (cf. Arabic, Russian) is a partially separate question.

This suggests that 'There were several people murdered on this street last year' has the structure "There were [ $\bar{S}$  several people INF murdered. . .]" (with assorted consequences for the analysis of 'there' – v. Jenkins (1975) and Akmajian and Wasow (1975)).

33. Similarly for 'desire', 'hate', 'like', 'need', 'prefer', 'love', 'wish'. Postal (1974, 4.16) gives 'expect', 'intend' and 'mean' as exceptions. 'Expect' is, however, almost certainly also a B-verb – v. Bresnan (1972, chap. 3C). The same may well be true of the other two, whose passives seem akin to what Bresnan (p. 164) called 'predictive'. When 'intend' is more like 'wish', it doesn't seem to passivize: 'She intended for you to help me', '?You were intended to help me'.

34. This choice between objective and oblique is not important here (except that the 'overriding' proposed just below would yield a Case conflict if the latter). In chapter 5, Appendix 1 we suggest that English has no oblique Case. This should correlate with the absence of a 'for' complementizer in languages that do, including Old English (cf. Jespersen (1970 part V., 314)). The reason perhaps being that oblique Case is subcategorized for, rather than assigned by rule, and subcategorization cannot be met across an S-boundary.

We assume that the reanalysis rule operative in 'John was voted for by lots of people' is inapplicable to complementizer 'for'.

35. '\*John was wanted for to leave' is an SIC violation, too – v. fns. 34, 25.

36. Under this analysis, '\*John wants for to leave' violates the SIC, and 'John wants to leave' must be derived from 'John wants [ $\bar{S}$  for [ $\bar{S}$  e to leave]]' by overriding followed by 'for'-deletion; in other words the controlled subject has objective Case. (An alternative compatible with (54) is to allow W-verbs to also take 'for'-less  $\bar{S}$ -complements, but one would have to stipulate a null deep structure embedded subject). This bears on the 'wanna' problem (v. Kayne (1978, fn. 20)). Control of a Case-marked subject appears to be necessary in Icelandic, to judge by Andrews (1976).

This further implies that Case-marked null NP's cannot be assimilated to variables, unless we avoid the whole problem by adopting Chomsky's (1976, 330) 'self'-deletion.

Actually, the text proposal is very much like the one discussed in Chomsky (1980). In effect, 'for' is deletable when the governed NP doesn't bear its Case, which we achieve by 'overriding' rather than by optionality. One empirical difference is (54) (if 'for' deletion could precede Case-marking why couldn't it precede 'move NP'?).

The variability illustrated in 'I don't like you to do that' vs. '?I hate you to do that' can be attributed to a lexical property of W-verbs with respect to 'overriding' (essentially ' $\pm F$ '), rather than to 'for'-deletion itself. (Similarly for '?I want for you to do that').

Given (55)-(58), we would expect Heavy-NP-Shift to be equally good. The facts are complex, but we agree with Postal (1974, 12.5) that there must be extraneous principles involved (what precisely is unclear – 'I was able to keep from crying those of the children who . . .'). Note especially Postal's (p. 409) 'I want fired now everyone who . . .' vs. '\*Everyone who . . . is wanted fired now' – v. fn 32.

Our analysis requires that 'We want nobody to be there when we arrive' not be representable

via QR with narrow scope. Judgments are variable (cf. Postal (1974, 224) and Bach (1977, 642)). It may be that with W-verbs wide scope assigned by QR is compatible in some sense with the quantifier maintaining some 'link' with the lower  $\bar{S}$ , much as in 'Elle a *tous* voulu qu'*ils* se tirent' ('She has *all* wanted that *they* leave'). Crucially, these French constructions (v. Pollock (1978), Kayne (1978)) are incompatible with B-verbs: \*'Elle a *tous* cru qu'*ils* étaient partis' ('She has *all* believed that *they* have left').

## ECP Extensions\*

In his recent Pisa lectures, Chomsky (1981b) has proposed an analysis different from that of Chomsky (1980, 37) for the clear subject-object asymmetry displayed in (1):

- (1) a. ?The only person who I don't know when I can get to see is John.  
b. \*The only person who I don't know when can get to see me is John.

In Chomsky (1980), the trace in embedded subject position in (1b), being unbound within the embedded  $\bar{S}$ , violated the Nominative Island Condition (NIC). On the other hand, Chomsky's (1980, 13) Opacity Condition did not apply to the trace in (1a) (nor, obviously, did the NIC), so that the two binding conditions distinguished (1a) from (1b) as desired.

Chomsky's new proposal goes beyond his earlier analysis by raising (among others) the following questions: Why is there an asymmetry between the NIC and Opacity with respect to the trace of *Wh* Movement; that is, why is the trace of *Wh* Movement subject to the former but not to the latter? Why should there be a constraint on *wh*-traces that singles out "nominative"? The answer that Chomsky suggests is essentially that traces of *Wh* Movement, not being anaphors, should not be subject to either of the binding conditions, and in particular not to the NIC. Instead, traces of *Wh* Movement (in fact, traces in general) are to fall under an Empty Category Principle (ECP), which imposes the requirement that an empty category (hence, as a special case, the trace of *Wh* Movement) be governed, in the sense of *government* discussed in Chomsky (1980) and in Rouveret and Vergnaud (1980). The asymmetry between (1a) and (1b) is now traced back to an independently existing government asymmetry, namely that the trace of *Wh* Movement is governed by the V *see* in (1a), but not by any lexical category in (1b).

More precisely, we have the following statement of the ECP:

- (2) *Empty Category Principle (ECP)* (Chomsky's formulation)  
An empty category [ $\beta$  e] must be "properly governed", where  $\alpha$  properly governs  $\beta$  if and only if  $\alpha$  governs  $\beta$  and

\*We are indebted for helpful comments to Guglielmo Cinque, Jean-Yves Pollock, Luigi Rizzi, and an anonymous *Linguistic Inquiry* reviewer.

- a.  $\alpha = [\pm N, \pm V]$  or  
 b.  $\alpha$  is coindexed with  $\beta$

Neither example (1a) nor example (1b) meets condition (b), but (1a) meets condition (a), with  $\alpha = [-N, +V] = \text{see.}^1$  Consequently, the ECP permits (1a), but excludes (1b).

In § 3.1, we discuss several phenomena, mostly from French, that support Chomsky's ECP proposal. § 3.1.1 is concerned more specifically with additional subject-object asymmetries of the kind displayed in (1). § 3.1.2 suggests that a slight modification of the ECP would allow bringing in a number of additional phenomena concerning empty categories governed by a preposition.

§ 3.2 attempts to justify a substantial reformulation of the ECP, which essentially recombines, in a particular way, the two primary building blocks of (2): government and the antecedent-empty category relation. (The latter, seen in condition (b) of (2), goes back through Chomsky (1980) to the "proper binding" of Chomsky (1975, chapter 3) and Fiengo (1977). This reformulation is given in § 3.2.1. § 3.2.2-3.2.4 argue that such a reformulation permits the ECP to treat, in addition to all the phenomena of § 3.1, an important part of what was hitherto considered to fall under Chomsky's (1973) Subjacency Condition, as well as much of what was considered to be part of the theory of the recoverability of deletions.

§ 3.3.1-3.3.2 bring out the way in which Chomsky's (1973) successive cyclicity idea continues to play a positive role in the ECP framework, and § 3.3.3 the advantage of the ECP in subsuming at least two of the filters of Chomsky and Lasnik (1977).

If, as we attempt to demonstrate, the ECP constitutes an explanatory principle over a wide range of phenomena, it clearly provides a substantial argument in favor of a theory of government of the kind developed in Chomsky (1980) and Rouveret and Vergnaud (1980), and a substantial argument in favor of the very notion "empty category" (trace theory).

### 3.1. SOME ECP EFFECTS

#### 3.1.1. Subject-Object Asymmetries

In certain negative environments, French permits object NPs of the form *de N ...*:

- (3) Jean n'a pas trouvé de livres.  
 John (neg.) has not found (of) books
- (4) \*Jean a trouvé de livres.

We suggested in Kayne (1975, section 1.5) that these NPs be analyzed as [NP

zero element-*de*-articleless NP], the idea being that (3) is entirely comparable to (5), except that where (5) contains *beaucoup*, (3) contains a zero element of the same category.

- (5) Jean n'a pas trouvé beaucoup de livres.  
 John (neg.) has not found many (of) books

It is natural to ask whether this "zero element" is subject to the ECP. If it is, then *proper government* must be defined so as to allow V to properly govern  $\beta$  in the context [VP V[NP[ $\beta$  e] de...]. Now, the V- $\beta$  configuration here is essentially similar to the one in ... V[S[COMP[ $\beta$  e]]S]... , where  $\beta$  is a trace left by successive cyclic *Wh* Movement. In chapter 1, we argued that this latter configuration permits Case assignment from V to the phrase in COMP. Since Case assignment from V requires government, and since  $\bar{S}$  and NP may otherwise have parallel status, it seems plausible to conclude that V could properly govern [ $\beta$  e] in (3). In other words, there is no bar to taking the zero element of (3) as an instance of an empty category (tentatively, an empty QP) subject to the ECP.

In fact, there is a clear advantage to doing precisely that: namely, we can immediately account for the asymmetry between (3) and (6a,b):

- (6) a. \*De livres n'ont pas été trouvés (par Jean).  
 (of) books (neg.) have not been found (by Jean)  
 b. \*De gâteaux ne me déplairaient pas.  
 (of) cakes (neg.) me would displease not

The fact that [NP[QP e] de ...] is not permitted in surface subject position now follows from the ECP, since in such cases QP is not properly governed. Similarly, the ECP accounts for the asymmetry between (7) and (8) (here, the resemblance to (1a)-(1b) can easily be seen):<sup>2</sup>

- (7) Jean ne voudrait pas que tu boives de bière.  
 John (neg.) would not like that you drink (of) beer

- (8) \*Jean ne voudrait pas que de bière lui coule dessus.  
 John (neg.) would not like that (of) beer spill on him

The ungrammaticality of (6a,b) and (8) contrasts sharply with the appearance in subject position of "simple partitives":<sup>3</sup>

- (9) a. Des amis sont venus.  
 some friends have come  
 b. Je ne crois pas que des gens viennent.  
 I (neg.) think not that some people come

These partitives, which are not restricted to negative environments, superficially resemble the phrases of (3) and (7) in that partitives too are NPs introduced by *de*. However, as we argued in Kayne (1975, section 2.9), there is evidence that this *de* should be analyzed as part of the determiner. In particular, simple partitives do not require us to postulate an initial empty QP. If this is correct, then the ECP is irrelevant to (9a,b), as desired.<sup>4</sup>

Like (3) vs. (6), on the other hand, are the following examples:

- (10) Elle a trop lu de romans.  
she has too many read (of) novels

- (11) \*D'amis sont trop venus.  
(of) friends have too many come

(10) displays an object [NP[QP e] de ...] in a nonnegative environment, obviously as a function of the preverbal *trop*. Leaving aside the question of whether this empty QP is base-generated or created by transformation (for differing suggestions, cf. Kayne (1975, section 1.5) and Milner (1978a, appendix 2; 1978b, section 2.3.3)), its unacceptability in (11) can again be attributed to the ECP. Similarly, there are some speakers who accept *??Il faut beaucoup que tu lises de livres* 'it is necessary many that you read (of) books'; but even they reject (12a,b), as a consequence of the ECP, like (8):<sup>5</sup>

- (12) a. \*Il faut beaucoup que de livres soient lus.  
it is necessary many that (of) books be read  
b. \*Il faut beaucoup que d'amis viennent.  
it is necessary many that (of) friends come

The same type of subject-object asymmetry found in (3), (7), (10) vs. (6), (8), (11), (12) can be found with the *wh*-phrase *combien*:

- (13) Combien est-ce qu'elle a d'argent?  
how much is it that she has (of) money
- (14) \*Combien est-ce que d'argent se trouve dans le coffre?  
how much is it that (of) money is found in the safe

Clearly, the ECP draws the desired distinction.<sup>6</sup>

### 3.1.2. Empty Categories Governed by Prepositions

In the previous section, we saw that the subject-object asymmetry found in the distribution of phrases of the form [NP[QP e] de ...] could be attributed to the ECP, and that it could thereby be connected to the more well-known asymmetry of which (1a) vs. (1b) is an example. Now we shall suggest that the ECP also accounts for the ungrammaticality of (15)-(17):

- (15) a. \*Jean n'a pas parlé à de linguistes.  
John (neg.) has not spoken to (of) linguists  
b. \*Jean n'a pas voté pour de communistes.  
John (neg.) has not voted for (of) communists
- (16) \*Elle a trop compté sur d'amis.  
she has too much counted on (of) friends
- (17) \*Combien a-t-elle été applaudie par de spectateurs?  
how many has she been applauded by (of) spectators

These contrast sharply with (3), (10), and (13), respectively. The generalization to be drawn is clearly that the empty QPs in question can occur initially within an NP object of a verb, but not within an NP object of a preposition.

The formulation of the ECP that we have been assuming until now does not make the desired distinction, since the empty QP in (15)-(17) is governed by the lexical category P. We could, however, account for (15)-(17) if we "tightened up" the ECP by excluding P from its set of legitimate proper governors. In other words, let us consider the possibility that an empty category  $\beta$  is admissible only if governed either by a coindexed  $\alpha$  or by an  $\alpha = N, V, A$ .

An ECP approach to (15)-(17) correctly admits (18a-d) as grammatical:

- (18) a. Jean a parlé à des amis.  
b. Jean a voté pour des communistes.  
c. Elle a compté sur des amis.  
d. Elle a été applaudie par de nombreux spectateurs.  
'She has been applauded by numerous spectators.'

Despite having as prepositional object an NP beginning with *de*, the examples of (18) do not violate the ECP, since their *de* does not reflect an initial empty QP.<sup>7</sup>

The exclusion of (15)-(17) via the ECP assumes, of course, that government is defined so that the empty QP there is not governed by V, presumably because of the presence of P. (In the cases in § 3.1.1 of government crossing  $\bar{S}$  or NP, there was no intervening lexical element comparable to the P of (15)-(17).)

Consider now the following construction:

- (19) ?A combien a-t-elle souri de garçons?  
to how many has she smiled (of) boys

Here, *combien* has been moved along with the preceding preposition. The result is marginal, but better than (17). Obenauer (1976, 13) suggests that the marginality results from the movement of a nonconstituent: [pp à [NP combien de garçons]]. If this is correct, it seems clear that (19) should not also

be in violation of the ECP. If the relevant structure is à *combien a-t-elle souri* [PP[*p e*] [NP[QPe] *de garçons*]], it must be that a (PP with a) null P fails to act as a block.<sup>8</sup>

The ECP implication that the empty QP in (19) must be governed by V accounts for a distinction observed by Obenauer (1976, 74):

- (20) a. ?A combien as-tu offert d'amis ce livre?  
to how many have you given (of) friends this book  
b. \*A combien as-tu offert ce livre d'amis?

(These contrast with *Tu as offert ce livre à combien d'amis*) This is so, if government between V and (a part of) NP in French is blocked by another intervening NP. (French has no *Mary gave John a book*.)

The marginal construction in (20a) appears to have a reflex in French comparatives, for which an analysis in terms of *Wh* Movement (of a QP) is immediately attractive (see Milner (1978a)). With respect to the ECP, we have the expected contrast between verbal and prepositional objects (cf. (13) vs. (17)):<sup>9</sup>

- (21) Marie a écrit autant d'articles que Jean a écrit de livres.  
Mary has written as many (of) articles as John has written (of) books
- (22) a. \*Marie a souri à autant de physiciens que Jean a parlé à de  
Mary has smiled at as many (of) physicists as John has spoken to  
linguistes.  
(of) linguists  
b. \*Marie s'est assise sur autant de tables que Jean s'est assis sur de  
Mary sat down on as many (of) tables as John sat down on (of)  
chaises.  
chairs

Much as in English, a kind of Gapping can delete the auxiliary and verb in (21), yielding the equally well-formed (23):

- (23) Marie a écrit autant d'articles que Jean de livres.

The comparable deletion in (22a) yields (24):

- (24) \*Marie a souri à autant de physiciens que Jean à de linguistes.

Although (24) is impossible, the equivalent without the preposition is improved:

- (25) ?Marie a souri à autant de physiciens que Jean de linguistes.  
Mary has smiled at as-many (of) physicists as John (of) linguists

This is so despite the fact that in comparatives not involving this empty QP, deletion of such a preposition along with the verb is not permitted:

- (26) a. Marie sourit aussi souvent à Jean que Jean sourit à Marie.  
Mary smiles as often at John as John smiles at Mary  
b. Marie sourit aussi souvent à Jean que Jean à Marie.  
c. \*Marie sourit aussi souvent à Jean que Jean Marie.

(Contrast (26c) with *Marie regarde aussi souvent Jean que Jean Marie* 'Mary watches John as often as John Mary', with a direct object *Marie*.) The obvious solution is that the missing preposition in (25) was not deleted by Gapping but rather moved along with *combien* to the front of the comparative clause, where both were then deleted. If this is correct, then (25) functions just like (19) with respect to the ECP, while reinforcing the comparative/*Wh* Movement parallel, as well as the efficacy of the ECP in explaining the distribution of empty QPs.

Obenauer (1976, 17) also observes that not all V-PP combinations allow the construction of (19). For example:

- (27) \*Pour combien a-t-elle souri de raisons?  
for how-many has she smiled (of) reasons

(Compare this with the grammatical *Pour combien de raisons a-t-elle souri?*) The ECP would exclude (27) if the V did not govern the empty QP, which would in turn follow if the V did not govern the PP (e.g. if this PP were outside of VP).

The contrast between (19) and (27) recalls the English examples (28) and (29):

- (28) How many boys did she smile at?  
(29) \*How many reasons did she smile for?

This suggests that we should bring together the restrictions on empty QPs studied so far and the more well-known phenomenon of "preposition-stranding" (that is, the question of when a preposition may have an empty (NP) object).

Chomsky's original formulation of the ECP would permit both (28) and (29), since in both the empty NP is governed by the lexical category P. The same is true of (30a-c):

- (30) a. \*Qui a-t-elle voté pour?  
who has she voted for  
b. \*Qui courait-elle après?  
who was she running after  
c. \*Quel garçon a-t-on tiré dessus?  
which boy have they shot at

On the other hand, it is clear that the modified, "tightened up" ECP suggested earlier (in which P is excluded from the list of acceptable governors) would furnish an immediate basis for a theory of preposition-stranding. Put another way, the ECP should be considered the reason for the ungrammaticality of (29) and (30).

We now see that the ECP is capable of connecting the following four phenomena:

- (31) \*Marie ne s'est pas assise sur de chaises.  
((15)-(17), (22))
- (32) a. \*Que s'est-elle assise sur?  
'What did she sit on?'  
b. \*What sense is John a fool in?  
((29)-(30), i.e. "preposition-stranding")
- (33) \*Marie ne veut pas que de chaises soient là.  
Mary (neg.) wants not that (of) chairs be there  
((6), (8), (11), (12), (14))
- (34) \*Who do you think that left?  
((2))

That is, preposition-stranding restrictions and *that*-trace/NIC-trace restrictions, along with their QP counterparts, will turn out to be different aspects of the same phenomenon. In all of these, there is some empty category lacking a proper governor.

The grammaticality of (28) leads us to follow Hornstein and Weinberg (1981) in postulating for English (but not French) a rule "reanalyzing" certain V ... P combinations as a "single unit". (Note, however, that the ECP renders Hornstein and Weinberg's oblique Case filter unnecessary.) For ECP purposes, it is sufficient that the reanalysis rule have the effect of making V a governor of the object of P.<sup>10</sup>

The distinction between (28) and (29) will be drawn correctly if government of PP by V is a necessary condition for reanalysis, as Hornstein and Weinberg (1981) in effect assume; see the discussion of (27).<sup>11</sup>

## 3.2. REFORMULATION AND EXTENSIONS OF THE ECP

### 3.2.1. Reformulation: Antecedents, Boundedness, Percolation

In § 3.1, we suggested that several apparently diverse phenomena could be brought together under a single principle (the ECP) that specifies the distribution of empty categories in terms of the notion of government. In § 3.2, we shall modify the formulation of the ECP somewhat and argue that it can

account for a much wider range of phenomena than we have so far discussed.

According to the formulation of the ECP given in the introduction, an empty category needed to be governed either by another category coindexed with it or by a lexical category. In § 3.1.2, we noted that certain restrictions in French against empty categories governed by the lexical category P could be assimilated to the ECP if P were excluded from the list of acceptable governors. In this section, we shall maintain the central idea of § 3.1.2, namely that the ECP is responsible for those restrictions, just as it is for the similar restrictions concerning subject position studied in § 3.1.1, but we shall dispense with the stipulation that P is not a sufficient governor.

The modification of the ECP that will enable us to dispense with this stipulation will contain in a more fundamental way than did the original formulation the requirement that an empty category have an "antecedent". This antecedent requirement, which recalls the "proper binding" of Chomsky (1975) and Fiengo (1977), will at the same time turn out to express a suggestion made by Chomsky in his Pisa lectures to the effect that the ECP be related to "recoverability", as will become clear in § 3.2.4. To complete the necessary modification of the ECP, we shall also want to absorb into it the basic "boundedness" idea that Chomsky (1973) formulated as "Subjacency".

Let us begin by considering the relationship between the ECP and the notion of "antecedent". The formulation of the ECP in the introduction has two distinct parts: an empty category must be governed *either* by a coindexed category *or* by a lexical category. The first part is equivalent to "government by an antecedent"; the second makes no mention of an antecedent. One might wonder why the ECP should have two such dissimilar halves, the second of which appears to allow for an empty category to lack an antecedent.

That government by a lexical category does not remove the need for an antecedent is shown clearly by the French empty QP construction of § 3.1. Consider in particular (35) vs. (36):

- (35) Jean n'a pas trouvé de livres. (= (3))
- (36) \*A-t-il trouvé de livres?  
has he found (of) books

In the negative environment of (35), government of the empty QP by V is sufficient for well-formedness, but not in the nonnegative interrogative environment of (36). Thus, the empty QP has a sharply more restricted distribution than polarity items like *any*:

- (37) Has he found any books?

We can attribute the ungrammaticality of (36) to its empty QP (while it is the lack of an empty category that makes (37) acceptable). Our proposal is that

the empty QP, while legitimate in (35) as a function of the presence of *pas*, which serves as its antecedent,<sup>12</sup> is illegitimate in (36) because (36) contains no antecedent for it.

Thus, the ECP will yield an explicit account of (36) if we modify it to require that an empty category have an antecedent.

The presence of an antecedent is a necessary, but of course not a sufficient, condition for an empty category to be legitimate, as the contrast between (35) and (38) shows:

(38) \*Jean ne voudrait pas que de bière lui coule dessus (= (8))

(38) is ungrammatical because its empty QP fails to meet the ECP's government requirement. In other words, the ECP must continue to make crucial use of government. That the ECP is at issue in (38) is made clear by the grammaticality of (39), just as in the discussion of (36) vs. (37):

(39) John didn't think that any beer had spilled.

(40) also demonstrates that the presence of an antecedent is insufficient:

(40) \*Jean n'a pas parlé à de linguistes. (= (15a))

That the ECP is responsible for (40) is supported again by the grammaticality of (41), which contains the true polarity item *qui que ce soit*:<sup>13</sup>

(41) Jean n'a pas parlé à qui que ce soit.  
John (neg.) has not spoken to who that it be (i.e. to anyone)

In addition to accounting directly for (36), incorporating an antecedent requirement into the ECP provides us with a new way of deriving (40) from that principle. The possibility considered in § 3.1.2 had involved stipulating that the set of lexical categories relevant to the ECP not include P. A more attractive and much more far-reaching solution is now available, namely to attribute the contrast between (40) and (35) to the greater "distance" in the former construction between empty category and antecedent. More precisely, the empty QP in (40) is contained within a category PP that does not contain the antecedent *pas*, with the result that an extra category boundary separates empty QP and antecedent in (40) as compared with (35).<sup>14</sup>

We shall consequently propose a reformulation of the ECP that incorporates both the notion of necessary antecedent and the requirement that the "separation" between empty category and antecedent be limited. At the same time, the notion of government must continue to play an essential role.

Let us phrase this reformulation informally as follows: An empty category must have an antecedent; the antecedent may itself govern the empty category; if not, the empty category must, through its governor, be "closely connected" to the antecedent.

More precisely:<sup>15</sup>

(42) *Empty Category Principle* (ECP) (preliminary version)  
An empty category  $\beta$  must have an antecedent  $\alpha$  such that (1)  $\alpha$  governs  $\beta$  or (2)  $\alpha$  *c-commands*  $\beta$  and there exists a lexical category X such that X governs  $\beta$  and  $\alpha$  is contained in some projection of X (in the usual  $\bar{X}$  sense of projection; cf. Chomsky (1970)).

In (35),  $\beta$  = the empty QP,  $\alpha$  = *pas*, and X = V. V governs the empty QP,<sup>16</sup> and *pas* is contained in VP, a projection of V. Hence, (35) meets the requirements of the ECP.

In (40),  $\beta$  and  $\alpha$  are as in (35), but there is no appropriate X. X cannot be V, since in (40) V does not govern the empty QP. The QP is governed by P, but *pas* is not contained in any projection of P. Hence, (40) is in violation of the ECP, as desired.

The contrast between (40) and (35) is parallel to that between (43) and (44):

(43) \*Qui a-t-elle voté pour? (= (30a))

(44) Qui a-t-elle vu?  
who has she seen

In (43),  $\beta$  = the empty NP object of *pour* and  $\alpha$  = *qui*.  $\alpha$  does not govern  $\beta$ , so that condition 2 of (42) must hold. But it does not: the only governor of  $\beta$  in (43) is P, and *qui* is not contained in any projection of P, the result being an ECP violation.

The formulation (42) implies that  $\bar{S}$  is a projection of the  $\bar{V}$  that governs  $\beta$  in (44). In other words, we adopt here the position of Jackendoff (1977, chapter 3).<sup>17</sup>

To correctly distinguish (43) from its grammatical English counterpart (45a), we adopt Hornstein and Weinberg's (1981) reanalysis proposal, although we shall reinterpret it, following a suggestion of Vergnaud's (1979), as involving identity of government superscripts (in the sense of Rouveret and Vergnaud (1980)):

(45) a. Who did you vote for?  
b. Who did you talk to Mary about?

More exactly, we assume with Vergnaud that (45a,b) involve the representation ...  $V^i$  ...  $P^i$  ... And we introduce the notion of *percolation projection*:

(46) A is a percolation projection of B if A is a projection of B, or A is a projection of C, where C bears the same superscript as B and governs a projection of B, or a percolation projection of B.

Thus, in (45a,b),  $V^i$  (which we assume to be a projection of itself) and all its

higher projections are percolation projections of P. We can now revise (42) to (47), replacing *projection* by *percolation projection*:

(47) *Empty Category Principle (ECP)*

An empty category  $\beta$  must have an antecedent  $\alpha$  such that (1)  $\alpha$  governs  $\beta$  or (2)  $\alpha$  *c*-commands  $\beta$  and there exists a lexical category X such that X governs  $\beta$  and  $\alpha$  is contained in some percolation projection of X.

In this way, (45) meets the ECP, with  $\beta$ , the empty NP, governed by P, and  $\alpha$ , *who*, contained in  $\bar{S}$ , a percolation projection of P (since  $\bar{S}$  is a projection of a V co-superscripted with that P). The French (43) still violates the ECP, however, since there is no co-superscripting between V and P in French;<sup>18</sup> hence, in (43)  $\bar{S}$  is not a percolation projection of P.

Important here is the question of how the co-superscripting is effected. Let us assume that when V governs PP, V can assign its superscript to PP, after which the superscript percolates down to the head of PP (whence the term *percolation projection*), in English.

Let us propose now that the same process can occur between V and an  $\bar{S}$  that it governs: V assigns its superscript to  $\bar{S}$ , then the superscript percolates down to the head of  $\bar{S}$  (namely the embedded V), yielding ...  $V^i$  ... [ $\bar{S}^i$  ...  $V^i$  ...]. ... We assume that V, unlike P, is normally amenable to co-superscripting (under the right configurational conditions). That is, unlike ...  $V^i$  ...  $P^i$  ..., ...  $V^i$  ...  $V^i$  exists in both English and French. Therefore, in both languages an embedded V can have as percolation projection any projection of a higher V such that V governs the  $\bar{S}$  containing the lower V.

Thus, in both (48) and its French counterpart (49), the matrix  $\bar{S}$  can be a percolation projection of the lower V:

(48) Who do you think that Mary saw?

(49) Qui crois-tu que Marie a vu?

Taking  $\beta$  = the empty NP object of the lower V,  $\alpha$  = *who/qui*, and X = the lower V, we see that the ECP (47) is satisfied, since X governs  $\beta$  and  $\alpha$  is contained in a percolation projection of X.

The same reasoning holds for (50) (= (7)):

(50) Jean ne voudrait pas que tu boives de bière.

Here  $\beta$  = the empty QP,  $\alpha$  = *pas*, and we can now take the matrix  $\bar{S}$ , which contains  $\alpha$ , to be the required percolation projection of X = the lower V.

The parallel treatment here of  $V^i$  ...  $PP^i$  and  $V^i$  ...  $\bar{S}^i$  is supported by the similarity between Hornstein and Weinberg's (1981) observation that V ... P reanalysis seems to require the PP to be within VP, and Cinque's (1978, note 30) observation (cf. also Erteschik (1973)) that extraction from  $\bar{S}$  seems to

require that  $\bar{S}$  be an "argument" of the matrix predicate. In our terms, extraction from both PP and  $\bar{S}$  requires that PP or  $\bar{S}$  be governed by the matrix predicate. This is expressed through the ECP by limiting superscript assignment to configurations in which V governs PP or  $\bar{S}$ .

3.2.2. *ECP vs. Subjacency*

We shall henceforth assume the formulation (47) of the ECP arrived at in the course of § 3.2.1. The next six sections will attempt to demonstrate the extremely wide scope of the ECP, and will contain points of comparison between the ECP and Subjacency.

We note that the government requirement on superscript assignment given at the end of § 3.2.1 seems natural, in that it amounts to saying that a government superscript can be assigned by a matrix predicate only to a PP or  $\bar{S}$  that it governs. In contrast, the Subjacency framework of Chomsky (1973) did not lead one to expect government considerations to be important. To incorporate government into the Subjacency Condition would of course not be inconceivable, but we have already done something quite similar (though distinct) in § 3.2.1, by incorporating into the government-based ECP the central "boundedness" notion of Subjacency, through the reference to *projection* (and now *percolation projection*). In other words, if (47) is truly a principle of grammar, we might expect it to render the Subjacency Condition superfluous.

Our analysis of (48)-(50) borrows from Chomsky (1973) the fundamental idea that transformations are never "unbounded", but recasts it in terms of the ECP, i.e. in terms of the posttransformational relation between empty category and antecedent. (We return to this difference in § 3.2.4.) In Chomsky (1973), apparently unbounded movements had to be decomposed into a number of smaller movements ("successive cyclicity"). Now, successive cyclicity will turn out to be an explanatory concept in the ECP framework, too, as will be shown in § 3.3. However, our use of *percolation projection* makes successive cyclicity unnecessary in (48) and (49). (For (50), the question does not arise in the same way, if there is no movement there at all. At the least, it seems clear that in (50) there is no movement through COMP,<sup>19</sup> so that (50) must derive its apparent "unboundedness" from percolation projection, rather than from successive cyclicity). More generally, in such multi- $\bar{S}$  structures, successive cyclic *Wh* Movement is not necessary if the empty category is governed by an X having the upper  $\bar{S}$  as a percolation projection.

Thus, whereas Chomsky (1973) had one way of "escaping" from "boundedness", we have two: successive cyclicity and percolation.<sup>20</sup> It will turn out that the class of apparently unbounded movements is exhausted, as desired, by the sum of these two "escape routes", but that neither by itself exhausts that class (there will be some overlap, as well). We will encounter various empirical and theoretical consequences as we proceed.

One consequence that we can note immediately is that in (51), just as in (48)-(50), there is no need for movement through COMP (since the trace of *who* is governed by an embedded V):



- (51) a. Who do you wanna invite?  
b. Who do you wanna have her invite?

That is, we can assume that, at least when there is contraction, there is no trace in COMP, and no need for category deletion of traces in COMP.<sup>21</sup>

Before coming back to successive cyclicity in § 3.3.2, let us examine here and in the next two sections the way in which the ECP obtains various "Subjacency-type" results:

- (52) \*Which table does John think that on you shouldn't put anything?

(Compare *John thinks that on this table you shouldn't put anything.*)

- (53) Which table does John think that you shouldn't put anything on?

In (53), co-superscripting is possible between the higher and lower V and also between the lower V and P. Hence, the empty NP is governed by  $X = P$ , a percolation projection of which (namely the matrix  $\bar{S}$ ) contains the antecedent *which table*. In (52), on the other hand, the *P on* is not governed by any V, so that P has no percolation projection other than PP. Since PP does not contain the antecedent *which table*, (52) is excluded.<sup>22</sup>

Reminiscent of (52) vs. (53) is (54) vs. (55):

- (54) \*Which actress does John think that a picture of was found by Bill?

- (55) Which actress does John think that Bill found a picture of?

In (55), *of* must be co-superscripted with *found*, which is itself co-superscripted with *think*; this may require Chomsky's (1977) restructuring rule, depending on the exact requirements for government. It is clear, in any case, that the PP headed by *of* is much further from being governed by any V in (54) than in (55). Consequently, it is reasonable to assume that (54) is in no way a plausible candidate for V ... P reanalysis. In which case, (54) is ruled ungrammatical by the ECP, as is, in the same way, \**Who was a picture of found by Bill?*

The contrast between (56) and (57) is similar:

- (56) the girl who it would please me for you to put on the list

- (57) \*the girl who(m) for you to put on the list would please me

In (56), the superscript of the upper V can percolate down onto the lower V, assuming the  $\bar{S}$  beginning with *for* to be governed by *please*;<sup>23</sup> in which case, the empty NP is governed by a V a percolation projection of which, the upper  $\bar{S}$ , contains the antecedent *who*, as desired. In (57), the  $\bar{S}$  beginning with *for* is not governed by *please*; hence, the lower V receives no superscript from above, with the result that the antecedent *who(m)* remains outside all the

percolation projections of the X (the lower V) that governs the empty category. An ECP violation results.<sup>24</sup>

### 3.2.3. *N vs. V; CNPC*

If the ECP is to subsume Subjacency, it should be able to derive Ross's (1967) Complex NP Constraint (CNPC), as Subjacency did. The question is whether the notion of percolation projection is sufficiently constrained so as not to let any CNPC violations slip through. To show that it is, we need to examine the status of the category N with respect to government.

Consider (58) vs. (59):

- (58) John appears to have left.

- (59) \*John's appearance to have left

For (58) to be compatible with the ECP, the empty NP that is the trace of *John* must be governed by  $V = \textit{appear}$  (since that empty NP is not directly governed by *John*), a projection of which contains the desired antecedent. Chomsky (1981a; 1981b) has proposed that such raising verbs trigger  $\bar{S}$ -deletion, so that government (across a single boundary) does obtain. Assume this to be an adequate mechanism. Then why can the same not hold in the corresponding nominalization?

Our suggestion is that V can sometimes govern across a maximal boundary of type S, but that N never can. Thus, the empty NP in (59) fulfills neither half of the ECP, since it is governed neither by its antecedent *John* nor by any lexical category.

Assuming that, we use the ECP to account for (60) vs. (61):

- (60) This theorem was demonstrated to be false (by John)

- (61) \*this theorem's demonstration to be false (by John)

Whether government of  $[\text{NP } e]$  by (*was*) *demonstrated* in (60) is achieved exactly as in (58) or not, the ECP will rule out the output of NP Movement in (61) and (59) together.<sup>25</sup>

The pairs (58) vs. (59) and (60) vs. (61) look very much like (62) vs. (63):

- (62) a. John is easy to please.  
b. Mary is beautiful to look at.

- (63) a. \*John's easiness to please.  
b. \*Mary's beauty to look at.

Assume Chomsky's (1977) analysis of these constructions in terms of *Wh* Movement plus deletion of the moved *wh*-phrase. Assume further that,

contrary to Chomsky and Lasnik (1977), deletion (at least of a *wh*-phrase) leaves an empty category and furthermore that it does not take place in the phonology. Then the result of deletion (of a *wh*-phrase) is subject to the ECP.

The ungrammaticality of (63) follows immediately: the empty NP in COMP is not governed in the "On Binding" sense by any coindexed category, nor can it be governed by N, since an  $\bar{S}$  boundary is right above it. An ECP violation follows.

The grammaticality of (62) implies that A, or more likely the reanalyzed pair *be* + A,<sup>26</sup> plays the same role as V with respect to the ECP, governing across  $\bar{S}$  the empty category in COMP.

Consider (64):

(64) John is easy for Mary to please.

If the *for*-phrase is in the matrix, then the COMP containing the empty NP is separated from *is easy* by that *for*-phrase. Assume that such an intervening PP would be sufficient to block government across  $\bar{S}$  into COMP. Then it must be the case that *for* is a complementizer within  $\bar{S}$  in (64) and *Mary* the embedded subject.

The blocking of government by an intervening matrix *for*-phrase would account for (65) vs. (66) (see Kayne (1975, chapter 4, note 76)):

(65) Jean est facile à contenter.

(66) \*Jean est facile pour Marie à contenter.

This is so, since *pour*-NP is never a complementizer-subject sequence in French; hence, it must be in the matrix, and it blocks government of the empty category in COMP. In the same way, the ungrammaticality of (67) follows:

(67) \*The work is difficult for John for Mary to do.

That the *for*-phrase in (64) is part of the embedded  $\bar{S}$  correlates with the relative acceptability of (68):

(68) ?This room/building would be easy for there to be an orgy/a riot in.

Returning to (59), we have accounted for it, along with (61) and (63), by the hypothesis that N cannot govern across a maximal  $\bar{S}$  or S. All three then violate the ECP. The well-formedness of (69), in contrast to these, is now straightforward, since (69) involves control (i.e. PRO (cf. note 1)), rather than an empty category:

(69) John's desire to leave

Thus, in this case there can be no ECP violation.

The inability of N to govern across  $\bar{S}$  would seem to be related to the absence of N ... P reanalysis (cf. Anderson (1978)):

(70) \*Mary's (recent) reference to (in the newspaper)

(Contrast (70) with both *Mary was recently referred to in the newspaper* and *Mary's recent mention in the newspaper*.) In our terms, the empty NP governed by P violates the ECP unless some percolation projection of P contains the antecedent *Mary*. If reanalysis cannot apply, then there is no appropriate projection of P, and (70) is properly excluded.<sup>27</sup>

The contrast between (70) and (71a-c) is straightforward, since in (71a-c) there is no need for reanalysis (nor for cross- $\bar{S}$  government):

- (71) a. this theorem's demonstration (by John).  
b. the city's destruction (by the enemy).  
c. Mary's murderer.

In other words, in a theory making use of the ECP, there is no reason not to consider (71a-c) to contain an empty category – [the city's]<sub>i</sub> destruction [<sub>NP</sub><sub>i</sub> e] – for the empty NP is then governed by N and has an antecedent contained in a projection of N.

However, since (71a-c) are all well-formed, there is not the same kind of strong evidence in favor of postulating an empty category as there is for (58)-(63). In the latter examples, the empty category allows a unified ECP account of the contrast within each pair and of the external contrast with (69).<sup>28</sup> However, consider (72a,b), whose counterparts (73a,b) contrast sharply:

- (72) a. Everyone deplored Russia's destruction of China.  
b. Everyone deplored China's destruction by Russia.

- (73) a. Everyone deplored the Russian destruction of China.  
b. \*Everyone deplored the Chinese destruction by Russia.

This may indicate that a true object relation must be represented in syntactic structure as ( $\bar{x}$  X NP), whereas a subject relation need not be represented using the category NP (presumably because subjects are not arguments of lexical categories in the same sense that objects are), and that an adjective like *Chinese* cannot count as antecedent for an empty NP. (Compare also \**the Chinese criticism of herself at the UN*.) If so, then we must postulate for (71a-c) ( $\bar{x}$  X NP); that is, there must be an empty NP.<sup>29</sup>

Returning to (70), we could tie together the absence of N ... P reanalysis and that of cross- $\bar{S}$  government by N as follows: Since V ... P reanalysis depends on the assignment by V of a superscript to PP, followed by downward percolation, N ... P reanalysis would be unavailable if N did not have

the ability to assign a superscript to PP. More generally, let us assume that N can never assign a superscript. Then the absence of cross- $\bar{S}$  government by N suggests that cross- $\bar{S}$  government into COMP also depends on superscripting, and that we should take  $\bar{S}$  to be transparent to government only if it bears a superscript (which perhaps percolates down to COMP).<sup>30</sup>

The absence of N ... P reanalysis and of cross- $\bar{S}$  government by N is – independently of whether the two can be reduced to a single phenomenon – sufficient for the ECP to subsume the CNPC. Consider (74):

(74) \*Who don't you believe the hypothesis that John loves?

Here, there is an empty category governed by the lower V *loves*. The desired antecedent is *who*. The question for the ECP (47) is whether any percolation projection of that V contains *who*, that is, whether the matrix  $\bar{S}$  can be a percolation projection of the lower V. The upper V does not govern the embedded  $\bar{S}$ , and so cannot assign it a superscript directly. If the upper V also cannot assign its superscript via percolation to the N *hypothesis*, then the lower V is again without a link to the upper. The only remaining possibility is for the upper V to percolate its superscript to N. But even if that is possible, the superscript cannot percolate any further, since N has precisely the property of never assigning superscripts. Thus, there is no way for the lower V to have the matrix  $\bar{S}$  as a percolation projection. That accounts for (74).<sup>31</sup>

One might wonder what happens if in (74) *Wh* Movement applies in successive cyclic fashion so as to leave a trace in the lower COMP. Might we not be able to take such a trace, rather than *who*, as antecedent for the empty NP object of *loves*? It turns out not to matter. Assume that we can. Then the lowest trace has a proper antecedent. But the trace in COMP does not, since it is governed neither by *who* nor by N, given that N cannot govern across  $\bar{S}$ . Thus, the ECP violation is unaffected, as desired.<sup>32</sup>

### 3.2.4. The ECP and Recoverability of Deletion

In § 3.2.3, we suggested that a single abstract property of N with respect to government, combined with the ECP, accounts for the ungrammaticality of several types of nominalizations, and for Ross's (1967) CNPC. If this latter result is correct, then the plausibility of the ECP displacing the Subjacency Condition, as originally suggested in § 3.2.2, is enhanced.<sup>33</sup>

In this section, we shall develop an idea used in the discussion of (63), namely that deleting a *wh*-phrase in COMP leaves an empty category that must meet the conditions imposed by the ECP.

An immediate consequence of this interpretation of deletion in COMP is that the ungrammaticality of (75) is attributable to the ECP:

(75) \*I wonder Mary put on the table.

(Compare *I wonder what Mary put on the table.*) This is so since the empty category in COMP in (75) has no antecedent.

The inability of the *wh*-phrase to delete in free relatives is a second immediate consequence, if the *wh*-phrase is in head position:<sup>34</sup>

(76) \*John ate Mary put on the table.

(Contrast this with *John ate what Mary put on the table.*)

Consider now normal headed relatives:

(77) the man you saw.

(Compare *the man who you saw.*) The empty category governed by V in (77) has as its antecedent the empty category in COMP, which is legitimate (exactly as in (44)). The empty category in COMP must clearly have as antecedent the head, most plausibly [*the man*]. Thus, in relative clause structures, government from the head across  $\bar{S}$  into COMP must hold.<sup>35</sup>

Deletion of a *wh*-phrase in COMP is subject to certain constraints which Chomsky and Lasnik (1977, 446) considered attributing to some form of A-over-A principle:

- (78) a. \*the man with a friend of you were speaking.  
b. \*l'homme avec un ami de vous parliez.

(Compare *?the man with a friend of whom you were speaking, l'homme avec un ami de qui tu parlais.*) This kind of restriction looks very much like the one on (79):

(79) \*Who did she think that with a friend of you would never want to be seen?

(78) and (79) are similar to (80) and (52) (*\*Which table does John think that on you shouldn't put anything?*):

(80) \*the man with you're sure to have a good time.

(Compare *the man with whom you're sure to have a good time.*) In fact, (80) itself has two potential derivations. The first involves *Wh* Movement from VP position to COMP of *with who(m)*, followed by deletion of *who(m)*. The second, which is comparable to that of (79) and (52), involves *Wh* Movement, from a structure like *the man* [ $\bar{S}$  COMP[<sub>TOP</sub> *with whom*] [ $\bar{S}$  ...]], of *who(m)* alone, followed by deletion of *who(m)*.

As far as we can see, these two potential derivations must be excluded in two distinct ways, if the exclusion of the first is attributed to an A-over-A principle, or otherwise made dependent on some property of COMP. In contrast, the ECP provides a single solution: both structures corresponding to (80), along with (78) and (79) (and (52)), violate the ECP, since in all of them the empty category is governed by a P not subject to reanalysis, hence

without any percolation projection that contains the necessary antecedent.

The ECP similarly accounts for both (81) and (82):

(81) \*Who was a picture of lying there?

(82) \*a man a picture of was lying there.

Subjacency could be said to underlie (81), (79), (52), and (80) qua movement, but insofar as Subjacency is a property of movement rules, (82), (80), and (78) qua deletion would have to be treated differently.<sup>36</sup>

The ECP gives a single account of (78)-(82) and therefore seems, at least for this domain, to be the superior principle. In effect, the principle determining the distribution of empty categories is indifferent to their past.<sup>37</sup> Put another way, the ECP expresses the intimate relation that has turned out to hold between the theory of boundedness of movement (one realization of which is Subjacency—recall that the ECP formulates the notion of boundedness somewhat differently (cf. especially note 20)) and at least part of the theory of the recoverability of deletions.

To conclude this section, we note briefly a possible consequence of replacing Subjacency by the ECP. At issue are colloquial English constructions such as (83a,b):

(83) a. the guy who they don't know whether he wants to come or not  
b. the guy who I hate almost everything he does

(84) a. \*the guy who they don't know whether wants to come or not  
b. \*the guy who I hate almost everything does

A Subjacency (or, more generally, a "constraints on movement") account of (84a,b) forces one to analyze (83a,b) as involving no movement, and therefore as having a basegenerated *who* in COMP. The ECP account of (84) does not force one to this conclusion, if *Wh* Movement can be followed by Pronoun Insertion (formally akin to *There* Insertion: *There entered the room a particularly malodorous breath of air*; cf. Kayne (1979b) and references cited there), since subsequent to Pronoun Insertion the NP in question is no longer empty. In other words, the ECP provides an immediate and transparent account of the contrast between (83) and (84).<sup>38</sup>

### 3.3. THE ECP AND SUCCESSIVE CYCLICITY

#### 3.3.1. Comparatives in English and French

The relevance of the ECP to the output of deletions brings us to the question of comparatives, which will in turn lead us back to that of successive cyclicity.

Consider the following examples:

(85) a. John is a fool, as is obvious to everybody.  
b. As was predicted by general relativity, gravity bends light.

The *as*-phrases clearly contain an empty NP in subject position. If Chomsky (1977) is correct about *Wh* Movement in comparatives, then there is another in COMP, given the interpretation in § 3.2.4 of deletion in COMP. From the point of view of the ECP, the empty NP in subject position would have as antecedent the one in COMP, which then needs one of its own. We thus adopt Pesetsky's (1978) proposal that *as* can bear an index and count as antecedent for an empty NP. In the same way, *as* and *than* must function as antecedents in (86a,b):<sup>39</sup>

(86) a. As many people entered as left.  
b. More money was lost than was found afterwards.

This property of *as*, *than* – that is, the ability to bear an index and to count as antecedent for an empty NP (probably related, as Pesetsky suggests, to the existence of relatives like *anyone as says she's a fool*; compare Scandinavian) – is not shared by *like*:<sup>40</sup>

(87) \*Like is obvious,...

Nor does French comparative *que* share this special property of *as*, *than*:

(88) a. \*Autant de personnes sont entrées que sont parties.  
as-many (of) persons have entered as have left  
b. \*Plus d'argent a été perdu que (n')a été retrouvé.  
more (of) money has been lost than (neg.) has been found

That is, taking comparative *que not* to be a possible antecedent for an empty NP, we derive (88a,b) as violations of the ECP (and we can allow *Wh* Movement and deletion just as in English).<sup>41</sup> Moreover, the same holds for the object counterparts to (88a,b), likewise ungrammatical:

(89) a. \*Jean a autant d'argent que Marie a.  
John has as much (of) money as Mary has  
b. \*Jean a plus d'argent que Marie (n')a.  
more

An empty object NP here has as antecedent the empty *wh*-phrase, but that NP lacks a proper antecedent.

Corresponding to (89a,b), there exist the grammatical (90), (91):

(90) Jean a autant d'argent que Marie en a.  
John has as much (of) money as Mary of it has

- (91) Jean a plus d'argent que Marie n'a d'amis.  
John has more (of) money than Mary (neg.) has (of) friends

Since *en* is parallel to *d'amis*, we can assume that both (90) and (91) involve QP movement (cf. the discussion above (21)). The empty QP in (90) and (91) is governed by V, a projection of which ( $\bar{S}$ ) contains the coindexed *wh*-phrase. Since the latter is itself empty for the ECP, it must have an antecedent, which can only be *que*. We conclude that (comparative) *que*<sub>i</sub>: QP :: *as*<sub>i</sub>: NP.

This might provide a line of attack on the problem of (92a-b):

- (92) a. Qu'elle est belle!  
(that) she is beautiful (= 'How beautiful she is!')  
b. ?Qu'elle a mangé de pommes!  
(that) she has eaten (of) apples (= 'What a lot of apples she's eaten!')

These exclamative *que* have much in common with normal complementizer *que*, yet the construction seems to involve a missing QP (see Milner (1978b)). Moreover, (93) seems not to be possible (cf. Obenauer (1976, 126) and Le Bidois (1952, 75)):

- (93) \*Qu'est belle la fille dont vous m'avez parlé!  
(that) is beautiful the girl of whom you to me have spoken

((93) is possible if *que* is replaced by the *wh*-phrase *combien* 'how much, how many'.) This suggests that exclamative *que* is like comparative *que* in being able to bear an index for QP (perhaps exclamative *que* is just the normal complementizer *que* plus the index), so that an empty QP is allowed; however, there is no *Wh* Movement, and hence no inversion of the subject NP.<sup>42</sup>

### 3.3.2. Successive Cyclicity

Postulating an indexed *que*<sub>i</sub> turns out also to contribute to an understanding of the (at first glance) rather surprising contrast between the examples in (94) and (95):

- (94) a. ??Combien veux-tu que de gens viennent chez toi?  
how many do you want that (of) people come to your place  
b. ??Combien crois-tu que d'invités viendront?  
how many do you think that (of) guests will come

These are taken from Obenauer (1976, 46, 62, 67). Kayne (1975, chapter 1, note 36) gives an example with *vouloir* 'want' as "??". Muller (1977, 185) gives one with *croire* 'believe' as "??".

- (95) a. \*Elle ne veut pas que de gens viennent chez elle.  
b. \*Elle ne croit pas que d'invités viendront.

The examples in (94) involve extraction of *combien* from within a preverbal subject NP, and are accepted by some speakers. Even those speakers do not accept (95a,b) (or the comparable (8)). A reasonable guess at the crucial property of (94a,b) is that only they involve *Wh* Movement. This is consistent with (96) (cf. (12)):

- (96) \*Elle veut beaucoup que de gens viennent chez elle.  
she wants many that (of) people come to her place

More precisely, we shall propose that (94a,b) are marginally acceptable because *Wh* Movement has applied successive-cyclically, i.e. because of the trace of *combien* in the lower COMP.<sup>43</sup>

We recall that the ECP excludes (95a,b) and (96), since the empty QP within the subject NP is governed neither by its antecedent (since there are two S-type boundaries between *pas*, *beaucoup*, and that QP) nor by an appropriate lexical category: ... *pas/beaucoup* [ $\bar{S}$  *que* [ $S$  [QP *e*]] ... On the other hand, successive cyclic *Wh* Movement yields a structure for (94a,b) in which the QP within the subject NP has as antecedent the trace in COMP, which is separated from it by only one S-type boundary: ... [ $\bar{S}$  [COMP [QP *e*]] *que*] [ $S$  [QP *e*]] ... Thus, if we assume that the trace in COMP fulfills the antecedent requirement imposed by the ECP on the trace within the subject NP, we can draw the desired distinction between (94a,b) and the others.

This solution is incomplete, however, since we must still account for the marginality of (94a,b). If the trace in COMP were a truly adequate antecedent for the lower trace, we would expect (94a,b) to be uniformly acceptable. Interestingly, there is reason not to take the trace in COMP as itself being the required antecedent, since it does not, strictly speaking, govern the lower trace at all. The single intervening S-boundary is not the bar to government, as shown most simply by the grammaticality of the sentence corresponding to *who* [ $S$  [NP *e*] *left*]. But government presupposes *c*-command, and *c*-command does not hold between the two QPs in [COMP [QP *e*] *que*] [ $S$  [QP *e*] ...], because the first branching node dominating the higher QP is COMP (given the presence of nonnull *que*), and COMP does not dominate the lower empty QP.

We suggest, then, that (94a,b) are possible only to the extent that it is possible to copy the index of the QP trace in COMP on the *que*, which will then count as antecedent for the empty QP within the subject NP, much as *que*<sub>i</sub> counts as antecedent for a QP in (90)-(92). The *que* of (95a,b) and (96) can receive no index since there is no comparable trace in COMP, so that (95a,b) and (96) remain in violation of the ECP. The fact that (94a,b) are not uniformly accepted might indicate that index copying from a QP trace in COMP to *que* is a "marked" phenomenon.<sup>44</sup>

As Pesetsky (1979/80) notes, index copying from a trace in COMP to a complementizer is transparently well-motivated in French by the construction of (97) (see also chapter 4):

- (97) la fille que je crois *qui* est arrivée la première  
the girl that I think (that) has arrived first

(Compare *Je crois que cette fille est arrivée la première* 'I think that this girl arrived first'.) For extraction of the subject of a tensed S to be successful in French, *qui* must appear in place of complementizer *que*. It is natural to interpret *qui* here as a conditioned variant of indexed *que*, with the index in this case coming from an NP trace in COMP (as opposed to the QP trace of (94a,b)).<sup>45</sup>

This common treatment of (94a,b) and (97) is reinforced by a common restriction:

- (98) \*la fille que je tiens à ce qui arrive la première  
the girl that I am anxious for it (that) arrive first
- (99) \*?Combien tiens-tu à ce que de gens viennent chez toi?  
how many are you anxious for it that (of) people come to your place

Both extraction of a subject NP and extraction of a QP contained within a subject NP are sensitive to the matrix predicate. The explanation is as follows: (97) has the structure ... croire [ $\bar{S}$ [COMP[NP<sub>i</sub> e] qui<sub>i</sub>] [ $\bar{S}$ ... where *qui<sub>i</sub>* serves as antecedent for the trace in subject position. The empty NP in COMP must have an appropriate antecedent, too, which we assume cannot be *qui<sub>i</sub>*.<sup>46</sup> Consequently, the ECP requires that the empty NP in COMP be governed by *croire* (as is legitimate, since only one S-type boundary intervenes), a percolation projection of which contains the desired antecedent (the *wh*-phrase in the higher COMP). However, (98) has the structure ... tenir à ce [ $\bar{S}$ [COMP[NP<sub>i</sub> e] qui<sub>i</sub>]...], for which it is reasonable to claim that the empty NP in COMP is not governed by *tenir*, so that there is a violation of the ECP. The empty QP in COMP in (94a,b) will be admissible, parallel to the discussion of (97); and the empty QP in COMP in (99) inadmissible, parallel to (98).<sup>47</sup>

We note that if *Wh* Movement skipped the lower COMP in (94a,b) and (97)-(99), all would violate the ECP, since the empty category in or within the embedded subject position would not be properly governed. Thus, (94a,b) and (97) are instances of "apparent nonboundedness" that must be traced back to successive cyclicity, rather than to percolation projection. (The essential role here of the trace in COMP produced by successive cyclicity is to constitute a (governed) bridge to an (ungoverned) subject position. This kind of bridging is also found, though differently constituted, in the "exceptional Case-marking" of *John believes Mary to have left*, if chapter 5 is correct.)

On the other hand, consider the following paradigm (pointed out by A. Rouveret), which holds for some speakers (others accept all four):

- (100) le livre que Jean croit que Marie aime  
the book that John thinks that Mary likes

- (101) le livre que Jean croit qu'aime Marie
- (102) le livre que Jean regrette que Marie aime  
the book that Jean regrets that Mary likes
- (103) (\*le livre que Jean regrette qu'aime Marie

For the speakers in question, both *croire* and *regretter* allow extraction of the object of the  $\bar{S}$  embedded under them, but only *croire* allows the embedded subject NP to move to the right in combination with such object extraction. Kayne and Pollock (1978) showed that the embedded subject NP in such constructions as (101) and (103) can move rightward only if there is a trace of *Wh* Movement in the lower COMP. In the framework developed here, there is a supplementary requirement on that trace itself, namely that it must be governed, in order to meet the ECP. *Croire* can govern across  $\bar{S}$  into COMP, as seen above for (97) and (94a,b), so that (101) is unproblematic.

We are now in a position to make some sense of the deviance of (103). At first glance, it is not at all obvious why inversion in the lower S should be sensitive in this way to the higher V. Let us suggest that some speakers do not allow, or allow only with difficulty, for a verb like *regretter* to govern across  $\bar{S}$  into COMP.<sup>48</sup> For such speakers, the trace in COMP that is necessary to allow the inversion in the embedded  $\bar{S}$  in (103) is not properly governed, and constitutes an ECP violation.

Why, then, is (102) not deviant, too? Our answer is this: Since there is no embedded inversion, there is no need for a trace in COMP on that account. Nor need there be a trace in COMP for any other reason, given the ECP. In particular, percolation projection suffices to make the long movement possible, given that the empty NP is governed by the V *aime*. Therefore, in (102) *regretter* need not govern any phrase in COMP, contrary to the case of (103). From this, assuming that *regretter* can uneventfully percolate its superscript down to a lower V, it follows that (102) is not deviant.<sup>49</sup>

In this way, (102) is essentially opposite to (94a,b) and (97). (94a,b) and (97) require successive cyclicity and do not crucially use percolation projection, whereas (102) requires the latter and does not admit the former, at least for the speakers in question.

### 3.3.3. *The ECP vs. Filters*

The French construction illustrated in (97) has no counterpart with an overt complementizer in English:

- (104) \*Who do you think that left first?

In agreement with Pesetsky (1979/80), we interpret this to mean that index copying from a trace in COMP onto an adjacent complementizer, while possible in French in (97) (and (94a,b)), is impossible in English. Thus, (104)

has the structure ... *think* [ $\bar{S}$ [COMP[NP<sub>i</sub> e] *that*] [ $S$ [NP<sub>i</sub> e] ... The trace in COMP is governed by *think* across  $\bar{S}$ , just as with *croire* in (97) (and (94a,b)), and therefore does not violate the ECP. But the trace in subject position does violate the ECP, being governed neither by a lexical category (it is separated from *think* by two S-type boundaries), nor by a coindexed category (since *that* prevents the trace in COMP from *c*-commanding the lower trace). Thus, the ECP accounts for (104), and thereby subsumes Chomsky and Lasnik's (1977) *that*-trace filter.<sup>50</sup>

The ECP draws the distinction between (104) and (105) straightforwardly:

(105) Who do you think left first?

The structure is ... *think*[ $\bar{S}$ [COMP[NP<sub>i</sub> e]] [ $S$ [NP<sub>i</sub> e] ... The trace in COMP is governed by *think*, as before, and therefore is licit, since its antecedent *who* is contained in a percolation projection ( $\bar{S}$ ) of *think*. In (105), contrary to (104), the subject trace is properly governed by the trace in COMP (thus successive cyclicity is crucial here, as in (101) and (97)), since there is no *that* to block *c*-command.

The conclusion drawn from (104) – that English *that* cannot receive an index from a trace in COMP – is relevant to (106a,b):

- (106) a. Who do you think that she'll marry?  
b. Which book did she say that she was sorry that she hadn't read?

The proper antecedent of the empty NP governed by *marry* cannot be *that*, given this conclusion. Nor could it be a trace in COMP, since *c*-command would not hold. Therefore, it must be *who*. In other words, (106a,b) must involve percolation projection and need not involve successive cyclicity,<sup>51</sup> as opposed to (105), which must display successive cyclicity.

The interaction of *that* with *c*-command has the further consequence that (107) is excluded by the ECP, if *who* and *that* are both in COMP:

(107) \*I know who that you saw.

Given the structure [COMP[who] that], neither element *c*-commands the empty NP, which is then without the necessary antecedent. More generally, for all *wh*-phrases in COMP that have a corresponding trace, and assuming the ECP to apply to all categories,<sup>52</sup> it will be the case that the ECP will exclude [COMP[wh-phrase] that]. The same holds for [COMP wh-phrase wh-phrase] (cf. Chomsky (1980, 5)). If, furthermore, there is a *c*-command requirement (for reasons other than the ECP) on the ...*who*...*he*... construction, then *c*-command would suffice to relate (108) to (107):

(108) \*the guy who that I don't know whether he wants to come or not

Thus, we may be able to dispense with Chomsky and Lasnik's (1977) "doubly-filled COMP filter".<sup>53</sup>

Although English cannot assign an index to *that* from a trace in COMP, it can from the head of a relative (cf. note 39), as seen in (109), in which the antecedent of the subject trace must be *that<sub>i</sub>*. (The head is two S-type boundaries away).

(109) the man that left first

This analysis of (109) is essentially Pesetsky's (1979/80), except that we take the source of the index in (109) to be the head, rather than the *wh*-phrase in COMP. It seems to us to be supported, in addition to the way in which it fits into the preceding discussion, by the following paradigm:

(110) Do you know Mary? Yes, of course. In fact it was Mary who/\*? that originally got us interested in linguistics.

(111) Do you know this book? Yes, of course. In fact it was this book that originally got us interested in linguistics.

In both (110) and (111), *that* serves as antecedent for the empty category in subject position (since, as in (109), the head – here, the head of the cleft construction – is two S-type boundaries away). This suggests that an indexed complementizer *that<sub>i</sub>* is not readily permitted to have a referential human antecedent (cf. demonstrative *that* and Maling (1978, 724)). But this kind of restriction makes sense only if *that* is really counting as antecedent.<sup>54</sup>

The possibility for the head of a relative to assign an index to *that*, combined with the ECP, may also account for certain asymmetries between extraposed and nonextraposed relatives:

(112) He gave something he was very fond of to his sister.

(113) \*?He gave something to his sister he was very fond of.

(114) He gave something to his sister that he was very fond of.

The appearance of a null COMP with a tensed relative is less free in extraposed position than when the relative is not extraposed from NP. In (114), assuming *that* to receive its index prior to extraposition, we can take the antecedent of the empty NP governed by *fond of* to be *that<sub>i</sub>*.<sup>55</sup> But in (113), there is no *that<sub>i</sub>*. The antecedent for the trace in question must be either the empty *wh*-phrase in COMP or the head *something*. In the former case, that empty category will still need an antecedent of its own. Therefore, in (113) there is at least one empty category in the relative  $\bar{S}$  that needs an antecedent outside that  $\bar{S}$  (just as in (112)). But unlike (112), (113) contains no antecedent that governs  $\bar{S}$  (cf. note 35), so that the only remaining possibility is that the  $\bar{S}$  is governed by V. Consequently, (113) follows from the ECP if extraposed relatives are not governed by V, as seems perfectly plausible for that exam-

ple.<sup>56</sup> (This would imply, supporting R. Huybregts's idea in bringing up these facts, that relative clause extraposition (in English) is not stylistic in Chomsky and Lasnik's (1977) sense, since, if it were, we would not expect the ECP to check its output.)

Pesetsky (1978) notes that *that* otherwise resembles elements that bear referential indices. Thus, we might take *that* to be [+N], limiting such indices to [+N] elements. Consider in this light (109) vs. (115):

(115) \*somebody for to play with you

The empty NP in subject position in (115) is not governed by any lexical category X such that a projection of X contains the antecedent. This is so, since even if we assume that *for* belongs to the lexical category P, *for* simply has no  $\bar{X}$  projections here. Therefore, for (115) to be licit for the ECP, the empty NP must be governed by its antecedent. *For* prevents the empty NP in COMP from *c*-commanding the subject NP. And *for* itself, not being [+N], cannot receive a referential index at all. Thus, the ECP accounts for (115).<sup>57</sup>

#### APPENDIX: RIGHTWARD NP MOVEMENT IN FRENCH AND ITALIAN

The analysis of (116a,b) given in § 1.2.2 was stated in terms of the Nominative Island Condition (NIC):

- (116) a. Quand est parti Jean?  
when has left John  
'When did John leave?'  
b. le livre qu'a lu Jean  
the book that has read John  
'the book that John has read'

We shall now transpose this analysis straightforwardly to the ECP framework, maintaining the positive results of the earlier analysis, while achieving certain improvements.

The basic ideas of our NIC analysis were two. First, the moved subject NP in (116) had to end up in a position from which it could properly bind its trace. Second, the necessary configuration for proper binding imposed severe restrictions (having to do with quantification). This second idea (discussed at the end of § 1.2.2) is essentially unaffected by the NIC-to-ECP change, and we will not pursue it further here.<sup>58</sup>

As for the first, the ECP, like the NIC, imposes a "proper binding" requirement. The ECP requires specifically that the empty NP in subject position in (116) have an antecedent that governs it directly (there is no government by any lexical category). Thus, at the point of application of the ECP, *Jean* must at the very least *c*-command the empty subject position.<sup>59</sup> Consequently, at that point, *Jean* cannot be governed by V (V can govern

only within VP, and an NP within VP could not *c*-command the subject position).<sup>60</sup> This explains the deviance of the following examples:

- (117) a. \*?le client pour qui a été tant fabriquée de mayonnaise  
the customer for whom has been so much made (of) mayonnaise  
b. \*?un cinéma où sont beaucoup passés de films bulgares  
a movie theater where have many played (of) films Bulgarian

(These are from Obenauer (1978, 391). Cf. the well-formed *le client pour qui a été fabriquée tant de mayonnaise, un cinéma où sont passés beaucoup de films bulgares.*)

- (118) \*un sujet sur lequel sont beaucoup parus de livres intéressants  
a subject on which have many appeared of books interesting

- (119) a. \*?une voûte que ne soutiennent pas de piliers  
an arch that (neg.) are not holding up (of) pillars  
b. \*?une fille que n'a pas aimée de garçon  
a girl that (neg.) has not loved (of) boy (*boy* subject)

((118) is taken from Milner (1978a, 692), (119a) from Muller (1977, 181).) All of (117)-(119) have an empty QP, just as in § 3.1. This empty QP is contained within the NP corresponding to the moved subject, which, by our previous reasoning, cannot be governed by V (nor by any of the potential antecedents *tant, beaucoup, pas* contained within VP), because it must *c*-command its trace. Thus, the empty QP has no appropriate antecedent and is in violation of the ECP.

The contrast between (119a,b) and the potentially semantically similar (120a,b) follows from the absence in the latter of a comparable empty QP.<sup>61</sup>

- (120) a. une voûte que ne soutient aucun pilier  
an arch that (neg.) holds up no pillar (*pillar* subject)  
b. une fille que n'a aimée aucun garçon  
a girl that (neg.) has loved no boy (*boy* subject)

The contrast between (117)-(119) and the examples in (121) also follows from the ECP analysis:

- (121) a. Il n'a pas été trouvé de livres.  
it (neg.) has not been found (of) books  
'No books have been found.'  
b. Il n'est pas venu d'amis.  
it (neg.) have not come (of) friends  
'No friends have come.'  
c. Il est beaucoup venu d'Allemands chez toi l'an dernier.  
it have many come (of) Germans to your place the year last  
'Many Germans came to your place last year.'



- d. Il a été tant fabriqué de mayonnaise que ...  
it has been so much produced (of) mayonnaise that  
'So much mayonnaise has been produced that ...'
- e. Il a été beaucoup passé de films bulgares.  
it has been many shown (of) movies Bulgarian  
'Many Bulgarian movies have been shown.'

(121c) is from Milner (1978a, 691); (121d,e) are adapted from Obenauer (1978, 391.) In (121a-e), there is a postverbal subject NP, just as in the examples of (117)-(119). However (121a-e), unlike the others, do not have an empty subject position, since *il* has been inserted (much like English *there*). Consequently, there is no need for the postverbal subject NP to *c*-command that subject position, in which case it can without contradiction be governed by V. But then the empty QP is governed by an X a projection (VP) of which contains the necessary antecedent (*pas, tant, beaucoup*). Hence, there is no ECP violation.

The distribution of empty QPs seen here and in § 3.1 recalls the distribution of the trace of the clitic *en*. Thus, to the basic QP facts of § 3.1, which are summarized in (122a-c), can be compared the *en* data of (123a-c):

- (122) a. Jean n'a pas trouvé de livres.  
John (neg.) has not found (of) books  
b. \*Jean n'a pas pensé à de livres.  
John (neg.) has not thought about (of) books  
c. \*De livres ne sont pas intéressants.  
(of) books (neg.) are not interesting
- (123) a. Jean en a trouvé trois.  
John of them has found three  
b. \*Jean en pense à trois.  
John of them thinks about three  
c. \*Trois en sont intéressants.  
three of them are interesting

This suggests that the guiding principle for the relation between *en* and its trace is the ECP.

Assume the trace of *en* to be empty in the sense of the ECP (i.e. not PRO). Then ... *en pense à trois*-[e] is excluded, since the empty category is governed neither by *en* nor by a lexical category a projection of which contains *en*. *Trois*-[e] [*VP en sont*...] can be analyzed similarly (cf. Zubizarreta (1980, note 7)). As for ... *en a trouvé trois*-[e], it must be that V can govern across NP and across *trois* when *en* has been extracted.<sup>62</sup>

The ungrammaticality of (123b) was attributed in Kayne (1975, section 2.8) to the A-over-A Principle. The ECP analysis is superior in two ways. First, it covers the corresponding example of (122), too, whereas the A-over-A analysis left it open. Second, the A-over-A Principle had to be restricted to

extractions, as opposed to dislocations, "deletions", and insertions.<sup>63</sup> But this restriction to extraction is not natural, in that the basic A-over-A idea of a certain kind of intolerable ambiguity is not itself specific to extraction. On the other hand, if we take the guiding principle of (123a-c) to be the ECP, then this problem does not arise (cf. the discussion of (83)-(84)), since the other constructions in question do not involve empty categories (the (non-*wh*) "deletion" structure should have been analyzed as involving PRO). This raises the possibility that the ECP may render the A-over-A Principle superfluous in general.<sup>64</sup>

Pursuing the similarity between the trace of *en* and empty QPs, we note the following facts, comparable to those of (117)-(119):<sup>65</sup>

- (124) a. une voûte que soutiennent dix-sept piliers  
an arch that hold up seventeen pillars  
b. une fille que détestent trois garçons  
a girl that hate three boys
- (125) a. \*une voûte qu'en soutiennent dix-sept  
an arch that of them hold up seventeen  
b. \*une fille qu'en détestent trois  
a girl that of them hate three

The postverbal NP of this construction is not an appropriate source for *en*, so that there exist minimal pairs with sentences containing *en* originating within a postverbal object:

- (126) une fille qui en déteste trois  
a girl that of them detests three

Furthermore, a moved subject NP is a valid source for *en* if the vacated subject position is filled with *il* (cf. (121)):

- (127) Il en est arrivé trois.  
there of them have arrived three

In (126) and (127), V governs the trace of *en*. In (125), on the other hand, the ECP requirement on the empty NP in subject position forces the postposed NP to *c*-command the subject position; hence, it is not governed by V. Consequently, the trace of *en* contained in the postposed NP violates the ECP, just as the empty QP does in (117)-(119).

Consider now the Italian (128):

- (128) \*Ne hanno telefonato tre.  
of them have telephoned three.

In chapter 1, we suggested that (125) and (128) were essentially a single

phenomenon, but we were not able to give a satisfactory account of (128). It remains true that the analysis of (128) cannot simply be that of (125) as given, since for (125) we used the idea that rightward NP movement creates a potential ECP violation in subject position. But Italian rather freely allows empty (or more likely PRO) subjects (cf. note 50), and so must have some mechanism which is likely to allow one in both (128) and (129):

- (129) Hanno telefonato tre amici.  
have telephoned three friends  
'Three friends have telephoned.'

In which case it is not clear what precludes the postverbal NP from being governed by V in (128) and (129).

It may be "disjoint reference"; more precisely, if the subject position *c*-commands *tre amici*, then in (129) *tre amici* is bound by its own trace, which is in argument position. Assuming further that *tre amici* is marked for Case, there is a violation of Chomsky's principle (1981a; 1981b) that requires all Case-marked NPs to be free in all their governing categories.<sup>66</sup> Therefore, the subject position must not *c*-command *tre amici*; but then neither does V. Consequently, replacing *tre amici* in the above example by *tre* [e], we get an ECP violation exactly as in (125).

To allow (130), we adopt a proposal made by Chomsky in his Pisa lectures that there exists PRO-insertion, while adding the refinement that PRO can optionally have the properties of French "impersonal" *il*.

- (130) Ne sono arrivati tre.  
(there) of them have arrived three

In fact, given the above use of "disjoint reference", we must say something to avoid a disjoint reference violation in (127) (since we assume, with Dresher and Hornstein (1979, note 22), that *II* Insertion does not affect the index left by NP Movement). Let us consider that in French *il* is optionally specified as [-argument] (now the theoretical translation of "impersonal"), and is then protected against triggering disjoint reference violations. Let us consider further that PRO in Italian can be specified likewise. Then (130) vs. (128) is like (131) vs. (132):

- (131) Il est arrivé trois amis  
there have arrived three friends
- (132) ??Il a téléphoné trois amis  
there have telephoned three friends

When [-argument] PRO can be inserted, as in (130) and (131), government by V remains possible, and the trace of *ne* is licit.<sup>67</sup>

1. As far as *government* itself is concerned, we shall take as starting point the definition proposed in Chomsky (1980, 25): (essentially)  $\alpha$  governs  $\beta$  if  $\alpha$  *c*-commands  $\beta$  and no major category or major category boundary appears between  $\alpha$  and  $\beta$ . ( $\alpha$  *c*-commands  $\beta$  if (neither  $\alpha$  nor  $\beta$  dominates the other and) the first branching category dominating  $\alpha$  dominates  $\beta$ .)

We note in advance that this restrictive formulation must be relaxed so as to allow for some instances of government across a *single* major category boundary (see the discussion of (3), (19), (58), (62), (77), (85), (94)-(96), (100)-(103), (104), (109)-(111), (123a), and notes 22, 23, and 48). This might well motivate a redefinition of government in terms of "minimal *c*-command", as in Chomsky (1981a); this question is, however, not central to our proposals in this article. (On intervening categories, as opposed to category boundaries, see the discussion of (20), (64), and (123a); here, too, the definition of Chomsky (1980) must be relaxed, in ways unclear, but perhaps related to (102) vs. (103).)

The ECP does not apply to PRO, which is assumed to contain certain features that distinguish it from [e]. Thus, *John tried to leave, It is unclear what to do* are permitted, with an ungoverned PRO as subject of the infinitive.

The arguments given in § 2.1, to the effect that the NIC must be located in LF, transpose straightforwardly to the ECP. We shall thus assume that the ECP applies in LF, although that assumption is tangential to this article (cf. note 59). We agree with Chomsky (vs. § 2.2) that the trace of *Wh* Movement should not be treated as an anaphor; this is supported by much of what follows here, and by the problems noted in chapter 2, end of notes 13 and 17.

2. Additional examples like (7) can be found in Haase (1969, 308) and Gaatone (1971, 108), e.g. . . . *ne concevais pas qu'il pût exister de figures . . .* ' . . . didn't conceive that there could exist (of) figures . . .'. As Fauconnier (1976, 198) notes, this construction is not limited to the so-called "neg-raising" predicates (cf. Kayne (1975, chapter 1, note 34)).

Like (7) vs. (8) is the pair given by Muller (1977, 182): *Je ne crois pas qu'il vienne de gens* vs. \**Je ne crois pas que de gens viennent*. That (1) vs. (2)/(3) vs. (6)/(7) vs. (8) can constitute a significant generalization is in effect informally suggested by Muller (1977, 184-185).

We leave open the question of how best to integrate right dislocation (*Elle n'en a pas acheté, de livres*) and perhaps related coordinate constructions (if Milner (1978b, III, 3.3) is correct, then the right-dislocated element simply contains no empty QP).

The ECP account of (6) and (8) implies, of course, that these [QP e] are not PRO (see note 1).

3. For discussion of *des*, see Attal (1976; 1979). The second example is again from Muller (1977, 182). Example (8) also contrasts with *I don't think that any beer spilled*; thus *c*-command could be an additional factor in (6), but not in (8), (12), or (14).

4. Like (9) in this respect are *De très jolies filles sont venues* 'Some very pretty girls have come', *Je ne crois pas que de jolies filles viennent*, with a bare initial (presumably determiner) *de* preceding a pronominal adjective, but again with no empty QP.

5. Attal (1979, 391) gives ?*C'est beaucoup que nous mangeons de fruits* 'it is many that we eat (of) fruits' (with stress on *beaucoup*); \**C'est beaucoup que d'amis arrivent* 'it is many that (of) friends arrive' is impossible.

6. The simple *Combien d'argent se trouve dans le coffre?* does not bear on the ECP, since it can be considered to involve *Wh* Movement of the entire subject; cf. *Combien d'argent est-ce qu'elle a?* For further discussion of *combien*, see § 3.3.2.

7. Thus (18) aligns exactly with (9) and with the sentences of note 4.

Similarly, in exclamatives, NPs of the form *de ces N* can occur as object of a preposition (Gross (1977, 55n); cf. Morin (1976)) and must therefore have no initial empty QP.

Judgments vary on (the literary, nonexclamative) NPs of the form *de* + demonstrative/possessive + . . ., both for subject position (Gross (1977, 25) - OK; Kupferman (1976, 52, 55) - OK; Milner (1978b, 78) -\*; Muller (1977, 185) -\*?) and for prepositional object position (Kayne (1975, 122) -\*; Gross (1977, 55) -\*?; Muller (1977, 185) -\*?). We shall infer from Muller's differing judgments of \*? here versus (1977, 169, 181) \* for (15) that these are not to be analyzed as containing an empty QP (and that whatever is responsible for the deviance here could not account fully for the \* of (15), (16), and (17)).

We assume that in *Elle s'occupe de chevaux*, the NP object of *de* has a null determiner (as, much more generally, in English plurals), but no empty QP; see Gross (1967), Vinet (1977, section 1.3).

On *sans*, see note 12.

8. Compare the discussion of *the man that left*, especially in note 44 below.

We might reinterpret the marginality of (19) as the result of *combien's* not *c*-commanding its QP trace; cf. Chomsky and Lasnik (1977, 485n).

9. Extraction of QP from an embedded subject yields ??*Autant de filles sont venues que Marie croyait que de garçons viendraient* 'as many (of) girls have come as Mary thought that (of) boys would come', which we can treat like the corresponding *combien* sentences of (94).

Fully acceptable, on the other hand, is *Autant de filles sont venues que de garçons sont restés à la maison* 'as many (of) girls have come as (of) boys have stayed at home', in which the empty QP within the subject NP is properly governed by the moved QP *wh*-phrase in COMP. See the later discussion of (91).

10. We take up the formulation of the reanalysis rule below.

There are French constructions that do have a bare preposition (but without movement). These appear to support the *e*/PRO distinction (see note 1 and chapter 5, note 22).

11. The optimal treatment of *What did you hit him for?* (vs. \**For what did you hit him?* (in the sense of *why*)) is unclear.

12. *Jamais* is also sufficient; see Fauconnier (1976, 198). Fauconnier (p. 196) notes explicitly that a certain class of contexts that otherwise allows various "negative polarity" items in French does not allow *de N*. In our terms, the contrast follows straightforwardly from the absence in these other items of any (unbound) empty category (and the fact that those contexts do not have an appropriate antecedent for the empty QP).

Muller (1977, 173) gives as "?" an example with *étonner* 'astonish' virtually identical to one to which Fauconnier (p. 196) assigns \*; we must consider it ungrammatical, unless for Muller either the *de* can fail to reflect an empty QP there or *que* can count as antecedent, as in comparatives (see § 3.3.1). Haase (1969, 309-311) gives as common in the seventeenth century a series of examples which would seem to indicate that *de-N* could fail to reflect an empty QP.

The perfectly acceptable *sans avoir d'argent* leads us to allow *sans* to count as antecedent for the empty QP; cf. *sans même d'argent* (and similarly, *ni même d'argent*). This property of *sans* recalls its use as a "particule négative" in Walloon, see Remacle (1956, 370).

In *Personne n'a trouvé de livres*, the antecedent for the empty QP must be *ne* (expletive *ne* does not suffice; cf. Gaatone (1971, 81)). In colloquial French, *ne* can fail to appear, with no effect on the possibility of an empty QP, if *pas* is present: *Ils ont pas trouvé de livres*. Attal (1979, 519) gives \**Personne a trouvé de lait*, although some speakers disagree; for them we should probably consider *ne*-deletion (cf. Milner (1979a, 80n), Morin (1979, 8), and Pohl (1968)) to be on the phonological wing of the grammar, so that it does not remove the requisite antecedent, from the point of view of the ECP (cf. the last paragraph of note 1).

13. There are also French polarity item equivalents to (39). See Gaatone (1971, 203, 162), Muller (1977, note 17), and chapter 2, note 4.

14. Cf. Baltin (1978).

15. The use of *projection of X* (in the sense of Chomsky (1970)) in this formulation of the ECP recalls Van Riemsdijk's (1978, 160ff) Head Constraint. The ECP differs from that constraint in being limited to empty categories (but see Groos and Van Riemsdijk (1981)) and, if we are correct below, in making use of percolation. In addition, the ECP specifies admissible contexts, so that it is much more general than the Head Constraint, which in effect specifies inadmissible contexts.

Put another way, the Head Constraint and this revised ECP give similar results for those empty categories governed (as in Chomsky (1980)) by a lexical category; but for those not so governed, only the ECP comes into play. For example, of the two, only the ECP accounts for (2), (6), (8), (11), (12), (14), (20), (27), (33), (34), (59), (61), (63), and (117)-(119) below.

16. Government across an NP boundary seems to be limited to instances in which some constituent of that NP has undergone genitivation (of which we take *de* here to be a reflex).

17.  $\bar{S}$  would not have to be considered a projection of V if it were a projection of INFL(lection) (cf. Chomsky (1981b)), and if INFL, which we assume not to *c*-command the subject NP, could assign a superscript to V, much as V to P below.

18. This difference between English and French can in turn be interpreted as reflecting a more general difference between English and French prepositions, as we argue in chapter 5.

19. See the discussion of (94)-(96) below. Note that our point about (48) and (49) extends to multiple embedding, as well; for example, *Who did she say she thought she knew?* That is, the ECP with percolation projection does not impose a trace in either COMP, in such structures.

20. Percolation projection may have a (more limited) counterpart in the theory of anaphora of Chomsky (1981a; 1981b), to judge by Thráinsson's (1976) description of Icelandic reflexives, for which it seems attractive to say that the minimal governing category of a reflexive can be projected from a governing V upward through a string of subjunctive *Ss*. The empirical prediction is that reflexives in embedded subjunctives in Icelandic can be objects but not (ungoverned by V) subjects, no matter where their antecedent.

From their partial similarity with respect to percolation projection, we would not, however, want to conclude that the theory of anaphora and the theory of empty categories are fundamentally the same. The former basically requires that an anaphor be bound *within a certain domain* (governing category), whereas on our view the ECP basically requires that an empty category have an antecedent *that governs it* (condition 1 of (47)). That is, it requires that the empty category meet a strong condition on recoverability.

Percolation projection enters in condition 2 of (47) as a kind of limited relaxation of this strong recoverability condition. If an empty category is governed by some lexical category X, then it may use the set of percolation projections of X as a "path" (see chapter 7) to "reach" its antecedent. The requirement in (47) that the antecedent be contained in a percolation projection of X should really be understood as the requirement that such a path may not include any lexical node or projection not co-superscripted with X.

This conception of the ECP may give a deeper account of (30) vs. *Jean a voté pour lui-même* 'John voted for himself', with an anaphor (cf. Koster (1978a, 569)), than would the idea that anaphors and empty categories are both subject to domain constraints, but with differing domains.

21. This avoids much controversy; cf., for example, Pullum and Postal (1979, 691, 695). On deletion of *wh*-phrases, see § 3.2.4. We recall that Kayne and Pollock's (1978, esp. note 33) argument for successive cyclicity is an existence argument.

22. A case in French where PP might contain the antecedent of an empty category governed by P is *là-dessus* 'thereupon', *ci-après*, 'hereafter', etc., cf. Ruwet (1969). Essentially following Van Riemsdijk (1978), we assume the same for the corresponding Dutch constructions. In Dutch, the locative pro-form can be moved out of the PP entirely. If we assume further with Van Riemsdijk (1978) that it moves through a position outside  $\bar{P}$  but inside PP, the ECP requires that that position/trace be governed by V, as the relevant PP itself must then also be.

23. The deviance of extraction from  $\bar{S}$  with *sigh*, *groan*, *murmur*, etc., suggests that those  $\bar{S}$ s are not governed by the matrix V. This may be supported by the fact that in the French causative construction those  $\bar{S}$ s (unlike the ones with *say* 'dire') can fail to trigger  $\bar{a}$ -insertion, and by the naturalness of *John sighed/groaned to the effect that ...* vs. \**John said to the effect that ...* Similarly: *Who did you yell/\*say to that ...?*

The obligatoriness of *that* with the above set of verbs suggests that *that* covers the trace of Tense originating in COMP (cf. Luján (1978), Den Besten (1978)). An empty Tense is then forced by the ECP to be coindexed with a *c*-commanding lexical category (through superscripting, so V can serve as antecedent, but not N; cf. Chomsky and Lasnik (1977, (175))), except, for some reason, when in the COMP of a root  $\bar{S}$  or when sharing COMP with another category (*the book I got in the mail* vs. *the book \* (that) I was wondering whether I would get it in the mail*). This last proviso might be taken to indicate that *Wh* Movement can cover/delete the empty Tense.

If P cannot initiate superscripting, then in \*(*that*) *he's strong* follows; in which case *before he leaves* recalls Geis (1970); cf. the similarity in French between the latter and comparatives (Kayne (1976, note 39)), as well as the fact that French *que* can be absent with a conjunction only when there is a *wh*-resemblance (ibid., note 3).

The pair *John is too smart for me to trust/\*John likes your wife too much for you to trust* from footnote 26 has a counterpart with *wh*-extraction, supporting the conjecture that ECP/reanalysis is relevant to both: *Mary, who John is too superficial to appreciate, ...* vs. \**Mary, who John sees his wife too often to appreciate, ...*

24. Notice that the first of the three text pairs ((52)-(53), (54)-(55), (56)-(57)) shows that it would be wrong to think of the other two in terms of some property of "subjects".

25. The reason why we suspect (58) and (60) not to be completely parallel is that on the whole only the former is possible in French; see chapter 5.

Like (59) and (61) is *\*John's certainty/likelihood to have left*. (We assume that control, not raising, is involved in *John's probability/chances of winning*; cf. *John has good chances of winning*. *\*There have/has good chances of being another war*, and see Chomsky (1970, 205), Anderson (1979, 126) vs. Postal (1974, chapter 10), Bowers (1975, 358), Ross (1972, 322).)

We conjecture that in *John is certain/likely to have left by now* government for the ECP is via *be+A* reanalyzed, rather than via *A*, so that *A* will be like *N* (but past participles will be like *V*).  
26. Cf. note 25. Also *This problem is a cinch to work out*, *This mountain takes a long time to climb*.

Like (64) is *John is too smart for me to trust* (vs. *John's excessive smartness (\*for me to trust)*). The right characterization of reanalysis should be able to account for *\*John likes your wife too much for you to trust*.

Our analysis of *for* in (64) differs from many. See Chomsky (1977, 103ff.) and the references cited there; also chapter 2 note 16.

Although *wh*-phrase deletion is neither category deletion nor in the phonology, we may want to allow for category deletion in the phonology of terminally null categories that are unmarked for Case. See Kayne (1978, end of note 20) and Jaeggli (1980).

27. We assume here that  $V^i \dots P^i$  is a necessary condition for verbal pseudopassives.

Note that (70) shows that *\*reference to* is not available as an *N* in the lexicon, either. This seems quite general, in contrast with *unheard of*, etc. (Siegel (1973)). We interpret this to mean that *unheard of* can be created as a lexical item precisely because there do exist syntactic reanalysis outputs like *Mary was laughed at*, with *V \dots P*; that is, the lexicon can "analogically" "draw on" the syntax. (We assume that lexical rules proper cannot "look into" PPs at all; see Roeper and Siegel (1978).)

28. The *e* vs. PRO distinction between (58) and (69) is also supported by their differing behavior with respect to complementizers in French and Italian; cf. chapter 5.

29. Though not in *another French defeat/debacle*. There might be an empty *N* in *China-watcher*. The presence of an empty category in (71) also allows us to draw the correct distinction between it and *\*the city's destroying by the enemy (\*despite ?the enemy's destroying of the city)*, in terms of the Case on the empty NP (cf. Rouveret and Vergnaud (1980, appendix A)), if nonlexicalized *V-ing* remains a Case-marker in the absence of *of*.

This hybrid character of *V-ing* is especially striking in *\dots V-ing of NP NP* (Jespersen (1970, Part V, section 8.4)). Another relevant "nonstandard" construction is given by Radford (1978, 45-46): *I want my toe looking at \dots* Cf. Lightfoot (1979, 275).

30. The superscripting difference between *N* and *V* should be related to the fact that only *V* assigns objective Case (which in turn suggests that genitive Case, rather than being assigned by *N*, is the  $N^i$  counterpart to nominative). Cf. note 54 below.

31. Superscript transmission seems possible if the *N* is "reanalyzed" with *V*, in the sense of *?Who did she make the claim that John loved?* (Ross (1967, section 4.1.5)). Compare the French example given by Daladier (1979, 266).

Some "CNPC violations" are well-formed in Scandinavian (Erteschik (1973), Allwood (1976)). A plausible solution involves extraposition of  $\bar{S}$ , as proposed by Taraldsen (1981), which recalls Chomsky's (1977) restructuring of PP. Cf. note 56 below.

32. Note that this account does not require us to specify that NP cannot have a COMP node. Here, there is a point in common with Zwarts (1977).

33. As far as we can see, the ECP does not yield an immediate account of the restrictions on which Rizzi's (1982, chapter II) argument for Subjacency is based. However, we accept (with stress on *when*) *John I don't know when I can arrange for you to see*, which, under Rizzi's assumptions and also assuming *arrange- $\bar{S}$* , violates Subjacency, but not the ECP. We even sometimes tend to accept, with a tensed lower  $\bar{S}$ , *?John I don't know when I should say I'm gonna see*. The marginal status of this last example appears to us to resemble that of *?Linguistics would be hard for him to say/know he's gonna like* (see Nanni (1978)), which does not seem to fall under Subjacency (or the ECP).

Whether extraposition phenomena provide any evidence for Subjacency is unclear; for recent

discussion, see Koster (1978b, section 2.3.3), Rouveret (1978, section 2), and Guéron (1980). We leave the relationship between extraposition and the ECP for future work.

34. As in Bresnan and Grimshaw (1978). If the *wh*-phrase in free relatives is in COMP, as in Hirschbühler (1978) and Groos and Van Riemsdijk (1981), and if there is a head, then the consequence is less immediate, though perhaps valid, depending on the optimal analysis of that head, which we shall leave open.

35. Cf. note 54 below. To account for the absence of *wh*-phrase deletion in modern English nonrestrictives (vs. French), we might adopt Cinque's (1978a; 1982) analysis, in which nondeletability is correlated with non-*c*-command.

36. That Subjacency not be a principle of movement has been suggested by Jenkins (1976, 76), Bresnan and Grimshaw (1978, section 7), and, in effect, Koster (1978a,b). (Koster (1978a, 574) has an equivalent of (74).)

The Bounding Condition of Koster (1978b, chapter 2) is like the Head Constraint and our formulation of the ECP in using "maximal projection"; see note 15. The Bounding Condition is unlike the ECP in not distinguishing *e* from PRO (that distinction is crucial to (59) vs. (69)) and in its "auxiliary hypotheses" (Koster (1978b, 123)); nor does it extend to (59), (61), (63), (70). Perhaps most centrally (see also note 20), only the ECP incorporates the notion of government that is able to express the subject-object asymmetry of, for example, (1) vs. (2), (7) vs. (8), (13) vs. (14), and the government/nongovernment asymmetries of (20a,b) and of (28) vs. (29).

37. Chomsky has pointed out that we could now dispense with deletion of *wh*-phrases entirely, by generating [<sub>NP+wh</sub> e] in normal NP positions, and then moving it to COMP. Our analysis recalls Chomsky and Lasnik's (1977, 447) suggestion (cf. also Chomsky (1977, note 25)) that in headed (restrictive; see note 35) relatives, the *wh*-phrase is of no semantic import; thus, it need not be present in LF.

The resemblance between (80) and Postal's (1972) "preposition dangling" examples was taken by Kayne (1976, note 29) to be significant. In the present framework, Postal's examples are excluded by the ECP, assuming (with Hornstein and Weinberg (1981)) that reanalysis is unable to apply between *V* and a PP in COMP (straightforward in turn if government of a phrase in COMP does not require superscript percolation into COMP).

38. Replacing Subjacency with the ECP has the consequence that McCloskey's (1979, 19) argument against movement in Irish "resumptive pronoun" relatives falls away.

39. The examples in (86) must be distinguished from *\*John is as happy as is intelligent*. This suggests that *as*<sub>i</sub> may either receive its index from a higher NP or not. If it does not, then the interpretation is necessarily that of (85a,b) or *Mary ran as quickly as was predicted* (akin to *as what \dots*). Therefore, in (86a,b) *as* and *than* must have received an index (prior to extraposition out of NP) from *as many people, more money*; the situation is similar in *John is as smart a man as has ever studied philosophy*. (Note the intersection with Bresnan (1973).) This coindexing with a head seems essentially the same procedure that is argued for in § 4.2.2. Cf. also note 54.

In *John sings rather than dances, He sang instead of danced* (Thompson (1972)), there may not be an empty subject left by *Wh* Movement (cf. note 41 and also *He as much as confessed*). Perhaps these are to the ECP as coordination examples such as: *John sings and dances (the tango)*. If Williams's (1978) stacked structures are correct, one could imagine that the first of two parallel NPs governs the other (empty one), in the absence of an overt conjunction specifically between them.

40. Despite *Like I said, \dots*, which must then have no empty NP object; though there might be movement of an adverbial, if *like* can bind a non-NP. Compare the end of note 23 and French *comme j'ai dit* 'as I've said' vs. *\*comme est évident* 'as is evident', with *comme* related presumably to *comment* ('how') and capable of triggering Stylistic Inversion: *comme dit tout le monde* 'as everyone says'.

41. The sentence *Autant de personnes sont entrées que parties* is possible; thus, this "gapped" structure must not have an empty subject NP at the point where the ECP applies. On comparative *que* "vs." complementizer *que*, see Kayne (1976, section VII).

42. If Obenaauer (1976; 1977) is correct about interrogative *que* not being a *wh*-word, then in *Que fait Jean?* 'What is John doing?', *que* must be coindexed with a moved empty *wh*-phrase, of category NP. It is of interest that this one case of *que*<sub>i</sub> antecedent to an NP is associated with a *what*-like interpretation recalling note 39.

On *Marie est plus grande qu'elle n'était* 'Mary is taller than she was', see Milner (1978a, note 13) and note 40.

On *Marie est plus grande que tu (le) penses* 'Mary is taller than you think', see Vergnaud (1975). The absence of \**Plus d'argent a été perdu que (n')en a été retrouvé* 'more money was lost than (of it) was found' is attributable to a violation on the trace of *en*; see (123) below.

43. Thus, the leftward movement of *beaucoup* (and *trop* 'too much, too many') cannot be through COMP. (In effect, passage through COMP is limited to *wh*-phrases.) This correlates with the comparable conclusion reached for the leftward movement of *tout* 'all' in § 4.2.2.

44. Given [<sub>COMP</sub>[QP<sub>i</sub> e] que<sub>i</sub>], *c*-command must (barring restructuring) be able to ignore empty categories (not PRO). Direct index copying in (95a,b) and (96) is blocked by the  $\bar{S}$  boundary, which also cannot transmit the QP index (QP here not being the head of a relative/comparative – see note 54).

45. *Qui* appears when the indexed complementizer governs a coindexed nominative NP position – cf. Milner (1979b; 110).

46. There would be a form of circularity if an indexed complementizer could count as antecedent for the very phrase from which it received its index; cf. Higginbotham and May (1981b). This allows the ECP to account for Pesetsky's (1979/80), note 5 \**I wonder that left first*.

47. Like (99) is (14) above. The object counterparts of (97) and (99) are better:

- (i) ?? *la fille que je tiens à ce que tu épouses*  
the girl that I am anxious for it (that) you marry
- (ii) ?? *Combien tiens-tu à ce qu'elle invite d'amis?*  
how many are you anxious for it (that) she invite (of) friends

The contrast is like the one involving *regretter* (see examples (100)–(103)). The "??" comes from the fact that *tenir* can govern the  $\bar{S}$  only if *à* and *ce* are discounted (by mechanisms left open).

48. This is supported strikingly by the contrast between (97) and the comparable *Qui crois-tu qui est venu?* 'Who do you think (that) has come?' on the one hand, and Rouveret's (1980, 112) \**Qui regrettes-tu qui soit venu?* on the other. The latter is ruled out because the appearance of *qui* in the lower COMP must be due to the presence there of a trace; however, that trace itself violates the ECP, for the speakers in question. On *croire* vs. *regretter* here and in the text, note *Everybody thought/\*regretted John to be a fool*, where COMP again is crucial (cf. chapter 5).

49. It is similarly the case in English that percolation projection is less restricted than government of COMP; see § 1.1.2, 1.1.3.

50. This analysis of (104) has in common with that of § 1.1 the idea that the trace in COMP is not an adequate antecedent for the subject trace, but explicates that idea in a simpler and more general way.

The Chomsky and Lasnik (1977) filter had the theoretical disadvantage of being too specific and isolated. Descriptively, it was insufficient for English (chapter 1) and for French, as shown here by the ungrammaticality of (98) (and by note 48); the filter was also incompatible with the grammaticality of (101).

Nor could the filter give an optimal account of the apparent *that*-trace violations in Italian (§ 1.2). From the ECP point of view, they must involve either PRO in subject position (not incompatible with movement – see the discussion of (83a,b)) and/or extraction from postverbal position (cf. Rizzi 1982, chapter IV).

51. The complementizer alternations discussion by McCloskey (1979) (cf. note 38) might mean that in Irish percolation projection is not available with  $\bar{S}$  (so that successive cyclicity would be imposed). If so, we would need to ask why, and whether (102) exists, among other things.

52. Nothing essential changes in the text if *c*-command is replaced by the more restrictive alternative of chapter 7.

53. If *whether* binds no trace, then \**whether that* could perhaps be attributed to *whether*'s being a variant of *that*. Following Taraldsen (1978), we take languages that systematically appear to have doubly-filled COMP (e.g. a certain popular French, and Hebrew (Borer (1979))) to be instead instances (at the point of application of the ECP) of a more articulated hierarchical

structure, e.g. . . . [[*wh*-phrase]<sub>i</sub> que [<sub>S</sub> . . . ]]. If the node Y is opaque to government, then (all else being equal) this popular French should not allow \**la fille que je crois que viendra*, any more than standard French does; we differ here from Pesetsky (1979/80).

54. In *It was Mary that did it, not John*, we take the head to be a variable in the sense of Chomsky (1976, 344).

The object counterpart to (110) seems clearly better: . . . *In fact, it was Mary that we originally tried to get as Visiting Prof.* If so (also because of the initial example of note 57), then in a [<sub>NP</sub> NP  $\bar{S}$ ] structure, we should allow the top NP to be a percolation projection of  $\bar{S}$ . For example, given [<sub>NP</sub><sub>i</sub> NP<sub>i</sub>  $\bar{S}$ ]<sub>i</sub>, where the top NP is a projection of the lower, we can generalize (46) to (i):

- (i) A is a percolation projection of B iff A is a projection of B, or A is a projection of C, where C governs and bears the same Index as D, D a projection or percolation projection of B. (Index = superscript or referential index.)

To maintain our ECP account of the CNPC, it suffices for V never to assign a superscript to NP (apart from note 31). In essence, superscripts: V (and, in English, P):: referential indices: N (and perhaps A), with relative (and perhaps English comparative)  $\bar{S}$  having the characteristic of participating in both the verbal and nominal index systems.

If we assume that the choice of Index interpretation for a given lexical category is unambiguous, then from the fact that N and its projections take the referential interpretation of Indices, it follows that N cannot assign superscripts, as was desired in § 3.2.3.

If Case assigned by a lexical category bears the Index of that category (cf. § 2.2) then the fact that the category N assigns no Case (see note 30) should fall under some generalization of disjoint "reference".

55. And similarly for the empty NP in COMP, since *that*<sub>i</sub> got its index elsewhere (cf. note 46).

56. Cf. Williams (1974). Some instances of *that*-less relative extraposition, especially from subject position, seem reasonably acceptable. The possibility that some such extrapositions find their way to a governed position is also potentially relevant to Norwegian; if government holds, extraction from extraposed relatives there (cf. Taraldsen (1981)) would be akin to extraction from embedded interrogatives (cf. notes 31 and 33).

57. And the last motivation for the *far-to* filter of Chomsky and Lasnik (1977) disappears (cf. § 2.2).

In *somebody for you to play with*, the whole NP must be a percolation projection of *play with* (that is, *somebody* must be antecedent), as in note 54. We now expect extraposition to be possible only when [<sub>S</sub> for S] is governed by V, perhaps meaning in turn only when [<sub>PP</sub> for NP] would be possible. Cf. Faraci (1974).

58. See Higginbotham and May (1981a) for formal work that may provide the underpinnings for our analysis of (116) as a kind of "degenerate multiple interrogation".

59. If government requires linear contiguity, then *Jean* must also be moved leftward in LF from its surface position, as we originally proposed in the NIC framework. Since the *c*-command requirement is sufficient for what follows, we will adopt a neutral position here on contiguity and LF movement.

60. The more restrictive alternative to *c*-command proposed in chapter 7 results even more decisively in this nongovernment of *Jean* by V, since it forces *Jean* to be adjoined to S (whereas *c*-command would allow it to be a sister to its trace).

61. Cf. note 12. Our earlier proposal in terms of "name opacity" did not yield this result; see chapter 1, note 30.

Consider the problem posed by the fact that judgments on (117)–(119) are less sharp than in § 3.1 and by example (i), which Muller (1977, 181) notes as contrasting with (119):

- (i) . . . dans laquelle ne se trouvent pas de mots  
in which (neg.) are located not (of) words  
' . . . in which there are no words'

The essential difference between this example and (119) would appear to be that only the former

has a natural counterpart with *il*: ... *dans laquelle il ne se trouve pas de mots*. We could account for this by allowing [-argument PRO insertion] in French, much as we will argue to be necessary for Italian, if we stipulate that unbound [-arg PRO] does not violate the binding conditions in French in some set of "marked" contexts (yet to be specified). For Milner (1978a, 692), this marginal, or "analogical", possibility is not available for the construction of (117)-(118) although it is for (119).

62. Just as V must govern across the NP node in (122a). The crucial common property would seem to be genitivation; see note 16. In *Combien en a-t-elle?* 'How many (of them) does she have?', *Wh* Movement can be taken to move just QP; the same is true for Italian *Quanti ne ha?*, given that *ne* also reflects genitivation. If *Wh* Movement moves to COMP a phrase truly containing an empty category whose antecedent is lower than that COMP, the result is ungrammatical: *I don't know who to buy many pictures of*, \*\**How many pictures of don't you know who to buy?*

63. Cf. Kayne (1975, chapter 2, (183)ff. and fn. 76; and chapter 5, (55)ff.).

64. It might be possible to replace Bresnan's (1976a) use of the A-over-A Principle to block Heavy NP Shift of the object of a preposition by an analysis of the type alluded to in chapter 1, note 22.

65. Again, as in note 61, there are marginal cases like *?le chapitre où en interviennent dix-sept* 'the chapter where seventeen of them intervene'.

66. If the principle specifies "in their governing categories", it must be that the rightward-moved NP is always in a position such that it has S for a governing category.

67. The contrast between (128) and (132) shows the possibility of inserting ["-argument" PRO] to be more sharply sensitive to the choice of verb in Italian than in French. (C. Bracco tells us that in the Turin dialect, which has an *il*, the equivalent of (132) is \*(true for some French speakers, too).) As we would expect, to the extent that *il* may be inserted with *téléphoner*, *en* is possible: *?il en a téléphoné trois*.

## Binding, Quantifiers, Clitics and Control\*

### 4.1. BINDING, QUANTIFIERS AND CLITICS

#### 4.1.1. Types of Empty Categories

In earlier work,<sup>1</sup> we proposed that the Specified Subject Condition (SSC) is what accounts for the ungrammaticality of French sentences such as (2), which contrast with the grammatical sentences of (1):

- (1) a. Elle voudrait le manger.  
She would like it-eat (i.e. She would like to eat it.)  
b. Je croyais la connaître.  
I thought to know her (i.e. I thought that I knew her.)  
c. Je tiens à vous revoir.  
I am anxious to see you again.  
d. Elle a laissé Jean lui offrir un livre.  
She let John give her a book.
- (2) a. \*Elle le voudrait manger.  
b. \*Je la croyais connaître.  
c. \*Je vous tiens à revoir.  
d. \*Elle lui a laissé Jean offrir un livre.

In the framework of Chomsky (1980), with the SSC reformulated in his (27) and (112) as the opacity condition, our SSC proposal can be reformulated as follows: The relevant structure of (the first example of) (2) is *Elle le<sub>i</sub> voudrait* [ $\bar{S}$  PRO manger [ $\text{NP}_i e_j$ ]]. In this structure, [ $\text{NP}_i e_j$ ] is an anaphor in the domain of the subject of  $\bar{S}$ , namely PRO. Furthermore, this anaphor [ $\text{NP}_i e_j$ ] is free in  $\bar{S}$ , since there is nothing co-indexed with it in  $\bar{S}$ . Consequently, (2) is excluded as a violation of the opacity condition.

On the other hand, had Clitic Placement (Cl-Pl) applied to attach the clitic to the embedded verb, as in (1), we would have: *Elle voudrait* [ $\bar{S}$  PRO *le<sub>i</sub> manger* [ $\text{NP}_i e_j$ ]]. Here the anaphor [ $\text{NP}_i e_j$ ] is still in the domain of the subject

\*We are grateful to Guglielmo Cinque, Joseph Emonds, Frank Heny, Jean-Yves Pollock, Knut Tarald Taraldsen and Jean-Roger Vergnaud for their helpful comments. § 4.1.1 is essentially the same as section 1 of Kayne (1978).

of  $\bar{S}$ , but it is not this time free in  $\bar{S}$ , since it is co-indexed with an element within  $\bar{S}$ , namely  $le_i$ .<sup>2</sup> Consequently there is no violation.

The ungrammaticality of (2) reflects a systematic fact about French: clitics can never successfully be extracted from an embedded infinitival  $\bar{S}$ .<sup>3</sup> There is thus a minimal contrast between Cl-Pl and leftward quantifier movement (L-Tous) – the latter can successfully extract elements from certain infinitival  $\bar{S}$ :

- (3)
- a. Marie a tout voulu faire.  
Mary has everything wanted to do. (i.e. Mary has wanted to do everything.)
  - b. Elle n'aurait rien osé faire.  
She NEG would have nothing dared to do. (i.e. She would not have dared to do anything.)
  - c. Tu vas tout devoir apprendre.  
You will have to learn everything.
  - d. Vous n'avez rien pu dire.  
You were not able to say anything.
  - e. Il a tout failli rater.  
He has almost missed everything
  - f. Il a tout fallu lire.  
It was necessary to read everything.

With all these matrix verbs, the facts of (2) hold for Cl-Pl:

- (4)
- a. \*Marie l'a voulu faire.
  - b. \*Elle ne l'aurait pas osé faire.
  - c. \*Tu vas les devoir apprendre.
  - d. \*Vous ne l'avez pas pu dire.
  - e. \*Il les a failli rater.
  - f. \*Il l'a fallu lire.

We will assume that an adequate description of French, and an adequate linguistic theory, cannot be content with simply noting this contrast.

In Kayne (1975, section 1.4), we envisaged accounting for the possibility of (3) through a rule of Equi-NP-Deletion that would delete the embedded subject prior to the application of L-Tous, in the case of matrix verbs like *vouloir*, *oser*, *devoir*, *pouvoir*, *faillir*, *falloir*. This deletion rule had the implicit effect of eliminating (3) as a potential problem for the SSC. Although the original motivation explicitly provided for this deletion rule is no longer compelling,<sup>4</sup> let us ask whether such a deletion rule could still help to distinguish (3) from (4).

In the framework of Chomsky (1980; his (1)), the answer would seem *a priori* to be negative, given the fact that the opacity condition applies to representations in LF (logical form), and the assumption that deletion rules are on a different track from LF, so that they cannot feed the opacity condition.<sup>5</sup>

This negative answer is reinforced by three significant disadvantages associated with the deletion proposal. First, such a deletion rule would now be *ad hoc*, in the sense that it would now be motivated by no consideration exterior to the problem of (3). Second, the embedded subject is essential for the opacity condition account of (4). Thus if such a deletion rule could feed the opacity condition in the case of (3), it would presumably be able to do the same in (4), but then (4) should be grammatical, too. This problem is especially acute in (5) versus (6):

- (5) Marie a tout voulu lui donner.  
Mary has wanted to give him everything.
- (6) \*Marie lui a tout voulu donner.

If it is the absence of the supposedly deleted subject that allows *tout* to move into the matrix S in (5), then why can the clitic not follow?<sup>6</sup>

Finally, consider the contrast between (7) and (8), which we suggest is parallel to that between (3) and (4):

- (7)
- a. ?Je veux tout que tu leur enlèves.  
I want you to take everything (away) from them.
  - b. ?Je ne veux rien que tu fasses (d'autre).  
I don't want you to do anything (else).
  - c. ?Il faut tout que je leur enlève.  
It's necessary that I take everything (away) from them.
  - d. ?Il ne faut rien que tu fasses.  
You mustn't do anything.
- (8)
- a. \*Je les veux que tu achètes.
  - b. \*Il les faut que tu fasses.

With those verbs of (3) that accept tensed complements, L-Tous can, for many speakers, move *tout* or *rien* out of a tensed embedded  $\bar{S}$ .<sup>7</sup> Comparable sentences with Cl-Pl are completely impossible. The conclusion is inescapable: Whereas a deletion rule might have had some initial plausibility as a way of distinguishing (3) from (4), no such solution is feasible at all for (7) versus (8), since the embedded subject is overtly present. We conclude that the apparent ability of L-Tous to skirt the strictures of the opacity condition is not to be described in terms of a deletion rule.<sup>8</sup>

We propose, rather, that the difference between Cl-Pl and L-Tous with respect to the opacity condition is better stated as follows: The trace left by Cl-Pl counts as an anaphor for opacity, whereas the trace left by L-Tous does not.

This proposal is consistent with the organisation of grammar given in Chomsky (1980), since it makes reference only to transformations (Cl-Pl, L-Tous) and to properties of LF (opacity, characterisation of 'anaphor'),

and so does not lead to difficulties concerning the place of deletion rules. Nor does it require any non-principled extrinsic ordering. Finally, it gives a unified account of the possibility of (3), (7) as opposed to (4), (8).

Taking (3) versus (4), we have, in the first example of each: ... *voulu* [ $\bar{S}$  PRO faire [NP, e]]. In (4), the trace of Cl-Pl, [NP, e]], counts as an anaphor and therefore falls in the realm of the opacity condition, which excludes it since the anaphor is free in  $\bar{S}$  and in the domain of the subject PRO. In (3), [NP, e] is again free in  $\bar{S}$  and in the domain of the subject, but since it does not count as an anaphor, being the trace of L-Tous, it falls outside the realm of the opacity condition and there is consequently no violation.

Taking (7) versus (8) we have, in the last example of each: ... [ $\bar{S}$  *que tu fasses* [NP, e]]. Exactly the same reasoning applies: In (8), the trace of Cl-Pl, being an anaphor, yields a violation of opacity by virtue of being free in  $\bar{S}$  and in the domain of the subject *tu*. In (7), the trace is of L-Tous, hence not an anaphor, so there is no violation, despite the parallelism in structure.

The proposal that the trace of L-Tous does not count as an anaphor for the opacity condition is to be related to a suggestion of Chomsky's (1980) based on work by Rizzi (1982, chapter II), namely that the set of elements that count as anaphors for the opacity condition does not include the trace of *Wh* Movement: The following claim is now a natural one: *Wh* Movement and L-Tous form a natural class with respect to immunity from opacity because both involve the movement of quantifier-like elements (clearly so for L-Tous, and arguably so for *Wh* Movement (see Chomsky (1976))). Cl-Pl, on the other hand, does not involve quantifier-like elements, and so is strictly subject to the opacity condition, as seen in (4) and (8).

One way to express this generalisation between quantifier-like elements and the immunity of their traces from opacity is essentially given by Chomsky (1977; 1980): assume that a rule of variable insertion can apply in the construction of LF from surface structures, replacing the trace of *Wh* Movement, and now, in French, L-Tous, by a variable; i.e. [NP, e]  $\rightarrow$  [NP, x], in particular in (3) and (7). The trace of Cl-Pl is not so replaced; thus in (4) and (8) we continue to have [NP, e]. Assume further that the opacity condition applies at this stage, i.e. subsequent to such variable insertion, and furthermore that [NP, e] but not [NP, x] counts as an anaphor for it. Then the desired distinction is drawn correctly.

#### 4.1.2. Floating tous as either Anaphor or Quantifier

The instances of L-Tous that we have so far considered have all involved the leftward movement of *tout* and *rien*. There also exist sentences in which *tous* appears to have moved leftward:

- (9) a. Marie a tous voulu les revoir.  
Mary has all wanted them-see again.  
(i.e. Mary has wanted to see them all again.)  
b. ?Il faut tous que tu les revoies.  
It is necessary that you see them all again.

Since (9) resembles (3) and (7) with respect to movement into the matrix S, *tous* must not have a trace that is an anaphor for the opacity condition. Furthermore, the presence of *tous* must not alter the opacity condition status of the trace of Cl-Pl, since (10) is ungrammatical, just as (4) and (8):

- (10) a. \*Marie les a tous voulu revoir.  
b. \*Il les faut tous que tu revoies.

To see how these observations mesh with the framework of § 4.1.1, it is necessary to attack the question of *tous* more generally; *Tous* can occur to the right of a NP to which it is bound, much as with English *all*:

- (11) a. Mes amis sont tous partis.  
b. My friends have all left.

There are some well-known restrictions, common to French and English:

- (12) a. \*La mère de mes amis est tous partie.  
b. \*The mother of my friends has all left.  
(13) a. \*Mes amis pensent que je suis tous parti.  
b. \*My friends think that I have all left.

These restrictions recall those found with anaphors like *each other*:

- (14) \*The mother of my friends likes each other.  
(15) \*My friends think that I like each other.

They suggest that in (12) and (13), *tous* and *all* be considered anaphors in the sense of Chomsky (1980).

The status of *tous* and *all* as anaphors allows one to assimilate (12) to (14), and thereby to the general requirement that an anaphor have an antecedent that *c*-commands it. In (12), *mes amis* and *my friends* fail to *c*-command *tous* and *all*;<sup>9</sup> hence the ungrammaticality of (12a,b).

Similarly, (13) is now assimilated to (15): Although *tous*, *all*, and *each other* do have a *c*-commanding antecedent, that antecedent is outside the  $\bar{S}$  containing the subject in whose domain the three anaphors are found. In other words, each is free in the domain of the subject of the embedded  $\bar{S}$ , and hence in violation of the opacity condition.

The analysis of *tous* and *all* as anaphors cannot, of course, be extended to (9), where *tous* lacks any *c*-commanding antecedent. At the same time, we want to maintain the anaphoric status of these words in (11)-(13). In essence, we want *tous* to have some status in (9), other than anaphoric, such that that new status is not transferable to, i.e. not viable in, (11)-(13).

Our proposal is this: floating *tous* and *all* both normally have the status of



anaphors at the level of representation defined by the binding conditions,<sup>10</sup> but *tous* can alternatively have the status of 'quantifier', in the following sense: Although floating *tous* and *all* must, as anaphors, normally have a *c*-commanding antecedent, within the limits imposed by the opacity condition, this requirement can be suspended, in the case of *tous*, if there is some element that can itself be construed as bound by *tous* qua quantifier, i.e. some element *c*-commanded by *tous* and interpretable as a variable bound by *tous*.

Thus in (9) *tous* is licit, despite the absence of an appropriate antecedent, because there is some element which *tous* can be taken to bind qua quantifier, namely the trace of *les*<sup>11</sup>. In other words, (9) is licit with *tous* qua quantifier, although illicit with *tous* qua anaphor. Conversely, (11) is licit only with *tous* qua anaphor. Examples (12)-(13) are licit in neither way. (In essence, floating *tous*, if it is to be interpretable, must be linked to some argument position; French allows this to be done in either of two ways. Compare the discussion in Chomsky (1980) of his (5).)

Consider now the contrast between (9) and (16):

- (16) a. \*Marie a tous voulu revoir ses amis.  
b. \*Il faut tous que tu revoies tes amis.

These examples show that although *tous* can bind, qua quantifier, the trace of a clitic, it cannot so bind a lexical NP.<sup>12</sup> Our idea is that the relation in (9) between *tous* and the trace of Cl-PI is comparable to that holding between the quantified NP and the pronoun in sentences such as (17):

- (17) Everyone loves his children.

This phenomenon has been discussed by Chomsky (1976) and Williams (1977), both of whom (in somewhat different ways) treat it as involving the interpretation of a pronoun as a bound variable. If we assume that the rule interpreting as a bound variable a pronoun in English and French extends in French to the trace of Cl-PI, and furthermore that that rule cannot interpret as a bound variable (i.e. cannot apply to) a non-null non-pronominal NP,<sup>13</sup> then (9) versus (16) is accounted for. In (16), floating *tous* is licit neither as anaphor (for lack of a *c*-commanding antecedent) nor as quantifier (for lack of an appropriate *c*-commanded NP of an appropriate 'non-lexical' type).

If this analysis is correct, then, returning to (10), we must be sure that the pronoun-as-variable rule relevant to (9) and (17) does not interfere with our proposals of §4.1.1: either the pronoun-as-variable rule must not apply until after the point of application of the opacity condition, or the anaphoric character of the trace of Cl-PI must remain unaffected by that rule.

That the pronoun-as-variable rule should turn out not to prevent the trace of Cl-PI from counting as an anaphor for the opacity condition is actually not surprising, in the sense that the same is obviously true of reflexives, which are interpreted as variables in sentences like 'Everyone finds himself irresistible'. Despite this possibility of interpretation as a variable, (18) and (19) are equally ungrammatical:

- (18) \*John wants Mary to find himself irresistible.  
(19) \*Everyone wants Mary to find himself irresistible.

That is, reflexives, too, count as anaphors for the opacity condition quite independently of whether or not they are subject to interpretation as a bound variable.<sup>14</sup>

## 4.2. BINDING, QUANTIFIERS AND CONTROL

### 4.2.1. ECP Effects with *tout* and *rien*

We return in this section to instances of L-Tous involving *tout* and *rien*, beginning with the observation that there are no grammatical sentences comparable to (7) (repeated here in part as (20)) in which the extracted *tout* or *rien* corresponds to the embedded subject:

- (20) ?Il faut tout que je leur enlève.  
It's necessary that I take everything away from them.  
(21) a. \*Je veux tout que leur soit enlevé.  
I want everything to be taken away from them.  
b. \*Je ne veux rien que soit fait par ce type.  
I NEG want nothing to be done by that guy.  
c. \*Il faut tout que soit détruit.  
It's necessary that everything be destroyed.  
d. \*Il ne faut rien que tombe.  
It NEG is necessary that nothing fall.

This subject-object asymmetry is identical to that found with *Wh* Movement:

- (22) Qui veux-tu qu'elle épouse?  
Who do you want her to marry?  
(23) a. \*Qui veux-tu que vienne?  
Who do you want to come?  
b. \*Qui crois-tu que tombera?  
Who do you think will fall?

It might be thought that the ungrammaticality of (21) and (23) could be attributed to Chomsky and Lasnik's (1977) '\*that-[NP e]' filter transposed to French. However, in the framework of Chomsky (1980), that filter can be shown with reasonable certainty to be superfluous, as we have argued in chapter 1. More specifically it seems that a filter-based analysis is inferior to one based on the Nominative Island Condition (NIC) as defined in Chomsky (1980—see his (103) and (112)).<sup>15</sup>

The ungrammaticality of (21) and (23) can, consequently, be attributed to the NIC, which prohibits a nominative anaphor from being free in  $\bar{S}$ . However, this clearly involves a paradox: our account of the grammaticality of (20) and (22) is based on the idea that the traces of L-Tous and *Wh* Movement do not count as anaphors for the opacity condition. Yet accounting for (21) and (23) via the NIC implies that those same traces do count as anaphors for it, the NIC. Why this asymmetry between the two conditions?

An answer to this question, and with it a more nearly complete solution to (21) and (23), had been provided by Chomsky (1981b). We shall sketch this solution very briefly: the traces of L-Tous and *Wh* Movement will continue not to count as anaphors for the opacity condition; nor will they count as anaphors for the NIC, to the extent that that condition is merged with the opacity condition in Chomsky's new proposal. The difference between (21)/(23) on the one hand and (20)/(22) on the other will now be captured instead by a new principle which subsumes part of the NIC: the Empty Category Principle (ECP). This principle requires that any truly empty category (i.e. [e] but not PRO) be governed either by a co-indexed category or by a lexical category.<sup>16</sup> Given this formulation, it is irrelevant to the ECP whether traces are anaphors or not. It is rather the factor of government which separates the pairs in question. Assuming that government of the trace by a co-indexed category holds in none of (20)-(23), the contrast between (20), (22), in which the trace *e* is governed by V, and (21), (23), in which the trace *e* is governed by no lexical category, follows straightforwardly: the latter pair is in violation of the ECP.

#### 4.2.2. *Wh* Movement vs. L-Tous

Although L-Tous and *Wh* Movement behave alike with respect to the NIC/ECP, as indicated by (21) and (23), as well as with respect to the opacity condition, as indicated by (3), (7), (20) and (22), they differ in their behaviour with respect to the *que/qui* rule discussed by Moreau (1971) and Kayne (1976). This rule is responsible for the existence of (24), to be compared with (23):

- (24) a. Qui veux-tu qui vienne?  
Who do you want that come?  
(i.e. Who do you want to come?)  
b. Qui crois-tu qui tombera?  
Who do you think (that) will fall?

When the embedded subject has been extracted by *Wh* Movement, the complementiser *que* can be replaced by *qui*, in which case the violation displayed in (23) is nullified. The same does not, however, hold for L-Tous. Thus (21a-d) do not become grammatical if *que* is replaced by *qui*.<sup>17</sup> For example:

- (25) a. \*Je veux tout qui leur soit enlevé.  
b. \*Il faut tout qui soit détruit.

In order to understand why L-Tous and *Wh* Movement diverge just here, we must examine the *que/qui* alternation in more detail. We note at the outset that this *qui* appears in at least one non-*wh* construction, so that (25) could not be accounted for simply by restricting the *que/qui* rule to *wh*-environments.

The non-*Wh* construction we have in mind is that of (26):

- (26) Je l'ai rencontré qui sortait du cinéma.  
I met him (that was) leaving the movies.

The essential argument that (26) does not involve *Wh* Movement, but rather a rule of control, is based on the observation that (26) has no counterpart in which it is the embedded object that is missing from its normal position:<sup>18</sup>

- (27) \*Je l'ai rencontré que Marie embrassait.  
I met him that Mary was kissing.

This asymmetry is precisely that found in (28) versus (29) (and in control constructions in general):

- (28) Je l'ai rencontré sortant du cinéma.  
I met him coming out of the movies.  
(29) \*Je l'ai rencontré Jean emmenant au cinéma.  
I met him John taking to the movies.

Our hypothesis is that (26) and (28) have representations such as: *Je l<sub>i</sub>'ai rencontré* [<sub>NP<sub>i</sub></sub> *e*] [<sub>S</sub>[COMP *que*] *PRO sortait du cinéma*], *Je l<sub>i</sub>'ai rencontré* [<sub>NP<sub>i</sub></sub> *e*] [<sub>S</sub>[COMP *e*] *PRO sortant du cinéma*]. A rule of control co-indexes the embedded subject PRO with the matrix object [<sub>NP<sub>i</sub></sub> *e*]. Since the embedded PRO in question is itself the subject of the embedded  $\bar{S}$ , the opacity condition is clearly irrelevant, as desired.

The comparable representations for (27) and (29) would be: *Je l<sub>i</sub>'ai rencontré* [<sub>NP<sub>i</sub></sub> *e*] [<sub>S</sub>[COMP *que*] *Marie embrassait PRO*] and *Je l<sub>i</sub>'ai rencontré* [<sub>NP<sub>i</sub></sub> *e*] [<sub>S</sub>[COMP *e*] *Jean emmenant PRO au cinéma*]. But here the embedded PRO is in the domain of the embedded subject and free within the embedded  $\bar{S}$  (whether co-indexed with the matrix [<sub>NP<sub>i</sub></sub> *e*] or not). Thus (27) and (29) are excluded as violations of the opacity condition.<sup>19</sup>

Although the opacity condition correctly distinguishes (26) from (27) under the assumption that what is involved is control, (26) itself appears to pose a problem for the NIC, since it appears to involve a nominative anaphor PRO free in its  $\bar{S}$  (since bound by an element (the matrix object [<sub>NP<sub>i</sub></sub> *e*]) lying outside that  $\bar{S}$ ). However, this problem was already implicit in the contrast

between (23) and (24). If the former is in violation of the NIC, and if the two differ only in the form of the complementiser, how is it that the latter is not in violation of the NIC?<sup>20</sup> We shall adopt a suggestion of Pesetsky's (1981/82), to the effect that the requisite antecedent for the embedded subject trace in (24) is *qui* itself, and not the intermediate trace in COMP. Thus the embedded  $\bar{S}$  in (24) has the representation:  $[\bar{S}[\text{COMP}[\text{NP}_i e] \text{qui}_i] [\text{S}[\text{NP}_i e] \dots]]$ <sup>21</sup>. Similarly, according to Pesetsky, the requisite antecedent for the subject trace in simple relatives such as (30) is the indexed complementiser *qui*:

- (30) la fille qui viendra demain  
the girl that will come tomorrow

It is now natural for us to claim that a more accurate representation for (26) is *Je l<sub>i</sub>'ai rencontré*  $[\text{NP}_i e] [\bar{S}[\text{COMP} \text{qui}_i] \text{PRO sortait du cinéma}]$ . A rule of control co-indexes the embedded PRO with the matrix  $[\text{NP}_i e]$ . But the embedded PRO is then bound in  $\bar{S}$ , by *qui<sub>i</sub>*, whence the absence of any NIC violation, as desired.<sup>22</sup>

The availability of an indexed complementiser *qui<sub>i</sub>* to permit control of a nominative PRO is of course extremely limited. Thus, there is no tensed *qui* counterpart to the infinitival control examples of (31):

- (31) a. Marie veut partir.  
Mary wants to leave.  
b. J'ai dit à Marie de partir.

- (32) \*Marie veut qui parte.  
\*J'ai dit à Marie qui parte.

If we compare (31) with (28), which does have a tensed *qui* counterpart, namely (26), we notice a correlation between the existence of a *qui*-counterpart and the non-extractibility of an object from the embedded  $\bar{S}$ :

- (33) a. Quel garçon Marie veut-elle embrasser?  
Which boy does Mary want to kiss?  
b. Quel garçon as-tu dit à Marie d'embrasser?

- (34) \*Quelle fille l'as-tu rencontré embrassant?  
(Kayne (1975, Ch. 2, note 75))

This suggests that, although both involve control, (31) and (28) differ significantly in structure, and more specifically, that whereas the embedded  $\bar{S}$  of (31) is a complement of V, that of (28) is not. Furthermore, (26) is hypothesised to involve control too, and is like (28) in other ways (v. note 18), especially in not allowing the extraction of an embedded object, as seen in (35):

- (35) \*Quelle fille l'as-tu rencontré qui embrassait?

Thus (26) too should have an  $\bar{S}$  complement not dependent on V.

Our proposal is that (26) and (28) have representations congruent to those of relative clauses, except for the *Wh* Movement vs. control difference: *Je l<sub>i</sub>'ai rencontré*  $[\text{NP}[\text{NP}_i e] [\bar{S}[\text{COMP} \text{qui}_i] [\text{PRO sortait du cinéma}]]]$  and *Je l<sub>i</sub>'ai rencontré*  $[\text{NP}[\text{NP}_i e] [\bar{S}[\text{COMP} e] [\text{PRO sortant du cinéma}]]]$ . (PRO is ultimately co-indexed with  $[\text{NP}_i e]$ .)

The ungrammaticality of (34) and (35) thus reduces to Ross's (1967) Complex NP Constraint, or, more deeply, to Chomsky's (1973) subadjacency principle.

Moreover, the appearance of *qui<sub>i</sub>* in (26) and (30), as opposed to (32), is now seen to depend on the existence of a common  $[\text{NP NP } \bar{S}]$  structure. If the assignment of an index to the complementiser *que* is a necessary condition for the change from *que* to *qui*, then (32) follows from the assumption that an index can be assigned from a NP to a complementiser across  $\bar{S}$  only in the  $[\text{NP NP } \bar{S}]$  configuration.<sup>23</sup>

We are supposing here that in (30) the source of the index for the complementiser is the NP *la fille*, rather than the null phrase in COMP. On the other hand, the *qui<sub>i</sub>* of (24) presumably does receive its index from the null phrase that is in the lower COMP as a result of the successive cyclic application of *Wh* Movement. This difference in source may correlate with the 'recherché' character of (24) noted by Milner (1979b, p. 111) (neither (26) nor (30) is 'recherché'). Thus we might speculate that index assignment from a (null) NP in COMP to a complementiser is 'marked',<sup>24</sup> noting that English would then be 'unmarked' in so far as there is no English equivalent to (24):

- (36) \*Who do you think that left?

Our  $[\text{NP NP } \bar{S}]$  proposal for (26) and (28) recalls Akmajian (1977). However, his  $[\text{NP NP VP}]$  structure is clearly inappropriate for (26) (and so presumably for (28)). This is so despite the fact that in standard French (26) cannot have a non-PRO subject:<sup>25</sup>

- (37) \*Je l'ai rencontré que tu sortais du cinéma.

Thus (26) is a case of seemingly obligatory control within a Tensed  $\bar{S}$  containing a complementiser. None the less, there is another way of accounting for the ungrammaticality of (37), given the attribution to (26) (and 28)) of a NP- $\bar{S}$  structure; these examples share a nontrivial property with relative clauses:<sup>26</sup>

- (38) The man that went to Paris is named Bill.

- (39) \*The man that Mary went to Paris is named Bill.

In other words, we can account for (37), along with (39), through the

requirement that in any  $[NP NP \bar{S}]$  structure, the  $\bar{S}$  must contain a position bound by the head NP.<sup>27</sup>

Let us return now to the question of (25). We are assuming (optional) index assignment to *que* in the environment:  $[NP NP_i \bar{S} [COMP que] \dots]$  (COMP may also contain a null *wh*-phrase, as in (30)), and 'marked' index assignment in the environment:  $[COMP NP_i que]$ . Index assignment is, furthermore, a necessary condition for the appearance of complementiser *qui*.

In (25), *\*Il faut tout qui soit détruit*, L-Tous moves *tout* from the embedded  $\bar{S}$  into the matrix. The question, then, is whether the derived structure of (25) corresponds to either of the environments that permit index assignment to the complementiser. We note first that it is not clear that moved *tout* is a NP. But even if it were, there would still be good reason to think that the structure of (25) matches neither of the index-assigning environments. This is so, since to produce one of the required environments, L-Tous would have to either place *tout* in COMP or left-adjoin it to  $\bar{S}$ .<sup>28</sup> Presumably, if L-Tous could have such an effect in (25), it could do the same in simple sentences. Yet (40a) is ungrammatical – as opposed to (40b):

- (40) a. *\*Tout elle comprend.*  
 b. *Elle comprend tout.*  
*She understands everything.*

Essentially, *tout* can be moved only into adverbial positions (Kayne, 1975, sect. 1.3). Similarly, (42) is impossible, alongside (41):

- (41) *Qu'elle comprenne tout, cela va de soi.*  
*That she understands everything, that's self-evident.*  
 (42) *\*Tout qu'elle comprenne, cela va de soi.*

*Tout* in (42) contrasts also with the preposed *wh*-phrase of (43):

- (43) *Quoi qu'elle fasse, Jean sera contre.*  
*Whatever she does, John will be against (it).*

(In the same way, (40) contrasts with simple *wh*-interrogatives, e.g. *Où elle va?* (*Where is she going?*)). We conclude from such examples that L-Tous can neither place *tout* in COMP nor adjoin it to  $\bar{S}$ .<sup>29</sup> Consequently, the application of L-Tous to *Il faut que tout soit détruit* cannot produce a structure meeting the conditions for index assignment.<sup>30</sup> Whence the ungrammaticality of (25), and the desired distinction, with respect to *que/qui*, between L-Tous and *Wh* Movement, i.e. between (25) and (24).

## NOTES

1. Kayne (1975, *passim*, e.g. 272, 286-7, 328n, 414-15). The relevance of the SSC to clitic placement in Portuguese and Italian has since been argued for by Quicoli (1976a) and Rizzi

(1978) respectively. The presentation of the SSC in Kayne (1975) was in pre-trace theory terms, although it was obliquely indicated there (pp. 293n, 309n) that the essential SSC ideas could be transposed straightforwardly into trace theory. (Quicoli (1976a) and Rizzi (1978) are explicitly in terms of trace theory).

2. Given Chomsky's (1980) definition of 'free' (in his (111)) it should also be the case that  $le_i$  *c*-commands the anaphor (i.e. its trace). Since the first branching category  $\alpha_1$  dominating  $le_i$  is V:  $\dots [{}_V le manger] NP \dots$  (see Kayne, 1975, sect. 2.5), we must allow for *c*-command as in Reinhart (1976, p. 148). That is, we must allow the possibility of counting for the determination of *c*-command  $\alpha_2$ , the category immediately dominating  $\alpha_1$ , where  $\alpha_2$  is of the same category type as  $\alpha_1$ . If there exist cases such as:  $[\bar{V} [{}_V clitic_i V] \dots] [{}_P e_j]$ , e.g. locatives or extrapositions, then we would want *c*-command to allow a(ny) number of  $\alpha_i$  of the same category type.

3. Apart from the causative construction. There too, the SSC/opacity condition provides a revealing account (see Kayne, 1975 and Rouveret and Vergnaud, 1980).

4. That motivation had to do with the structural description of L-Tous and the (then assumed, but no longer valid) terminal character of the to be deleted subject (see Pollock, 1978 and Chomsky, 1977).

5. With the consequence that the grammaticality of the Portuguese, Italian, and Spanish equivalents of (4) cannot be attributed to a deletion rule either, as had been proposed by Quicoli (1976a). (Certain difficulties with Quicoli's specific proposal are discussed by Radford, 1977.) A more likely correct approach would seem to be that of Rizzi (1976, 1978) and/or Zubizarreta (1978).

For example, Rizzi argues that the grammar of Italian contains a 'restructuring rule', the application of which is a prerequisite to the generation of (the equivalent of) (4). From this point of view, we can say that French differs from Italian precisely in lacking such a rule. (This rule would have to be learned from the data, if children learning French did not spontaneously utter (4). This would be of interest for the (statistical) interpretation of markedness, if most languages with clitic placement were like Italian.) This way of localising the difference between French and Italian is supported by the absence in French of *\*Je suis voulu partir*, with the auxiliary switch argued by Rizzi to be correlated with restructuring. Note especially that that construction did exist in French before the seventeenth century (see Gougenheim (1971, p. 172)), as of course did (4). Thus these two changes can likely be reduced to one, namely the loss of the restructuring rule.

The application of that rule in Italian, Spanish, and Portuguese requires a controlled subject, whence the impossibility even in those languages of the equivalent of (8).

6. The ordering account given in Kayne (1975, pp. 24, 272, 309) depended on the SSC being a condition on rule application (as in Chomsky (1973)). The opacity condition, since it applies at LF, is incompatible with such an ordering account. In any case, the particular extrinsic ordering that we used (the deletion rule was extrinsically ordered after Cl-Pl, but not L-Tous) did not follow from any more general principle(s), so that little light was shed on the question of why (3) and (4) differ.

7. It seems clear that *tout* and *rien* are really in the matrix in (7): *?Il a tout fallu que je leure enlève, ?Il n'a rien fallu que je fasse*.

For the speakers in question, (7) is perfectly acceptable. The '?' indicates that for others, (7) is unacceptable, probably for reasons related to *?Je ne veux que tu voies personne* versus *Je ne veux voir personne* (*I NEG want to see no one*), though we won't pursue this similarity here; see § 2.1 for relevant discussion.

8. Contrary to Quicoli (1976b, sect. 2.5). We are in agreement here with Pollock (1978, p. 108). Pollock's (p. 110n) proposal is, modulo the difference in framework, fairly similar to our own below. On the fact that (7) and (3) share a certain sensitivity to the choice of matrix verb (supporting the decision to treat them uniformly) see Pollock (sect. 3) and Kayne (1978, appendix).

9. A definition of *c*-command is given in Chomsky (1980) in the text above his (17); see also note 2 to the present paper.

10. Non-floating *tous* and *all*, that is *tous* and *all* within a larger NP in subject or object position, as in *All of my friends have left*, seem clearly not to be anaphors. Compare our

parenthesised remark below that, in essence, the anaphoricity of *tous* is simply one way of linking *tous* to an argument position.

11. Rather than the clitic itself, since it seems more natural to have *tous* bind an argument position, and since we want to bring out the parallelism with *ces garçons, que mon ami a tous voulu revoir* (see Kayne, 1975, sect. 1.2), and with *?Marie a tous voté pour* (*Mary has voted for all (of them)*); in the latter, noted by Ruwet (1978, p. 204), we assume a null NP object of *pour*, presumably PRO, as in *Marie a voté pour*.

12. There exist sentences like *Elle a tout mangé le(s) gâteau(x)*; we assume, as in Kayne (1975, sect. 1.5), that these (and perhaps the example of note 40 there) involve an adverbial (i.e. neither anaphor nor quantifier) *tout*.

Although anaphoric 'tous' can be excluded in (16) because *tous* there is not *c*-commanded by *ses/tes amis*, the same does not hold for *\*Marie a promis de revoir tous bientôt ses amis*, *\*Marie a voulu revoir ses amis tous*. These may indicate that '*c*-command' is not a sufficiently restrictive necessary condition of antecedent-anaphor configurations (see chapter 7).

13. In standard French, non-null pronominal NP's pattern here with (16), not with (9): *\*Marie s'est tous présentée à eux*. (I. Haik has pointed out the non-standard (third person) *?J'ai tous voté pour eux*.)

Dissymmetry between (trace of) clitic and non-clitic pronoun also occurs with 'disjoint reference': *Jean<sub>i</sub> a parlé de lui<sub>i</sub>* versus *\*Jean<sub>i</sub> lui<sub>i</sub> parle*. This perhaps suggests a different approach to (16), excludable if non-null non-pronominal NPs have to be free not only with respect to *c*-commanding arguments, but also with respect to *c*-commanding floating *tous*. Disjoint reference for (traces of) clitics in French would then have to be blind to the latter, to allow (9): Compare the insufficiency of *tous* as a binder for the clitic trace in *\*Marie les voudrait avoir tous lus d'ici un an*. Similarly disjoint reference would be blind to *tous* for *wh*-traces and PRO, given note 11.

A disjoint reference approach to (16) would have something in common with that of Fauconnier (1971, Chs. III-2, V-1), Baltin (1978), and especially Milner (1973, pp. 137-40); all note, explicitly or implicitly, the consequence that the directionality of *tous* movement need not be stipulated (unlike the approach to (16) of Kayne (1975, sect. 1.10) – cf. note 4 above); ideally, we would like to subsume L-Tous under 'Move  $\alpha$ ' (Chomsky (1980). Compare Chomsky (1977, p. 77).)

14. Thus reflexives and pronouns are different from *wh*-traces and the traces of *tout* and *rien* insofar as these traces derive their status as non-anaphors precisely from their being bound variables (or phrases containing bound variables – see Chomsky, 1977, pp. 83-4). The crucial difference thus seems to be between 'being' and 'being (derivatively) interpreted as'; cf. also Higginbotham (1978/9).

15. For example, the NIC, but not the filter, approach can give a reasonable account of the contrast between (23) and *Que veux-tu que fasse Marie?* (*What do you want Mary to do?*).

16. The ECP applies to all *e*, independently of questions of anaphoricity. In chapter 3, we suggested a modification of the ECP which introduces the notion of co-indexing, i.e. of binding, into the 'lexical category' part of the ECP; this makes the ECP uniformly sensitive to the notion of binding, and so emphasises a certain continuity between the NIC and the ECP (for example, our NIC proposal of chapter 1 transposes fairly straightforwardly into the ECP framework).

17. *Il ne faut rien qui tombe* is possible but only with *qui tombe* a relative on *rien*.

18. Other arguments are given in Kayne (1975, 2.10). For a study of some perhaps related constructions, see Rothenberg (1971).

19. The same idea was available within the SSC framework – see Kayne (1976, note 20) and Williams (1975). The reading of (28) in which PRO is controlled by the matrix subject lies outside the scope of this article.

20. For ease of exposition, we shall speak of the trace of *Wh* Movement as being subject to the NIC, as in Chomsky (1980), rather than to the ECP. Since both these principles in effect require that the trace in subject position have an antecedent within  $\bar{S}$ , the distinction can be overlooked for this discussion of the *que/qui* rule.

21. Actually, Pesetsky proposed that the trace in COMP is deleted; we shall assume, rather, that it is present and that it is not a proper antecedent for the subject trace because the non-null

*qui* prevents it from *c*-commanding the subject trace (v. § 3.3). Treating this *qui* as a complementiser allows one to maintain the phonological generalisation discussed by Tranel (1978, sect. 4.3.2) (the analysis considered in Kayne (1978, sect. 2) of *qui* did not). Indexed complementisers are also proposed in Borer (1979). Bresnan and Grimshaw's (1978, sect. 7) indexed COMP nodes may exist, if the percolating index leaves a copy on the node COMP, but we would not expect a COMP<sub>i</sub> to be a possible antecedent for an empty category or for an anaphor (nor to be relevant to Kayne and Pollock's (1978) 'stylistic inversion', although indexed complementisers might be).

22. In the framework of Chomsky (1981a; 1981b), this analysis of (26) implies either that it is  $\bar{S}$  rather than S that is the minimal governing category for subject NPs, or that the PRO following *qui*, is ungoverned. The introduction of indexing means that to exclude (27), the opacity condition would have to require an antecedent within S, not  $\bar{S}$  (cf. Freidin and Lasnik (1979)); in Chomsky's 'Pisa' framework, it emphasises that the minimal governing category of an NP governed by V is S, not  $\bar{S}$ .

23. On this configuration, compare Koster (1978, p. 105). In essence, the question is when  $\bar{S}$  can fail to act as a barrier to government. In chapter 3, it was suggested that certain such instances must involve the assignment of a government index (in the sense of Rouveret and Vergnaud, 1980) from V to  $\bar{S}$ . From this viewpoint, we should probably say that a complementiser can receive an index from a NP outside  $\bar{S}$  only via percolation down from the  $\bar{S}$  node, with  $\bar{S}$  able to receive an index from NP only in the configuration at hand.

24. If so, then in *C'est Jean qui est là* (*It's John who's there*), the source of the index must be *Jean*. This suggests that the environment for index assignment should be generalised to [ <sub>$\alpha$</sub>  NP  $\bar{S}$ ], or perhaps to [ <sub>$\alpha$</sub>   $\bar{S}$ ]; cf. the notion of 'predication' in the reference of note 27.

The absence of *\*Marie a la possibilité qui, parte* is straightforward. That of *\*J'ai convaincu Marie qui parte* follows from the fact that the NP- $\bar{S}$  sequence there is not a constituent.

25. Gross (1968, p. 124) notes that the embedded  $\bar{S}$  in (the equivalent of) (26) cannot have an auxiliary: *\*Je le vois qui a travaillé*. This recalls Akmajian's (1977, p. 431) *\*I heard Mary having played my song*, while vitiating his argument, given the tensed  $\bar{S}$  in French (cf. Gee (1977, p. 463)). M.-R. Manzini tells us that similar tense and auxiliary restrictions are found in an Italian construction which does not impose 'obligatory control', *L'ho visto che pioveva* (*I saw him that it was raining*).

26. Pursuing this parallelism between (26), (28) and relative clause structures, we note the existence of the *-ant* form in relative-like *Tout homme ayant plus de six enfants . . .* (*Any man having more than six children . . .*), as well as the need to analyse *Elle était là qui pleurerait comme une Madeleine* as congruent to relative clause extraposition. The apparent obligatoriness of extraposition here recalls Rouveret (1978, sect. 2.2) and perhaps Chomsky and Lasnik (1977, pp. 464ff.), in which case *a man to fix the sink* might be control rather than *Wh* Movement. It is possible that (26), (28) also involve extraposition.

Both (26) and (28) may be incompatible with the absolute version of the A/A principle. However, it may be possible to duplicate the results obtained by that principle for PPs in Kayne (1975, sects. 2.7, 2.8) by means of the more general ECP (see chapter 3, Appendix); that the ECP would provide a deeper account is strongly suggested by the fact that the A/A had to be limited to extractions (Kayne (1975, Ch. 2, pp. 183ff. and fn 76; and Ch. 5, pp. 55ff.)), in effect to empty categories.

The ungrammaticality of *\*Je le connais, qui est intelligent* may be related to the fact that relative clauses cannot have anaphoric heads: *\*John believes himself, who I find intolerable, to be quite pleasant*. Perhaps the anaphoric status of the head is transmitted to the *wh*-phrase, whose governing category is that of its trace.

Returning to the *-ant* form, we note that it does not occur as widely as English *-ing*: *I thought about leaving* versus *\*J'ai pensé à partant*; *Leaving is no fun* versus *\*Partant n'est pas drôle*. This wider distribution for *-ing* suggests that English *I heard John leaving* could be V- $\bar{S}$  (cf. § 2.2), perhaps in addition to V-[NP NP  $\bar{S}$ ]. This would allow *the woman who I heard John praising*, which contrasts with (34). [NP NP  $\bar{S}$ ] may be appropriate for *?the woman who I've often watched him imitating* (cf. Gee, 1975, p. 368).

The [NP NP  $\bar{S}$ ] analysis reduces *avec son mari buvant/qui boit comme un trou* (with her husband drinking like a fish) (Ruwet (1978)) from PNP $\bar{S}$  to PNP, and makes *Ce que j'ai vu, c'est ton frère qui courait à toute vitesse* (Ruwet, 1978, note 12) look like a normal pseudo-cleft.

27. Cf. Chomsky (1977, pp. 81, 92) on relatives, dislocation and topicalisation. \**Je l'<sub>i</sub>'ai rencontré qu'<sub>i</sub>elle<sub>i</sub> sortait du cinéma* is like \**la fille<sub>i</sub> que tu lui<sub>i</sub> as parle*, in standard French.

The [<sub>NP</sub> NP  $\bar{S}$ ] analysis of (26), (28) accounts straightforwardly for the uniform optionality of that  $\bar{S}$  (Kayne (1975, ch. 2, fn. 75)), and perhaps, too, for the absence of any corresponding construction with a dative clitic (by relating it to the lack of non-null, non-clitic prepositionless datives in French.)

28. Left-adjunction would yield [<sub>S</sub> tout  $\bar{S}$ ], a relevant possibility, given note 24.

29. There might be adjunction to  $\bar{S}$  in (43) (see Ruwet, 1975/6, sect. 2.1 and Fradin, 1977).

This property of L-Tous should be compared to the absence of any systematic syntactic counterpart to May's (1977) QR.

The assumption that successive cyclic movement through COMP is limited to phrases of a type that can normally appear in COMP also plays a role in the relative extractability of *combien* and *beaucoup* (see § 3.3.2).

30. Recall that index assignment is a necessary condition for the appearance of complementiser *qui*, not a sufficient one. For two approaches to specifying when (in our terms) an indexed complementiser is to be spelled as *qui*, see Milner (1979b, p. 110) and Taraldsen (1978). (When the sufficient condition holds, the indexed complementiser can then not appear as *que*, as seen in (23), \**Je l'ai rencontré que sortait du cinéma* and \**la fille que viendra demain*. All three constitute NIC/ECP violations if the indexing rule is not applied.) (The optimal sufficient condition will insure that *qui* cannot appear in *les choses que dira Jean* (the things that John will say): \**les choses qui dira Jean*.)

## On Certain Differences between French and English\*

English, but not French, allows preposition stranding in *wh*-constructions and in passives:

- (1) a. Which candidate have you voted for?  
b. \**Quel candidat as-tu voté pour?*
- (2) a. John was voted against by almost everybody.  
b. \**Jean a été voté contre par presque tous.*

If preposition stranding involves some kind of reanalysis between verb and preposition, then it might simply be that English, but not French, has that kind of reanalysis.<sup>1</sup>

English, but not French, allows verbs like *believe* to be followed by an infinitival complement with a lexical subject:

- (3) a. John believes Bill to have lied.  
b. \**Jean croit Bill avoir menti.*

If (3a) involves exceptional Case-marking across a clause boundary, then it might simply be that French lacks such exceptional Case-marking.<sup>2</sup> Yet one could ask why that should be so.

We shall attempt to show, not only that there is more to be said about both of the above differences between French and English, but also that these two differences are in fact related to one another.

### 5.1. THE COMPLEMENTIZER STATUS OF *de* AND *di*

To bring out the relation between preposition stranding and exceptional Case-marking, we shall need a bridge, whose construction will depend on a comparative analysis of the complementizer systems of French and English. Following Bresnan (1970; 1972), we shall assume that English has the

\*We are indebted for helpful comments to an anonymous *Linguistic Inquiry* reviewer. A French translation of an earlier version of this article appears as Kayne (1980); substantial changes have been made primarily in the footnotes and appendices.

complementizers *that* and *for* and that occurrences of them are dominated by a node COMP. We further assume that French *que* corresponds straightforwardly to English *that* (and thus that *que* occurs under COMP).

The question is whether or not there is a complementizer in French that corresponds to English *for*. An obvious candidate is *de*:

(4) Je lui ai dit qu'il parte.  
'I told him that he (should) leave.'

(5) Je lui ai dit de partir.

Apart from its dative object, here a clitic, the verb *dire* takes a sentential complement, which in (4) begins with complementizer *que*. It is natural to analyze (5) in parallel fashion: the (infinitival) sentential complement of *dire* is *de partir*, which begins with complementizer *de*.

That *de* in (5) is part of the sentential complement is emphasized by its absence in (6):

(6) a. Je lui ai dit quelque chose.  
'I told him something'  
b. \*Je lui ai dit de quelque chose.

Paradigms such as (4)-(6) play an important role in Huot's (1977, chapter 3) detailed argument in favor of the complementizer status of *de*. And it does seem clear, in the light of (4)-(6), that the *de* of (5) is within the sentential complement of *dire*. That conclusion, however, would not be incompatible with the claim that *de* in (5) is a French equivalent of English *to*, rather than a true complementizer in Bresnan's sense. Thus, to defend the complementizer status of *de*, we need to diminish the plausibility of pairing *de* with *to*.

One straightforward piece of evidence, alluded to by Long (1974, chapter 4, note 37) and implicit in Huot (1977, 282), comes from the observation that *de*, like *for* but unlike *to*, is excluded from infinitival complements headed by a *wh*-phrase:<sup>3</sup>

(7) Je lui ai dit où aller.  
'I told him where (to) go.'

(8) \*Je lui ai dit où d'aller.

(9) Elle cherche quelqu'un avec qui parler.  
'She's looking for someone with whom (to) speak.'

(10) \*Elle cherche quelqu'un avec qui de parler.

If the *de* of (5) is a complementizer, then (8) and (10) reduce to the general restriction against doubly-filled COMP; that is, they are excluded for the

same reason as (11) and (12), much as in Bresnan (1972, chapter 1C) (cf. also § 3.3.3):

(11) \*I told him where for her to go.

(12) \*She's looking for someone with whom for her child to speak.

Were *de* a French equivalent of *to*, the ungrammaticality of (8) and (10) would remain puzzling, since *to* itself cooccurs uneventfully with *wh*-phrases:

(13) I told him where to go.

(14) She's looking for someone with whom to speak.

The next three pieces of evidence that we shall present in favor of the complementizer status of *de* will be enhanced if we consider Italian at the same time as English and French. With respect to the data considered so far in this section, Italian is like French:<sup>4</sup>

(15) Gli ho detto di partire. (= (5))  
him (I) told leave  
'I told him to leave.'

(16) Gli ho detto qualcosa. (= (6a))

(17) \*Gli ho detto di qualcosa. (= (6b))

(18) Gli ho detto dove andare. (= (7))

(19) \*Gli ho detto dove di andare. (= (8))

(20) Cerca qualcuno con cui parlare. (= (9))

(21) \*Cerca qualcuno con cui di parlare. (= (10))

In other words, the hypothesis that French *de* is a complementizer can be naturally extended to Italian *di*.<sup>5</sup>

*De* and *di* occur in a large number of control contexts. Some examples like the *dire* cases, with a dative controller, are given in (22) and (23):

(22) Je lui ai interdit/suggéré/demandé de partir.  
'I prohibited/suggested (to)/asked him to leave.'

(23) Gli ho proibito/suggerito/chiesto di partire.

There are also many cases of subject control:<sup>6</sup>

(24) Jean a essayé/oublié/décidé de partir.  
'John tried/forgot/decided to leave.'

(25) Gianni ha tentato/dimenticato/deciso di partire.

However, the French and Italian equivalents of the (small) class of verbs treated by Rosenbaum (1967) as instances of raising to subject position are uniformly incompatible with *de/di*:

(26) \*Jean semble/paraît/se trouve/s'avère d'être parti.

(27) \*Gianni sembra/pare/risulta di essere partito.

Without *de/di*, these are all grammatical:

(28) Jean semble/paraît/se trouve/s'avère être parti. (= (36))

(29) Gianni sembra/pare/risulta essere partito.

That the impossibility of *de/di* in (26)-(27) reflects a significant generalization is suggested especially by Italian *sembrare* and *parere*, which can, in contrast to (27), occur with *di* in a dative control context:<sup>7</sup>

(30) Mi sembra/pare di aver capito.  
'(It) seems/appears (to) me (that I) have understood.'

The incompatibility of *de/di* with raising as Rosenbaum describes it is understandable under the hypothesis that *de* and *di* are complementizers. If they are, then the ungrammaticality of (26) and (27) can be taken as another instance of the well-known restriction against extracting subjects across an adjacent complementizer:

(31) a. \*Who would you prefer for to leave first?  
b. \*Who did you think that had married her?

(32) \*Qui croyais-tu que l'avait épousée?

(33) a. \*They seem for to speak English.  
b. \*They seem that speak English.

(34) \*Ils semblent que parlent anglais.

(35) \*Sembrano che parlino inglese.

More precisely, the complementizer status of *de/di* should allow us to derive the ungrammaticality of (26) and (27) from the principle(s) of grammar responsible for (31)-(35).<sup>8</sup>

Were *de* and *di* not complementizers, but rather French and Italian equivalents of *to*, their incompatibility with raising would be difficult to understand, given the wellformedness of (36), where *to* appears in a raising context:

(36) John seems/appears/happens/turns out to have left.

We conclude that these data constitute evidence for the complementizer status of *de* and *di*.<sup>9</sup>

In addition to the *wh*-infinitivals of (7)-(14)/(18)-(21) and the raising to subject construction just considered, there is a third construction that supports the complementizer status of *de/di*: the construction exemplified in (3b). Although (3b) is ungrammatical, the corresponding structure can yield a grammatical sentence if the underlying subject of the infinitival is moved to a higher COMP by *Wh* Movement:

(37) \*Je croyais Jean être arrivé. (like (3b))  
I believed John to have arrived

(38) \*Sostengo Gianni essere intelligente. (like (3b))  
I assert John to be intelligent

(39) le garçon que je croyais être arrivé  
'the boy that I believed (to) have arrived'

(40) il ragazzo che sostengo essere intelligente  
'the boy that I assert (to) be intelligent'

We shall return to the contrast between (37)-(38) and (39)-(40) below. What is relevant here is the fact that *de/di* is impossible in (39)-(40):

(41) \*le garçon que je croyais d'être arrivé.

(42) \*il ragazzo che sostengo di essere intelligente.

This holds quite generally for this class of verbs. The impossibility of *de/di* is again especially striking in Italian, since many of these verbs do allow *di* in a control context:

(43) Gianni crede/sostiene di essere intelligente.  
'John believes/asserts (that he) be (is) intelligent.'

We shall thus take the absence of *de/di* in (41) and (42) to be nonaccidental, much as in the previous discussion of raising to subject. In fact, the explanation of (41)-(42) is clearly the same as that of (26)-(27): if *de* and *di* are complementizers, then the ungrammaticality of (41)-(42) reduces to the



impossibility of extracting an embedded subject across a preceding complementizer.

Were *de* and *di* equivalent to English *to*, (41)-(42) would remain puzzling, given the contrast with (44):

(44) the boy who I believe to be intelligent.

Somewhat similar to the contrast between (39) and (41) is the difference between (45) and (46):

(45) ?Jean a été vu traverser le fleuve.  
John was seen (to) cross the river.

(46) \*Jean a été vu de traverser le fleuve.

The passive corresponding to *On a vu Jean traverser le fleuve* 'We saw John cross the river' is marginal in French, but to the extent that it is possible, it cannot have *de*. Thus, there is again a contrast with English *to*:

(47) John was seen to cross the river.

The complementizer status of *de* allows (46) to be assimilated to (41) and (26).<sup>10</sup>

The evidence presented so far in favor of analyzing *de* and *di* as complementizers has consisted of restrictions affecting the cooccurrence of *de/di* either with a *wh*-phrase in COMP ((8), (10), (19), (21)) or with an immediately following empty category in subject position ((26), (27), (41), (42), (46)). The last piece of evidence that we shall present is of a somewhat different nature:

(48) Je lui ai dit de ne voir personne.  
I him told neg. see no one.

(49) Gli ho detto di non vedere nessuno.

(50) \*Je lui ai dit ne de voir personne.

(51) \*Gli ho detto non di vedere nessuno.

In French and Italian, the negative elements *ne/non* follow, rather than precede, *de/di*. In English, *not* may follow *to*, but the most natural order is for *not* to precede *to*:

(52) I told him not to see anyone.

If *de/di* were equivalent to *to*, this would have to be stipulated; that is, the contrast between (50)-(51) and (52) would be puzzling. Taking *de/di* to be

complementizers, however, allows us to interpret (50)-(51) as parallel to these ungrammatical sentences:<sup>11</sup>

(53) \*Je lui ai dit ne qu'il devrait voir personne. (≈ (55a))

(54) \*Gli ho detto non che dovrebbe vedere nessuno.

(55) a. \*I told him not that he should see anyone.  
b. \*They would much prefer not for there to be any lectures today.

## 5.2. A GOVERNMENT DIFFERENCE BETWEEN *de* AND *for*

We shall henceforth assume the main result of the previous section, namely that *de* and *di* are complementizers, but we shall not explicitly mention Italian unless there is some pertinent difference between it and French.

*De* and *for* now have in common their status as complementizers, in particular as infinitival complementizers. There are of course two major differences between them. First, whereas *for* can be followed by a lexical subject of the infinitive, *de* cannot.

(56) \*Ce serait dommage de quelque chose lui arriver.

(57) It would be a pity for something to happen to him.

Second, *de* is compatible with control, whereas *for* is not:

(58) Ce serait dommage de partir maintenant.

(59) \*It would be a pity for to leave now.

The ungrammaticality of (56) could reasonably be related to that of (60):

(60) \*Quelque chose lui arriver serait dommage. (≈ (61))

That is, lexical subjects of infinitives are normally impossible in French, and the same holds for English, in the absence of *for* or an appropriate matrix verb:

(61) \*Something to happen to him would be a pity.

Following Chomsky (1980, 25), let us assume a Case filter that requires every lexical NP to be marked for Case. Then, assuming that subjects of infinitives cannot receive Case from within the infinitival S itself, both (60) and (61) are straightforward violations of the Case filter. Furthermore, we can distinguish (56) from (57), while grouping (56) with (60) and (61), by agreeing that

complementizer *de* cannot assign Case to the subject of the infinitive, whereas *for* can. In other words, we can interpret (56) as a violation of the Case filter.

Since government is a necessary condition for Case assignment in Chomsky (1980, 25), it follows also that *for* must govern the adjacent subject position. Chomsky (1981a; 1981b) has constructed a theory within which government of some position is incompatible with control of that position (cf. also Rouveret and Vergnaud (1980, 124)). Hence, government of the adjacent subject position by *for* will preclude control, which accounts for the ungrammaticality of (59).

Let us, moreover, interpret the inability of *de* in (56) to assign Case to the subject NP as an indication that *de* in COMP does not govern the adjacent subject position. Then the possibility of control is straightforward, which accounts for (58). In other words, the two differences that we started out with, namely the contrasts between (56) and (57) and between (58) and (59), reduce to one: English *for* governs the adjacent infinitival subject position, but French *de* does not.

From here, we shall proceed as follows: we shall generalize this specific difference between English *for* and French *de*, in two steps. The intermediate generalization of § 5.3 will allow us to effect a connection with the *believe* facts observed in (3). The subsequent generalization of section 4 will establish a connection with preposition stranding ((1)-(2)).

### 5.3. THE APPARENT DIFFERENCES BETWEEN *croire* AND *believe*

The promised intermediate generalization is a slight one: English prepositional complementizers govern the adjacent infinitival subject position, but French prepositional complementizers do not.

This generalization has two effects. First, if *à* can be a complementizer in French, a possibility raised in Kayne (1975, section 4.10), then *à* falls (correctly) under this generalization, since it is compatible with control and incompatible with a following lexical subject:

- (62) a. \*Je cherche quelqu'un à Jean photographe.  
I look for someone for/to John (to) photograph.  
b. \*Marie est facile à Jean contenter.  
Mary is easy for/to John (to) please.

The second effect concerns *believe*. Before examining it, let us recall the basic data. The French word-for-word counterpart of English (63) is ungrammatical:

- (63) I believe/acknowledge/have determined John to be the most intelligent of all.

- (64) \*Je crois/reconnais/constate Jean être le plus intelligent de tous.

However, if the subject of the infinitive is moved left by *Wh* Movement, the result is well-formed:

- (65) Quel garçon crois/reconnais/constates-tu être le plus intelligent de tous?  
'Which boy do you believe/acknowledge/determine (to) be the most intelligent of all?'

In other words, these French verbs have the property that . . . V NP VP is ungrammatical if NP is lexical and remains in place, but grammatical if NP is a *wh*-phrase and moved.

An essential point is that this behavior distinguishes the NP here from "normal" verbal objects. Thus, in V NP PP or V NP NP or V NP AP or simply V NP, it is never the case, as far as we know, that the postverbal NP must be moved by *Wh* Movement to be licit. The most striking contrast is one discussed in detail by Ruwet (1979). Many of the verbs that occur in (65) also occur in (66) (V NP AP):

- (66) Quel garçon crois/juges-tu intelligent?  
'Which boy do you believe/judge intelligent?'

But in that case, a postverbal lexical NP is well-formed:

- (67) Je crois/juge Jean intelligent.  
'I believe/judge John intelligent.'

The conclusion is inescapable: the odd property of V NP VP illustrated by (64) vs. (65) cannot be explained if that NP is analyzed as the object of V, that is, if the structure is merely V NP VP.

We thus follow Chomsky (1980, 29, 32), Rizzi (1981), and Ruwet (1979) in postulating for French (and Italian) (64)-(65) the structure V [<sub>S</sub> NP VP].

The question now is how to make this V [<sub>S</sub> NP VP] structure yield an account of the contrast between (64) and (65). In the spirit of Rosenbaum (1967) and Postal (1974), we might think in terms of a rule of "Raising", but we would then have to stipulate that, in French, the output of Raising is obligatorily subject to *Wh* Movement, with no gain in understanding.

The Case/government theory of Chomsky (1980) and Rouveret and Vergnaud (1980) allows a more elegant approach. The basic idea is to assimilate the ungrammaticality of (64) to that of (60) and (61). The NP subject of the infinitive in (64) cannot receive Case from within the infinitival S, just as it cannot in (60) and (61). Hence, (64) will be excluded by Chomsky's (1980, 25) Case filter, as long as that subject NP cannot receive Case from above either.

The notion "receive Case from above" is in fact the key to the difference between (64) and (65). We assume a more accurate representation of the

structure of (64) to be  $V[\bar{S} \text{ COMP } [S \text{ NP VP}]]$ . Following Chomsky (1973), we assume the existence of derivations involving successive cyclic *Wh* Movement. Following Rizzi (1981), we assume that successive cyclicity plays a crucial role in (65).<sup>12</sup>

The way in which successive cyclicity allows (65) to avoid the Case filter violation responsible for the ill-formedness of (64) is as follows (we differ here from Rizzi (1981)). After the first cycle application of *Wh* Movement, (65) has the structure ... *constates* [ $\bar{S}[\text{COMP } \textit{quel garçon}] [S[e]_i \textit{\acute{e}tre} \dots]$ ]. *Quel garçon* cannot receive Case on the lower cycle, for the same reasons that obtain in (64). On the upper cycle, *quel garçon* receives objective Case from *constater*. That objective Case is carried along (as well as left on the trace in COMP).<sup>13</sup> The surface structure of (65) is thus *quel garçon*<sub>objective</sub> ... [ $\bar{S}[\text{COMP}[e]_{\text{objective}}] [S[e] \textit{\acute{e}tre} \dots]$ ], and there is no Case filter violation, as desired.

Although *V* can govern an NP in COMP, i.e. across a single S-type ( $S, \bar{S}$ ) boundary, it cannot govern across two S-type boundaries.<sup>14</sup> Hence, in (64), with the structure ... *constate* [ $\bar{S} \text{ COMP } [S[\textit{Jean}] \dots]$ ], *Jean* is not governed by *constater* and so will fail to receive Case at all. In effect, movement into COMP, as in (65), is necessary in French to bring the embedded subject NP into a position close enough to *V* that *V* can govern it.

We are now in a position to return to the contrast between English and French, i.e. between (63) and (64). We note that our firm conclusion that the French equivalents of *believe*, etc., take an infinitival  $\bar{S}$  complement (whose lexical subject cannot remain in place because of Case considerations) does not automatically transpose to English. In particular, the postverbal NP in English can be lexical without needing to move, so that it looks perfectly "normal". Thus, the above argument against a bare *V NP VP* could not have been made solely within English. It seems to us, therefore, that from the point of view of Bresnan's (1978) recent work, it would be possible for French and English to differ precisely in that, for the class of verbs in question, French has  $V \bar{S}$  ( $\bar{S}$  infinitival), whereas English has *V NP VP* (*VP* infinitival).

On the other hand, Chomsky (1980, 29) has proposed that both French and English have  $V \bar{S}$ , but that only English has "exceptional Case-marking" from the matrix verb across  $\bar{S}$  and *S* onto the subject of the infinitive. Put another way, the matrix *V* in English can govern the subject position of the infinitive, but the matrix *V* in French cannot.

Recalling that in Chomsky's (1981a; 1981b) framework, there is a (negative) relation between government and control, as discussed above toward the end of § 5.2, we would expect that, within that framework, with the class of verbs at issue, control with an infinitive would be on the whole impossible in English, but possible in French. And there does in fact exist such a difference:

(68) \*I believe/acknowledge/affirm to have made a mistake.

(69) Je crois/reconnais/affirme avoir fait une erreur.

Thus, unless there is a principled reason for this negative correlation between infinitival control and  $V \text{ NP}_{\text{lex}} \text{ VP}$  in Bresnan's (1978) framework, these facts constitute an advantage for the Case/government approach.

Let us now ask the following question: Why do French and English differ here as they do? And let us take the position that even Chomsky's answer is not satisfactory. That is, let us ask why *believe* should allow government of the embedded subject position, but not *croire*. Why is it not the other way around?

Our answer will exploit the similarity, within the Case/government framework, between the *believe/croire* difference and the *for/de* difference of § 5.2. The latter, we recall, led to the generalization given at the beginning of this section: English prepositional complementizers govern the adjacent infinitival subject position, but French prepositional complementizers do not. The former difference led to the conclusion that the matrix *V* could govern the infinitival subject position in English, but not in French (despite the possibility in French of government across  $\bar{S}$  in (65)).

Our basic idea is that government across two S-type boundaries is uniformly impossible, and that English only appears to allow it. We can achieve this result if we integrate into the Case/government framework Chomsky and Lasnik's (1977, section 2.2.2)  $\Phi$  complementizer. In particular, let us assume with them that *believe*-type verbs take a  $\Phi$  complementizer. We assume further that  $\Phi$  is another prepositional complementizer, which differs from *for* and *de* in having no phonetic realization.

Once having made these assumptions, we can consider that *John* in *believe* [ $\Phi$  [*John to be happy*]] receives its Case from  $\Phi$ , and not directly from *believe*. Now there is no reason why French should not have a prepositional  $\Phi$  complementizer with the same class of verbs: *croire* [ $\Phi$  [*Jean \acute{e}tre heureux*]]. However, since French prepositional complementizers do not govern the adjacent subject position,  $\Phi$  will not govern *Jean*, with the result that it will receive no Case and will violate the Case filter.

Similarly, we can consider  $\Phi$  to appear uniformly in both (68) and (69). In (68),  $\Phi$  governs the embedded subject position and blocks control. In (69),  $\Phi$ , though present, does not govern the embedded subject position, and control is possible.<sup>15</sup>

From this point of view, there is no essential difference between *believe* and *croire*. The apparent differences between them are rather a function of the way in which English and French treat prepositional complementizers. The contrasts between (68) and (69) and between (63) and (64) are thus connected to the contrasts between *for* and *de* discussed in § 5.2, i.e. to (59) vs. (58) and to (57) vs. (56).

If this is correct, then there need be and can be no exceptional Case-marking in the strict sense of Chomsky (1980) even in English. There cannot be, since our account of French (64) depends not only on the government properties of  $\Phi$ , but also on the unavailability to French of direct Case-marking from *croire* to the embedded subject, an unavailability that is most simply interpreted as reflecting nonexistence in universal grammar. (This

nonexistence in turn follows from the characterization of government as a relation not capable of spanning more than one S-type boundary.)

Furthermore, like *croire* in French, *believe* in English must be subcategorized for an  $\bar{S}$  complement (that can be infinitival), and it must not be subcategorized for \_\_\_\_ NP VP. If this latter kind of subcategorization were available to *believe*, there would be no principled reason for its being unavailable to *croire*, and the French-English difference would become puzzling again.

In conclusion, study of the *believe*-lexical NP-infinitival VP construction in English can lead to the postulation of various analyses: V- $\bar{S}$  with Raising (Postal (1974)); V- $\bar{S}$  without Raising, with "exceptional Case-marking" across two boundaries (Chomsky (1980)); V- $\bar{S}$  without Raising, with "exceptional COMP Deletion" (Rouveret and Vergnaud (1980, section 1.6)); V-NP-VP with lexical-interpretive mechanisms (Bresnan (1978, 35); cf. also Dowty (1978, section 8.1) and Wasow (1980, section 3)); V- $\bar{S}$  without Raising, with Case-marking via an abstract prepositional complementizer (this article). Of these, however, we would claim that only the last is restricted enough to allow an adequate account of the absence of the corresponding construction in French.<sup>16</sup>

This conclusion, that *believe*'s infinitival complement is an  $\bar{S}$ , is relevant to the status of Passive, since, as Bresnan (1981, section 3.7) has noted clearly, an analysis of Passive as a purely lexical rule would not be compatible with (the passivizability of) *believe* [ $\bar{S}$  NP VP<sub>infl</sub>]; cf. Wasow (1977, section 2.2).

Our conclusion in favor of the  $\bar{S}$  status of the complement of *believe* should, furthermore, be compared to another that we can draw from the complementizer status of *de* (and the fact that *de* cannot be a pre-VP particle like *to*), namely that French has numerous cases of "obligatory control" with full infinitival  $\bar{S}$ : [ $\bar{S}$  [COMP *de*] [ $\bar{S}$  PRO VP]] (for example, with the French equivalents of *try*, *decide*, *forget*, as in (24) above). But this means that universal grammar must contain all that is necessary to treat the corresponding English sentences as [ $\bar{S}$  [COMP *e*] [PRO VP]]. (Recall that the above analysis accounts for the fact that *for* is absent here from COMP in English.) Hence, the mechanisms postulated by Brame (1976; 1978), Bresnan (1978), and Bach (1979) to treat these constructions in English as bare VP complementation appear uneconomical.<sup>17</sup>

#### 5.4. THE UNIFYING DIFFERENCE BETWEEN ENGLISH AND FRENCH PREPOSITIONS

The difference in preposition stranding between English and French that is illustrated in (1) and (2) has been attributed by Hornstein and Weinberg (1981) to the existence, in English only, of a Reanalysis rule that amalgamates V and P into one constituent, much as in Chomsky's (1974; 1980, 26) analysis of *take advantage of*. We shall accept the existence of a Reanalysis rule in English, while following Vergnaud's (1979) suggestion that, at least in

(1), what is involved is not so much reanalysis qua constituent as reanalysis in terms of government, essentially as in Rouveret and Vergnaud's (1980) proposal for French causatives and related verbs.

While accepting Hornstein and Weinberg's basic idea,<sup>18</sup> we shall ask the question, Why should French not have a Reanalysis rule just like the one in English? That French does not is particularly curious in light of the existence in French of reanalysis rules in at least two other domains. One involves causatives, as mentioned above; the other applies to idiomatic expressions like *mettre fin* 'put an end (to)', which Pollock (1979) has shown to be subject to reanalysis in passive sentences such as (70):

- (70) Je veux que soit *mis fin* à la guerre.  
I want that be put an end to the war.

Pollock notes that while there is good evidence for (constituent) reanalysis of *mis* + *fin*, there is no comparable evidence that the preposition can be included in the reanalysis (contrary to English); he notes furthermore that there is clear evidence that in (70), the preposition can fail to be included in the reanalyzed constituent.

Thus, French has reanalysis of V-NP, as in (70), and of V-V, as in Rouveret and Vergnaud (1980), but apparently no reanalysis of V (X) P, contrary to English.<sup>19</sup> Consequently, rather than interpreting the lack of preposition stranding in French as resulting from the absence of a reanalysis rule, let us state more precisely that it results from the absence of a reanalysis rule involving prepositions.

Comparing in particular the V-V reanalysis in causatives with the absence of V-P reanalysis, in French, it seems that there must be some important difference between V and P at issue. This recalls the differential proposal in Chomsky (1980, 25-26) concerning Case Assignment: P assigns (oblique) Case in the base, whereas V assigns (objective) Case elsewhere than in the base. It also suggests the following principle: reanalysis between two lexical categories is possible only if they assign Case in the same way.<sup>20</sup>

The idea that the lexical categories V and P assign Case differently from one another might be expressed independently of the point of application of Case Assignment. Taking the association of subcategorization with the base as a starting point, consider the possibility that P can assign oblique Case only to an NP for which it is subcategorized, whereas V can assign objective Case somewhat more freely, in particular to any NP that it governs.

If this were so, then (in French) V, but not P, could assign Case in the configuration [ $\bar{S}$  [V/P] [ $\bar{S}$  NP X]], since government can span a single boundary of type  $\bar{S}$ . For example, we have argued that V assigns Case in precisely this configuration in (39) and (65), but there are no such instances of cross- $\bar{S}$  Case Assignment from P.

A second relevant example is complementizer *de*, which occurs in the configuration P [ $\bar{S}$  NP X]. Since *de* is not subcategorized for the subject of  $\bar{S}$ , we would expect that P could not assign Case to that NP. This is consonant with the data examined previously, e.g. (56).

We noted earlier that the compatibility of *de* with control means that *de* does not govern the adjacent subject position. This suggests a slight generalization of the V vs. P Case Assignment difference: V governs NP in the structural sense of Chomsky (1980) and Rouveret and Vergnaud (1980), but normally P governs NP only in the sense of subcategorization.

This suggests in turn revising the reanalysis principle: reanalysis between two lexical categories is possible only if the two govern in the same way.<sup>21</sup>

We now see that the French-English contrast with respect to preposition stranding is this:

- (71) In French, P and V do not govern in the same way; but in English they do. (That is, in English, P can govern structurally, as well.)

This recalls our intermediate generalization from the beginning of section 3: English prepositional complementizers govern the adjacent infinitival subject position, but French prepositional complementizers do not. Since the relation between COMP and the adjacent subject position is one of structural government, but not one of subcategorization, this intermediate generalization is simply a special case of (71).

In other words, (71) covers both preposition stranding and prepositional complementizer government. Since the latter is what underlies the French-English contrast with respect to "exceptional Case-marking" (that is, *croire* vs. *believe*), as we argued in § 5.3, (71) is the principle underlying that, too.<sup>22</sup> This is the relation promised in the opening paragraphs.<sup>23</sup>

#### APPENDIX 1 LACK OF OBLIQUE CASE IN ENGLISH

It would be tempting to try to derive from (71) the fact that English does not have the accusative-dative distinction, were it not for Icelandic (cf. Einarsson (1949, 127)) and Faroese (cf. Lockwood (1955, 121)), which allow preposition stranding while retaining that distinction. It is of interest that Icelandic (cf. Andrews (1976)) and Faroese (op. cit.) also have "exceptional Case-marking" (without any equivalent of English *to*). Swedish shares this property to an extent (cf. Ureland (1973, especially section 2.3)), and also has preposition stranding. German has neither. (German allows *Ich habe ihn singen lassen*; cf. note 16.) Dutch seems to be like German, although it has a limited form of stranding; however, Van Riemsdijk's (1978) analysis of Dutch preposition stranding seems essentially correct, and does not involve reanalysis. (That is, the R-pronoun "escape hatch position" obviates the need for reanalysis; the ECP still imposes government (cf. note 18).)

The strongest form of our hypothesis relating preposition stranding and "exceptional Case-marking" would make V-P reanalysis automatic in a language in which P could govern structurally (though see note 19), and would also involve the automatic exploitation of an abstract  $\Phi$ . On the other hand, certain modulations may be allowed ("markedness"). Note, for exam-

ple, the limited use of  $\Phi$  in Swedish alluded to above. Icelandic appears not to have anything corresponding to *for*, though that might be nonaccidental, if oblique Case assignment is tied to subcategorization even when government by P is structural. Icelandic infinitival *að* looks like a complementizer, to judge by its incompatibility with raising (cf. Andrews (1976, 2)). That *að* can govern structurally, despite not assigning oblique Case successfully, is suggested by Andrews (1976, (7b)), like (68) above; in effect, since *að* is compatible with control with non-*believe*-type verbs, it must be analyzed as inheriting its ability to govern structurally from a governing B-verb, much like English  $\Phi$  (cf. appendix 2).

Although structural government may not imply objective Case, objective Case presumably does imply structural government. We have proposed in unpublished work (cited and incorporated in Lightfoot (1980, sections 4 and 5)) that English prepositions are able to assign objective Case in the sense of Chomsky (1980, 25), though differing slightly; this as a necessary condition for the existence of pseudopassives with a nominative subject. In this view, pseudopassives with a nonnominative subject would require only that P govern structurally; this may correspond to the situation in Icelandic and in Faroese (cf. Allen (1977, 351, (93))). The relationship between pseudopassives with a nominative subject and the loss of the accusative-dative distinction (which we take to be a necessary condition for P assigning objective Case), has been noted by Haugen (1976, 379), Jespersen (1974, section 15.2<sub>4</sub>), and Lieber (1979, section 4).

Case on the subject of an infinitive is pertinent to our hypotheses only if assigned from outside S. In Latin, it seems clearly possible to assign accusative Case on an infinitival subject from within S (cf. Woodcock (1959, section 25), Bolkestein (1979), Pillinger (1980), and Rouveret and Vergnaud (1980, appendix C)). The same holds for nominative in Italian (Rizzi (1981)), Portuguese (Rouveret (1980)), and perhaps Walloon and dialectal French (Remacle (1956, 117n)). On the other hand, Woodcock's sections 29 and 33 suggest that (classical) Latin might have had a governing  $\Phi$  with B-verbs (contrary to Italian and French); thus, we may be forced to allow  $\Phi$  more freedom than overt prepositions (since Latin had no preposition stranding that we know of), unless note 16 or note 19 is relevant.

According to Lorian (1968; 1973, 195ff.), there was literary French imitation of the Latin construction from the fourteenth through the sixteenth centuries (cf. Fornaciari (1974 (1881), 204)). It would be of interest for a theory of borrowings and archaisms to investigate whether the imitation extended to nongoverned environments.

Although the use of Latin as an edge against which to refine one's hypotheses is made difficult by the limited accessibility of data, the problem of controlling for irrelevant variables (i.e. for ways in which the grammar as a whole is substantially different from the other languages under comparison) is considerably smaller than in the case of Japanese (cf. Postal (1974, section 12.2)), which we leave open.

## APPENDIX 2 TRANSMISSION OF GOVERNMENT

The Empty Category Principle (ECP) referred to in note 8 is due to Chomsky (1981b). We shall adopt here the formulation proposed in § 3.2.1.:

- (72) An empty category  $\beta$  must have an antecedent  $\alpha$  such that (1)  $\alpha$  governs  $\beta$  or (2)  $\alpha$  *c*-commands  $\beta$  and there exists a lexical category *X* such that *X* governs  $\beta$  and  $\alpha$  is contained in some percolation projection of *X*.

For the purposes of this article, we can on the whole ignore the difference between percolation projection and projection in the usual  $\bar{X}$  sense of Chomsky (1970), and assume that  $\bar{S}$  is a projection of *V* (cf. chapter 3, note 17).

Consider now (26), with the structure *Jean<sub>i</sub> semble* [ $\bar{S}$ [COMP *de*] [*S*<sub>*i*</sub> *être parti*]]. The empty category is clearly not governed by its antecedent. To be licit, it must then be governed by some lexical category *X*, which it is not. Thus, (26) violates the ECP, and the same holds for (27) and (33)–(35).<sup>24</sup>

The exclusion via the ECP of (31), (32), (41), and (42) is partially similar. For example, (41) has the structure ... *croyais* [ $\bar{S}$ [COMP *de*] [*e* *être* ...]]. If there is no trace in COMP, i.e. no successive cyclic application, then the empty category is again clearly not governed by its antecedent, nor by a lexical category. But even if there is a trace in COMP –... *croyais* [ $\bar{S}$ [COMP [*e*]<sub>*i*</sub> *de*] [*e*]<sub>*i*</sub> *être* ...]] – the presence of *de* blocks *c*-command, so that the trace in subject position is still not governed by any antecedent (nor by any lexical category). For more detailed discussion, see § 3.3.2, 3.3.3.

In (39), the structure is ... *croyais* [ $\bar{S}$ [COMP [*e*]<sub>*i*</sub>] [*S*<sub>*i*</sub> *être* ...]], with successive cyclic application of *Wh* Movement (cf. the discussion of (65)). The empty category in subject position is governed, across a single *S*-boundary, by its antecedent, the trace in COMP. That empty category is not governed by its antecedent, but it is governed, across a single  $\bar{S}$ -boundary, by the lexical category *V*, a (percolation) projection of which contains the desired antecedent,<sup>25</sup> so that (39) is well-formed.

Consider further example (i) of note 12, with the structure ... *démontrée* [ $\bar{S}$ [COMP  $\Phi$ ] [*S*<sub>*e*</sub> *être* ...]]. Since this is a passive, there is no successive cyclicity, i.e. no trace in COMP. The empty category is not governed by any antecedent, nor by *démontrée*, since there are two *S*-type boundaries in between. Nor, in French, can  $\Phi$ , any more than *de*, govern across *S*. Thus, there is an ECP violation.

The English equivalent of (i) of note 12 is grammatical, with the structure ... *demonstrated* [ $\bar{S}$ [COMP  $\Phi$ ] [*S*<sub>*e*</sub> *to be* ...]]. The empty category is governed neither by its antecedent nor directly by *demonstrated*, exactly as in French. However, in English,  $\Phi$ , like *for*, can govern across *S*. This is necessary, but not yet sufficient, since  $\Phi$  has no projection that could contain the antecedent. Let us say, then, that  $\Phi$  has the essential property of “transmitting” government: *X* governs  $\Phi$  and  $\Phi$  governs  $\beta \rightarrow X$  governs  $\beta$ .<sup>26</sup> By

virtue of this, *demonstrated* governs the empty category here, as desired; there is no ECP violation, since the antecedent is contained in a projection of *demonstrated*.

This transmitting property of  $\Phi$  allows us to revise our description of (63): ... *believe* [ $\bar{S}$ [COMP  $\Phi$ ] [*John* ...]]. Earlier, we considered that *John* received Case from  $\Phi$ . However, since *believe* governs  $\Phi$  and  $\Phi$  governs *John*, then *believe* governs *John*. Therefore, objective Case can be assigned by *believe*. If so,  $\Phi$  need not assign Case at all. That is, in a language in which *P* governs like *V*, we can take  $\Phi$  to be a governor capable of governing across *S* and thereby capable of constituting a bridge from the matrix *V* to the embedded subject, without its being able to assign Case on its own. This accounts for (73):<sup>27</sup>

- (73) \*John to be a fool is believed by everyone.

1. Cf. Hornstein and Weinberg (1981).
2. Cf. Chomsky (1980, 29, 32).
3. Note the contrast between (8) and *Elle m'a demandé sur quoi lui dire de s'asseoir* ‘She asked me on what to tell him to sit’, where the *wh*-phrase and *de* are in separate COMPs. The difference between (10) and *Je cherche un projet auquel lui proposer de participer* is similar (example from Huot (1977, 472)).
4. The same is true for the French data in (1b), (2b) and (3b). That is, Italian has preposition stranding neither in *wh*-constructions nor in passives, and it lacks the English-like exceptional objective Case-marking with *believe*-type verbs.
5. The complementizer status of *di* is assumed in Rizzi (1978, 116, 117n).
6. All of (22)–(25) are like (5) and (15) in allowing *de/di partir(e)* to be replaced by *quelque chose/qualcosa*, rather than by *de quelque chose/di qualcosa*.
7. Cf. Rizzi (1978, 150). The corresponding modern French example lacks *de*

- (i) Il me semble avoir compris.

(although *de* was possible, in the control construction only, in earlier stages of French (similarly for (43) below); see Eringa (1924, 127), Haase (1969, section 112)). This is compatible with the suggested generalization, which allows *de/di* to appear or not in control constructions (examples of subject control verbs not taking *de/di* are *vouloir*, *espérer*, *compter/volere*, *detestare*).

In treating (i) as an example of control, we disagree with Rouveret and Vergnaud (1980, 146–147), whose proposal is weakened by an example from Gross (1968, 91):

- (ii) Il semble à Jean y être allé déjà.  
‘It seems to John (that he) has gone there already.’

The greater naturalness of a clitic indirect object is not confined to the infinitival construction – cf. Ruwet (1976, note 26).

8. The most promising is the Empty Category Principle (ECP); see appendix 2.
9. The French and Italian equivalents of the English verbs assimilated to raising by Perlmutter (1970) must now either not have *de/di* or not truly be instances of raising. Thus, *menacer* ‘threaten’, *risquer* ‘risk’, *continuer* ‘continue’, *cesser* ‘cease’, *arrêter* ‘stop’, etc., all of which take *de*, must never have a trace (as opposed to PRO) in embedded post-*de* subject position. This conclusion converges with that of Rouveret and Vergnaud (1980, note 39), though it is based on rather different considerations. An alternative will be needed to Ruwet’s (1972, chapter 2) analysis of En-Avant (cf. Kayne (1975, chapter 3, note 69)). Perlmutter’s (1970) double subcategorization analysis had the disadvantage that it allowed in principle for such verbs in French and Italian to take *de* with raising and a null COMP with control or vice versa; however, outside of Rosenbaum’s original small class, no such variation is observed (see Rizzi (1978, 150)).

These considerations do not prohibit verbs like *pouvoir* 'to be able to' and *devoir* 'to be obliged to', which do not take *de*, from occurring in a raising context; the same is true for English *begin*, *likely*, and *certain*.

10. For further discussion of *voir/see*, cf. note 16 below.

The absence of *de* in *Elle a envoyé Jean (\*de) chercher le courrier* 'She sent John (to) look for the mail' is like its absence in *Jean est descendu (\*de) chercher le courrier* 'John went down (to) look for the mail'. These might involve a deleted *à* (cf. Gross (1968, 76; 1975, 165ff.)). Depending on the position of that *à*, there might be a link with *Jean tient à (\*de) partir*, like \**John is counting on for Bill to leave*; though Italian *Tengo a che parta* (\*in French) vs. \**Tengo a di partire* awaits explanation (cf. *pour que Jean parte* vs. *pour (\*de) partir*, and perhaps earlier English *who that* vs. *who for*).

11. Perhaps positions between *S* and  $\bar{S}$  would not permit scope to be assigned. Note that *ne* can be separated from the infinitive by elements different from *de* (cf. Kayne (1975, chapter 2, note 18)). In *pour (ne) pas que S* 'in order not that S', the scope of negation and the position of (*ne) pas* are probably both outside  $\bar{S}$ , i.e. at the level of the *pour*-phrase; cf. Daoust-Blais and Kemp (1979).

12. With the verbs *constater*, *démontrer* 'demonstrate', *nier* 'deny', and *espérer* 'hope' discussed by Ruwet (1979, section 7), the contrast is sharp not only between (65) (OK for all four) and (64) (\*for all four), but also between (65) and the following examples, i.e. between *Wh* Movement and other movement rules:

- (i) \*L'âme a été démontrée être immortelle (par Socrate).  
the soul has been demonstrated to be immortal (by Socrates).
- (ii) \*Je les nie être de quelque importance que ce soit.  
I them deny to be of any importance.
- (iii) \*J'ai tout constaté être en bon ordre.  
I have everything determined to be in good order.

This will follow as in the text from the hypothesis that for these verbs successive cyclicity is crucial to the well-formedness of (65), combined with the hypothesis that only *wh*-phrases may pass through COMP. (Put another way, a phrase can have a trace in COMP only if it is itself in COMP (cf. Chomsky (1973, 55b)) and chapter 3, note 43; May's (1979) proposal does not appear to extend to (i)-(iii).)

The contrast between *Wh* Movement and other movement rules is similarly sharp for Italian *temere* 'fear', *sostenere* 'assert', and *affermare* 'affirm', as Rizzi (1981) shows. On verbs for which this contrast, while present, is less sharp, cf. note 16 below.

13. We are assuming here the Case-marking convention of Chomsky (1980, 38), as modified in § 1.1.3, which contains other instances of objective Case-marking from *V* into COMP. (Nothing essential would be changed, though, if this objective Case-marking applied in surface structure to the trace in COMP.) The existence of objective Case-marking into COMP in Italian is supported by Longobardi (1980, note 11), and in French by Pollock (1981).

14. Cf. chapter 3, note 1. The variable bound by *quel garçon* in (65) must either be in COMP or not have Case; this bears on Chomsky (1980, 38).

15. The construction (69) has certain curious restrictions, first brought to our attention by P. Barbaud:

- (i) \*Je ne crois/reconnais/affirme qu'avoir fait une erreur.

(See also Huot (1977, 327), where the corresponding dislocations and pseudoclefts are judged "??"). These might reflect a government requirement on  $\Phi$  itself; if so, then this class of (French) verbs not only can but must occur with a nonempty COMP (recalling Chomsky (1980, (95a))) when  $\bar{S}$  is infinitival. (Italian has *di* in (69); cf. (30) and (43).)

The ungrammaticality of (68) seems quite systematic; of the 51 verbs given as "B-element R-triggers" by Postal (1974, 298, 305, 308), only *presume* (cf. *claim*) seems clearly to contrast minimally with *believe*, in having a control use that mimics a nonmodal (indicative-cf. Luján

(1978) for an effect on Clitic Placement) tensed  $\bar{S}$ . From our point of view, *presume* and *claim* are unusual in allowing the choice between *e* and  $\Phi$  in the COMP of their infinitival  $\bar{S}$ -complement.

We do not find Postal's (1974, 305) DOC facts to be at all clear; that is, we accept (63) with almost all the cited verbs (cf. his note 12, although we find strong stress unnecessary). And the straightforward acceptability of passives emphasizes the difference between English and French/Italian (cf. note 14 above). Nonetheless, we might interpret Postal's judgments as indicating that Case assignment from  $\Phi$  is more restricted than government by  $\Phi$  (cf. appendix 2 and the remark on Icelandic \**for* in appendix 1) and more restricted than government by *V* of COMP or Case assignment from *V* to COMP.

On \**John to be happy is believed by everyone*, see appendix 2.

16. However, French has a word-for-word equivalent of *Mary let/saw/heard John cross the street*:

- (i) Marie a laissé/vu/entendu Jean traverser la rue.

(i) thus contrasts minimally in French with (64) and note 12. We argued in chapter 2 (vs. Akmajian, Steele, and Wasow (1979)) that the English examples have the structure . . . *V* [*John cross the street*]. So, then, should their French equivalents: . . . *V* [*Jean traverser la rue*] (cf. the lack of any essential difference between *believe* and *croire*, as discussed toward the end of this section). But if the structure were . . . *V*  $\bar{S}$ , then in French *Jean* could not receive Case from *V*. Consequently, *Jean* must receive Case from within the embedded constituent in (i) (cf. appendix 1 below on Latin and § 2.2.3), and/or (i) must not have an embedded  $\bar{S}$ . Let us explore the latter possibility here.

Assume that in (i) *Jean traverser la rue* is a constituent that differs from  $\bar{S}$  in having neither COMP nor INFL(ection) (on INFL, cf. Chomsky (1981b)); perhaps then that it is a bare VP with a subject, i.e. a  $\bar{V}$  (which we shall call *S*), in the spirit of Stowell (to appear) and Manzini (1980). Assume further that universal grammar allows such pared-down (nonpropositional?) sentence-like infinitival constituents only under causatives or perception verbs (in the unmarked case). Then English will have the construction *let/see/hear S*, too. Since only one boundary separates the matrix *V* from the subject of *S*, direct Case-marking from *V* is possible in French (as well as English); since there is no INFL, *to* does not appear in English (the absence of complementizer *de* in (i) is immediate, as well). Similarly, *S* is presumably a necessary condition for the construction in (ii) (with *de* again impossible). (Note, too, the absence of *zu*, *te* in the partially corresponding German and Dutch construction; see Evers (1975, 43).)

- (ii) Marie a fait partir Jean.  
'Mary had John leave'

The presence of a single boundary allows, but does not ensure, Case-marking onto the embedded subject, since (iii) is generally impossible (cf. Kayne (1975, chapter 3, note 31) and Harmer (1979, 217-221)):

- (iii) \*Marie a fait Jean partir.

Compare § 3.3.2 on *regretter*. The analysis of this paragraph has certain points in common with Rouveret and Vergnaud (1980, section 2.5.4).

The appropriateness of an *S* constituent lacking COMP and INFL is wider than the domain just described, if chapter 7 is correct in analyzing (67) (and (66)) as *V* *S*, where *S* has no overt *V* (cf. Russian *V-less* copula sentences). This type of pared-down *S* occurs with many more matrix verbs than does the infinitival one above. One argument for treating (the English equivalent of) (67) in this way is that it allows a common account of \**John's belief to be crazy by Mary* and \**John's belief crazy by Mary* (chapter 7). The matrix verb in (67) is separated from the embedded subject by only one boundary and can therefore assign it Case, contrary to (64), which has two boundaries. (Conversely, the two boundaries protect PRO from government by *V* in (69), whence the contrast with the single boundary in (iv):

- (iv) \*Jean croit intelligent.)

We are now in a position to return to note 12, and in particular to the fact that with certain verbs such as *croire*, *juger* 'judge', *trouver* 'find', *déclarer* 'declare', *estimer* 'estimate', the unacceptability of (i)-(iii) in note 12 becomes less sharp:

- (v) ?Je le crois être le plus intelligent de tous.
- 
- I him believe to be the most intelligent of all

- (vi) ?Jean a été déclaré être apte à participer.
- 
- John has been declared to be qualified to participate.

- (vii) ?Jean a tout estimé être en ordre.
- 
- John has everything estimated to be in order.

There is still a contrast with (65), to judge by our informants, by Rizzi (1981) and Skytte (1978, 302) for Italian, and by Martinon (1927, 240-241, 452), Grevisse (1964, section 1007b), Wartburg and Zumthor (1973, section 119), Postal (1974, 53), Chevalier et al. (1964, section 173), and Georgin (1952, 143). (Thus, the assignment in Chomsky (1980, 32) and Rouveret and Vergnaud (1980, note 23) of equal status to (65) and to (v) is unrepresentative even for these verbs; also, the latter's exclusive preference for *être* in (65) is not shared by Ruwet (1979, section 9), Huot (1977, 319), or Godard-Schmitt (1980, 112).)

Rizzi (1981) argues for Italian that the marginal acceptability of (v)-(vii) (as well as the still more marginal acceptability of (64)) with such verbs should be accounted for "analogically", in such a way as to express the generalization that the verbs of the preceding paragraph are precisely those that otherwise allow the construction of (67). As far as we can see, this generalization holds for French, too. (Ruwet (1979, section 7) judges (67) ungrammatical with the verbs of note 12.)

Altering Rizzi's proposal slightly, let us say that "epistemic" verbs basically take either a full  $\bar{S}$  – either tensed or infinitival (the latter surfacing in French only in (65) and (69)) – or else a verbless  $\bar{S}$ , as in (67). The subclass that can take a verbless  $\bar{S}$  can marginally ("analogically"), under limited conditions, take an infinitival  $\bar{S}$  of the type normally reserved for (i), with the result that we have seen in (v)-(vii).

17. Under the  $\bar{S}$  analysis, the ungrammaticality of \**John tried Mary to leave* results from a combination of the Case filter and the fact that *try* does not take  $\Phi$ . The ungrammaticality of \**John tried for Mary to leave* is due solely to *try*'s not taking *for*. Such verb-complementizer restrictions may themselves be amenable to further analysis. It is important to notice, in any case, that the "bare VP" analysis of *try* was no more successful, in the absence of any reason for *try*'s taking neither  $\bar{S}$  nor NP VP. The use of verb-complementizer restrictions is independently motivated by \**John persuaded Mary for Bill to leave*, given *John persuaded Mary that Bill should leave*.

With respect to infinitival  $\bar{S}$ , note also the arguments in § 3.2.3 in favor of the structure *This room would be easy* [ $\bar{S}$  for *there to be an orgy in*] (cf. Rizzi (1978, 141n) vs. Bresnan (1971)), such that  $\bar{S}$  is governed by *be easy*; that government relation is imposed by the ECP (cf. appendix 2) and hence need not be taken as evidence for the subcategorization of  $\bar{S}$  by *easy*, contrary to Oehrle (1979).

With respect to control and  $\bar{S}$ , note further the French construction involving control of the subject of a tensed  $\bar{S}$  that contains an overt complementizer (see chapter 4). Compare also Andrews (1976).

18. We argued in § 3.1.2, 3.2.1 that what imposes reanalysis is the ECP (see appendix 2), rather than Hornstein and Weinberg's filter. On this view, the government requirement of the ECP is also what limits reanalysis here to PPs that are complements of V.

19. Rouveret and Vergnaud (1980, section 4.2) actually do extend their government indexing mechanisms to *à*. Either that extension is unnecessary, or *à* has some property that distinguishes it from other prepositions. Although we suspect the former, it is worth noting that

*à* might be a clitic, in which case \**Qui as-tu parlé à?*, \**Jean sera parlé à* would not show that *à* is not subject to reanalysis. Compare the more general point that lack of preposition stranding, in a language all of whose prepositions were proclitics, would shed no light on the workings of reanalysis in that language. That many French prepositions are clearly not proclitics is shown by note 22 below. Reanalysis might also be inhibited in a language having the construction . . . [P NP] . . . V: cf. Van Riemsdijk (1978, section 6.2.2).

20. This formulation, which we would prefer not to weaken to –N lexical categories, excludes V–N reanalysis (though not V–NP, V–AP); a relevant example is *Who did you buy a picture of?* It permits A–N reanalysis; cf. perhaps *an interesting (\*to me) person*. On *unheard of*, cf. chapter 3, note 27.

21. This revision probably leaves note 20 unaffected, since there is evidence that V and N do not govern alike; see § 3.2.3.

It might be preferable to restrict *govern* to the relation that V can have with NP and to say, in that sense, that P does not govern in French. Then reanalysis of V–X, where X is lexical, is simply reanalysis between governors. From this point of view, we would say that P in French, rather than assigning Case, is subcategorized for (some specific) Case.

22. It may be possible to further derive from (71) the rather systematic French–English contrast illustrated by *Ils ont tiré dessus* vs. \**They shot at*. Ruwet's (1978, 204) *J'aurais tous voté pour* suggests [pp pour PRO], [pp dessus PRO]; cf. § 4.1.2. It might be possible to take PRO here to be ungoverned (see note 21 and the discussion of (58) above), whereas according to (71), it would be governed in [pp at PRO], and hence illicit. (The examples *They jumped across*, *He fell in* suggest emphasizing the *can* of (71), limited to locatives and temporals; alternatively, these might not have PRO.) Various questions about anaphors arise. On *le mec que tu peux compter dessus* (nonstandard) 'the guy you can rely on', with PRO rather than *Wh* Movement, see Kayne and Pollock (1978, notes 2 and 17). It is not clear whether or not the following contrast is related to (71): *là-dedans* vs. the archaic or frozen *therein*.

23. As in the last three paragraphs of section 3, a lexical approach to passives would seem to fare less well, both with respect to the similarity between (1) and (2) and with respect to the linked differences between French and English. (The similarity between (1) and (2), emphasized by Allen (1977, sections 6.1, 9.1), is also problematic for Van Riemsdijk (1978, chapter 6), as well as for Bresnan (1976a) – see Allen (1977, 321).)

24. For (27) and (35), we should say, more precisely, that they are excluded by the ECP with the embedded subject NP empty. With PRO, they are excluded by whatever is responsible for the unacceptability of \**Sembrano che loro* ('they') *parlino inglese* and \**John seems that he is here*; cf. Freidin (1978, section 3.2.2) and Chomsky (1982a).

On Italian sentences with apparent *Wh* Movement from embedded subject position following a complementizer, see Rizzi (1982, chapter IV).

We assume that complementizers do not constitute a lexical category, but even if they did, there is clearly no projection of *de* in (26) that contains *Jean*.

25. Either the indexed complementizer *que<sub>i</sub>* or the head of the relative; cf. chapter 3, note 54.

26. We can let  $\Phi$  have this property in French, too, though it will never come into play, since  $\Phi$  is not a governor in French.

In *She was demonstrated by Bill to be intelligent*,  $\Phi$  and X are separated by a PP. This order is probably "stylistic", given \**Who was she demonstrated by to be intelligent?* (vs. *Who was she demonstrated to be intelligent by?*).

Government transmission is much like the proposals made in Rouveret and Vergnaud (1980, appendix A).

27. Developing a suggestion by Chomsky, we could perhaps identify  $\Phi$  with a certain form of COMP itself; that is, we could consider that  $\Phi$  is COMP plus the features of P.

To allow (28) and (29), we could adopt Chomsky's (1981b) proposal that verbs of the class of *seem* trigger  $\bar{S}$ -deletion. In the spirit of note 16, this would amount to saying that *seem* and its congeners (again, in all three languages) can take an infinitival S-complement with INFL. We would then need to ask why that form of complement is paired with that class of predicates.

Like *seem*, rather than (vi) of note 16, may be *être censé* 'to be supposed to'; cf. Rouveret and Vergnaud (1980, 127) on *être supposé*, and also Dominicy (1979, 306).



## A Similarity between Government and Binding

I shall focus my comments<sup>1</sup> on the question: What are the building blocks of the principles and rules of universal grammar and particular grammar? One plausible candidate is grammatical relations (subject, object). For example, Chomsky suggests that a verb like 'break' in English "must be specified in the lexicon as an item that assigns a certain  $\theta$ -role to its object and that (given an object) assigns a certain  $\theta$ -role to its subject." And later that "in Japanese and many other languages, subjects (whether thematic or not) and only subjects can be antecedents for the reflexive element." Thus grammatical relations might enter into the formulation of rules forming part of the theory of  $\theta$ -roles and part of the theory of binding.

Let me take the liberty of recasting the  $\theta$ -rule for 'break' as follows, still using grammatical relations: Assign a certain  $\theta$ -role to the direct object; if there is no direct object, assign that  $\theta$ -role to the subject. This brings out the relationship between 'John broke the window' and 'The window broke.' Consider now the effect of this kind of  $\theta$ -rule on a verb that takes an indirect object in addition to a direct object, e.g. 'show.' The corresponding pair would be 'John showed the child the window' and '\*The window showed the child.' The latter is impossible, and, as far as I know, there are no English verbs that enter into such alternations. This is unexpected. Put another way, the formulation of  $\theta$ -rules in terms of grammatical relations appears to be too powerful.

Concerning Japanese reflexives, there is an example due to Kuno cited by Tonoike (1980, p. 138), in which the antecedent of a reflexive is a non-subject independent topic. Thus it might be possible to characterize Japanese reflexives as requiring a non-object antecedent. But an important question would still remain open: Why does there exist such a restriction on anaphora? Formulating the relevant principles in terms of grammatical relations yields no further understanding, as far as I can see.

I would like to propose, then, that grammatical relations are not among the building blocks from which the principles and rules of grammar are constructed. Instead, I would like to consider the possibility that in the two areas just discussed (thematic relations, reflexives), the correct building blocks are of a rather different sort.

Let a path  $P$  (in a (rooted) tree  $T$ ) be a sequence  $\{A_i\} 0 \leq i \leq n$ , of distinct nodes such that  $\forall i, 0 \leq i < n, A_i$  either immediately dominates or is immediately dominated by  $A_{i+1}$ . Let us call  $P$  an *unambiguous path* if  $P$  meets the follow-

ing condition:  $\forall i, 0 \leq i < n$ , if  $A_i$  immediately dominates  $A_{i+1}$ , then  $A_{i+1}$  is the only node in  $T$  (with the possible exception of  $A_{i-1}$ ) that  $A_i$  immediately dominates. (The comparable condition for  $A_i$  immediately dominated by  $A_{i+1}$  is trivially satisfied by the lack of upward branching in  $PS$ -trees).

I introduce the following terminology: Let  $A, B$  be two nodes in  $T$  such that neither dominates the other. Then  $A$  *p-dominates*  $B \equiv_{\text{def}}$  there exists an unambiguous path  $P$  from  $B$  to  $A$  (i.e., with  $B$  corresponding to  $A_0$  and  $A$  to  $A_n$ ). The choice of the term '*p-dominates*' is meant to emphasize a partial similarity between this relation and the dominance relation (for example, with respect to what we might call 'left-local anti-symmetry': for  $a, b, c$  distinct,  $aRc$  and  $bRc \rightarrow \text{not } (aRb \text{ and } bRa)$ ). This holds of *p-dominance* and of dominance (but not of *c-command*)).

My hypothesis is that *p-dominance*, i.e., the existence of an unambiguous path in the above sense, is a necessary condition for the antecedent-anaphor relation, as well as for the government relation that Chomsky alluded to. (From this point of view, the theory of government does not underlie the theory of binding; rather both are instantiations of what might be called a theory of *p-relations*).

From the requirement that an anaphor must be *p-dominated* by its antecedent, it follows that (in a flat  $VP$  structure), a (direct) object cannot be the antecedent of anything. On the other hand, a subject can be the antecedent of a  $NP$  contained in  $VP$ . Similarly, a topic sister of  $S$  is permitted to be an antecedent. In other words, if we think in terms of *p-dominance* (and if we attribute to Japanese a certain amount of hierarchical structure), the restrictions on Japanese reflexives mentioned above become comprehensible. We may continue to use subject and object (and topic) as convenient terms to pick out certain  $NP$ 's but the principles underlying the theory of binding will be built up directly from notions like *p-dominance*, if this approach is correct.

Since *p-dominance* has something in common with dominance, it is natural to introduce the notion of 'immediate *p-dominance*':  $A$  *immediately p-dominates*  $B \equiv_{\text{def}}$   $A$  *p-dominates*  $B$  and there is no  $C$  such that  $A$  *p-dominates*  $C$  and  $C$  *p-dominates*  $B$ . Furthermore, let us introduce the notion of *p<sup>F</sup>-dominance*, where  $F$  is some property (category):  $A$  *p<sup>F</sup>-dominates*  $B \equiv_{\text{def}}$   $A$  *p-dominates*  $B$  and  $A$  has the property (is a)  $F$ .

Combining these two, we get immediate *p<sup>F</sup>-dominance*:  $A$  *immediately p<sup>F</sup>-dominates*  $B \equiv_{\text{def}}$   $A$  *p<sup>F</sup>-dominates*  $B$  and there exists no  $C$  such that  $A$  *p<sup>F</sup>-dominates*  $C$  and  $C$  *p<sup>F</sup>-dominates*  $B$ . Informally put,  $A$  *immediately p<sup>F</sup>-dominates*  $B$  iff  $A$  is the 'closest'  $F$  that *p-dominates*  $B$ .

Set  $F = NP$ . Then we have 'immediate *p<sup>NP</sup>-dominance*,' which can be taken to be one of the building blocks of Chomsky's (1973; 1980) Specified Subject Condition. More precisely, the *basic* case of the SSC can be formulated as follows: An anaphor must have as its antecedent that element  $\alpha$  that immediately *p<sup>NP</sup>-dominates* it.

Set  $F = L = \{\text{lexical categories} + \text{COMP}\}$ . Then a first approximation of the definition of government is: An  $NP$  is governed by the element  $\alpha$  that

immediately *p<sup>L</sup>-dominates* it (cf. Chomsky's (1981a) minimal *c-command*).

Thus two of the basic constructions of binding and government theory may be formulable in terms of the building blocks I have proposed. Note in particular that the SSC would then need to make no explicit reference to the notion 'subject'; cf. Koster (1978, chapter 3).

Consider now the rule that determines the assignment of objective (accusative) Case in a language like English, French, or German. It can be formulated as follows: Assign accusative Case to a  $NP$  that is immediately *p<sup>L</sup>-dominated* by a  $V$ . Thus accusative Case assignment uses the fact that in, e.g.,  $(VP\ V\ NP)$ ,  $V$  *p-dominates*  $NP$ .

But in such a structure,  $NP$  also *p-dominates*  $V$ , i.e., here the *p-dominance* relation is symmetric. Might some rule of Case assignment not reverse the orientation imposed on the path between  $V$  and  $NP$ , and use the *p-dominance* of  $V$  by  $NP$ ? What would the result be? A natural formulation of such a rule would be the following: Assign Case  $X$  to any element  $\alpha$  that immediately *p<sup>NP</sup>-dominates*  $V$ .

Thus in ' $NP(VNP)$ ', the object receives Case  $X$ . However in ' $NP(V(PP))$ ', the subject will receive Case  $X$ . In other words, a natural Case assignment rule based on 'immediate *p<sup>F</sup>-dominance*' as a building block turns out to give exactly the kind of Case distribution found in what are called ergative languages.

If this is correct, then 'ergative-type' Case assignment (Case  $X$  is usually called 'absolutive') is virtually identical to the more familiar 'objective type.' The only essential difference lies in the choice of orientation of the  $V-NP$  path. Thinking in terms of grammatical relations made the ergative-type Case marking look unnecessarily mysterious; it was never clear why Case-marking should cut across grammatical relations in just that way.

From this point of view, we can claim to have discovered one of the parameters that the language learner must set (in those instances where the choice of orientation is not determined by universal grammar), namely, the orientation to be imposed on the  $V-NP$  paths (a given language might have rules for each orientation).

Immediate *p<sup>NP</sup>-dominance* can be used to build up a  $\theta$ -rule for a verb like 'break': Assign a certain  $\theta$ -role to that  $\alpha$  which immediately *p<sup>NP</sup>-dominates*  $V$ . This  $\theta$ -rule, unlike the earlier one defined in terms of grammatical relations, has no natural extension to verbs like 'show,' as desired (in particular, the presence of an indirect object would block the rule from applying; cf. the middle construction in English ('These books don't sell \*(to) linguists') which lends itself to a similar analysis, as opposed to passives).

If these suggestions are on the right track, then *p-dominance* is a more promising building block for the principles of universal and particular grammar than are grammatical relations.

1. Delivered at the 1980 CNRS Conference at Royaumont, subsequent to the presentation of Chomsky (1982a).

## Unambiguous Paths

In § 7.1, we introduce the notion of ‘unambiguous path’ as a replacement for that of ‘*c*-command’. In § 7.2, we explore certain consequences that ensue in the area of argument structure. In § 7.3, we adduce supporting evidence from English derived nominals. § 7.4 continues the work of § 7.3.

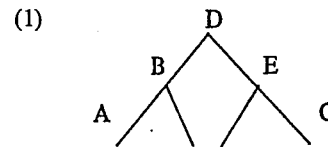
### 7.1. UNAMBIGUOUS PATHS

#### 7.1.1. Why Should There Exist a *C*-command Requirement?

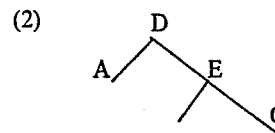
Chomsky (1980, 10, 40; 1981a; 1981b) integrates into his theory of binding the *c*-command requirement introduced into the study of anaphora by Reinhart (1976). Simplified somewhat, this means that an anaphor falling under Chomsky’s binding principles must be *c*-commanded by its antecedent, i.e., that the first branching node dominating the antecedent must also dominate the anaphor.

Our point of departure will be the question: Why should there exist a *c*-command requirement? That is, why should the first branching node dominating the antecedent have to dominate the anaphor, too? We shall consider that this question calls for an answer.

Given a configuration such as that in (1), the *c*-command requirement states in effect that the presence of the branching node B prevents A from serving as antecedent for node C:

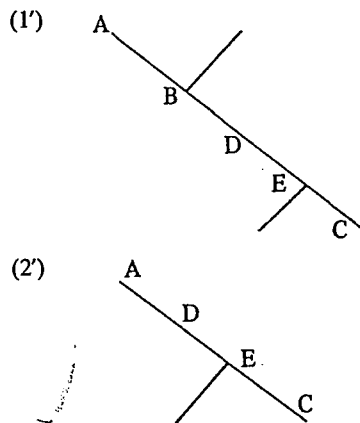


In the absence of any such B, node A of (2) is a potential antecedent for C, according to *c*-command:



Our question can be rephrased as follows: Why should B in (1) constitute a block against an antecedent-anaphor relation between A and C?

As a first step toward an answer to this question, let us consider a certain manipulation of the trees of (1) and (2) that suggests the existence of a relationship between the antecedent-anaphor relation and the standard dominance relation. We imagine a horizontal axis drawn through D in both (1) and (2), and a reflection around that axis of the part of (1) and (2) to the left of D. The result is (1') and (2'):



In (2'), A comes to dominate C, but in (1'), A does not dominate C in the usual manner. Put another way, (2) is mapped by this reflection into a phrase structure tree of normal appearance, while (1) is not.

We interpret this to mean that the relation between A and C in (2) (the licit antecedent-anaphor configuration) is 'close to' the standard dominance relation, whereas that between A and C in (1) (the illicit antecedent-anaphor configuration) is not. In § 7.1.2., we shall propose a new way of viewing the (1) vs. (2) contrast that brings out this 'closeness' to the dominance relation.

### 7.1.2. Paths

Our proposal is essentially that configurational relations in trees be thought of in terms of paths of a certain type. In particular, the antecedent-anaphor relation that falls under Chomsky's binding principles is to be thought of in terms of the path from the anaphor to the antecedent. In (2), that path (from C to A) can be written as (C, E, D, A), and in (1) as (C, E, D, B, A). If we think of a device starting at C and tracing out a path, we can make the following observations: In both (1) and (2), the path from C to A has an (initial) upward part followed by a downward part. Consider first this upward part (C, E, D). We notice that starting from C, we have no choice as to where to proceed; the only adjacent node is E. At E, there is a choice between D and the unlabeled

node dominated by E. However, this choice exists only insofar as we have freedom of direction. If we fix a direction (upward; downward), then at E, there is no choice. In general, given the basic fact that a phrase structure tree has no upward branching ( $* \nabla$ ), there will never be any choice if the direction is specified to be upward.

Let us call a path such as (C, E, D), in which specification of direction insures that no choice need be made concerning how to proceed, an *unambiguous path*. Then every uniformly upward path in a phrase structure tree is unambiguous, in this sense.

Consider again the path (C, E, D, A) in (2). Is it unambiguous? Apparently not, since at D, there is a choice between A and E, even after the direction has been specified as downward. However, it is natural to say that once D is reached, E should no longer be taken into account, since it has already been traversed. Thus, discounting E as a potential continuation from D, the path (C, E, D, A) in (2) is unambiguous.

Discounting, for the purposes of determining 'ambiguity', nodes already used does not, on the other hand, suffice to make the path (C, E, D, B, A) in (1) unambiguous. This is so, since at B, there is a downward choice between two nodes (one A and one unlabeled), both of which are so far unused. Thus (C, E, D, B, A) in (1), while a well-formed path, is not an unambiguous path.

The path from C to A is unambiguous in (2), which is an instance of a licit antecedent-anaphor relation between A and C. The path from C to A is not unambiguous in (1), which is an instance of an illicit antecedent-anaphor relation between A and C. This leads directly to the following (which allows us to dispense with the *c*-command requirement):

- (3) An anaphor that falls under the binding principles must be connected to its antecedent by an unambiguous path.

This unambiguous path requirement seems more natural than the *c*-command requirement it replaces.

The relationship with dominance brought out in § 7.1.1 is now seen to be that both 'A is an antecedent under the binding principles for the anaphor C' and 'A dominates C' are relations mediated by unambiguous paths (from C to A). For 'A dominates C', the unambiguous path from C to A is uniformly upward; for the antecedent-anaphor case, the unambiguous path from C to A has an initial uniformly upward part, followed by a final uniformly downward part.

### 7.1.3. Definition of Unambiguous Path

Before going on to consider certain consequences of replacing *c*-command by unambiguous paths, we briefly give a more precise statement of the notions of the preceding section.

Let a path P (in a phrase structure tree T) be a sequence of nodes  $(A_0 \dots A_i, A_{i+1} \dots A_n)$  such that:

- (4) a.
- $\forall i, j \ 0 \leq i, j \leq n \ A_i = A_j \rightarrow i = j$

(P is a sequence of distinct nodes; we want to exclude from consideration paths that double back on themselves.)

- b.
- $\forall i \ 0 \leq i < n \ A_i$
- immediately dominates
- $A_{i+1}$
- or
- $A_{i+1}$
- immediately dominates
- $A_i$

(A path is a sequence of adjacent nodes.)

An unambiguous path in T is a path  $P = (A_0 \dots A_i, A_{i+1} \dots A_n)$  such that:

- (5)  $\forall i \ 0 \leq i < n$
- a. if  $A_i$  immediately dominates  $A_{i+1}$ , then  $A_i$  immediately dominates no node in T other than  $A_{i+1}$ , with the permissible exception of  $A_{i-1}$
- b. if  $A_i$  is immediately dominated by  $A_{i+1}$ , then  $A_i$  is immediately dominated by no node in T other than  $A_{i+1}$ , with the permissible exception of  $A_{i-1}$

(Informally put again, an unambiguous path is a path such that, in tracing it out, one is never forced to make a choice between two (or more) unused branches, both pointing in the same direction). For expository purposes, we have kept (5a) separate from (5b), although they are clearly one condition. The proviso about  $A_{i-1}$  will never come into play with (5b), given the lack of upward branching in phrase structure trees, but is left in for symmetry.

#### 7.1.4. Replacement of C-command

If we are correct in replacing *c*-command in the binding principles by (3), we might expect an unambiguous path requirement to replace *c*-command wherever the latter occurs. For example, we should interpret Chomsky's (1981b) Empty Category Principle, under the reformulation of chapter 3 above, as requiring (among other things) that an empty category be connected to its antecedent by an unambiguous path.

Furthermore, *c*-command has been taken as a necessary condition for the government relation (in configurational languages) by Chomsky (1980, 25) and by Rouveret and Vergnaud (1980, 102). This leads to the following proposal:

- (6) A governs B only if there is an unambiguous path from B to A.

## 7.2. EMPIRICAL CONSEQUENCES FOR ARGUMENT STRUCTURE

### 7.2.1. Binary Branching

The question now arises as to whether, apart from the conceptual differences between *c*-command and the notion of unambiguous path, there are empirical consequences to the adoption of the unambiguous path requirement on binding, the ECP, and government. In this article, we shall consider only the last.

Unambiguous paths and *c*-command differ sharply, with respect to the set of configurations picked out, whenever there is *n*-ary branching,  $n > 2$ :

(7)



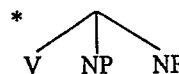
In (7), each of A, B and C *c*-commands the other two, but none of them is connected to either of the other two by an unambiguous path. (For example, the path from B to A, i.e. (B, D, A), is not unambiguous by virtue of the presence of C.)

From this, it follows, given the unambiguous path requirement on government, that *n*-ary branching,  $n > 2$ , can exist, at a given level of representation, only if none of the *n* sister nodes in question needs to govern anything, at that level. Assume that government (like binding and the ECP) comes into play at LF. Then there must be much less *n*-ary branching,  $n > 2$ , in LF than is often thought, if our proposal about unambiguous paths is correct.

### 7.2.2. Give [*Mary a book*]

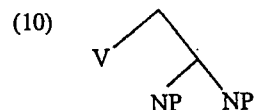
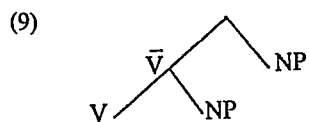
Consider a V in English such as 'give', which is subcategorized for two NP complements: V NP NP. These NP's must receive Case from V and must therefore be governed by V. The unambiguous path requirement on government has (unlike *c*-command) the consequence that the structure given in (8) is impossible (at the relevant level):

(8)



In (8), neither NP could be governed by V, since there is no unambiguous path from either to V.

The two remaining possibilities are (9) and (10):



(9) would require that the second NP receive objective Case from the constituent [ $\bar{V}$  V NP], rather than from V. This seems implausible on the face of it, and to modify the theory of Case (v. Chomsky (1980, 25)) to allow it would appear not to yield sufficient compensation.

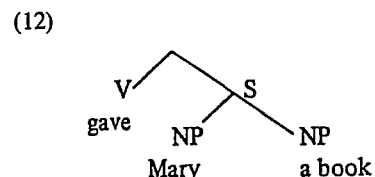
If this is true, then the unambiguous path requirement on government implies that (10), in which there is, from either NP, an unambiguous path to V, is the correct structure. The remainder of this article will attempt to corroborate this conclusion.

### 7.2.3. *Resemblance to believe* [Mary a genius]

How are we to interpret the conclusion that (10) is the most appropriate structure for 'V NP NP'? Consider an example:

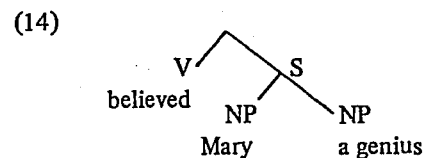
(11) John gave Mary a book

By our reasoning, the VP must have more internal structure (at some level of representation, which we are taking to be LF - cf. Chomsky (1980, 17-18)) than meets the eye:



The most plausible label for the node dominating the two NP's is S, as shown. Thus (11) resembles to a certain extent (13), with the associated structure (14):

(13) John believed Mary a genius



This resemblance is significant, in our opinion. We suppose (13) to be an instance of the embedding under 'believe' of a constituent of type S. More specifically, this embedded S should be the same kind of S as that found in Russian 'be'-less copula sentences:

(15) Ivan student ('Ivan is a student')

In Russian, such sentences can occur unembedded, or embedded under *što* ('that'), or embedded without a complementizer as in (13) (cf. Chvany (1975, 188, 254)). Let us say, then, that Russian and English differ, not with respect to the existence of the construction (15), but only with respect to the range of environments in which it can occur.

Now Russian also has a verbless construction whose translation in English would contain 'have' (cf. Chvany (1975, 107, 145-6, 250, 252-3, 268-9)):

(16) u Ivana krasivye glaza  
by Ivan pretty eyes  
'Ivan has pretty eyes'

Despite its form, the phrase 'u Ivana' acts in certain ways like a subject phrase (cf. Timberlake (1976; 1979, note 5)). This suggests the proportion '(15):(13)::(16):(11)'. More precisely, we hypothesize that the embedded S in (11)/(12) has a subject NP whose thematic role is the same as that of *Ivan* in (16) and an object NP whose thematic role is that of *krasivye glaza*. Put another way, the thematic roles of the embedded NP's in (11) correspond to those of the two NP's in 'John has blue eyes'.

We do not claim there to be an embedded abstract 'have' in (11).<sup>1</sup> In fact, if the tense in (16) were to call for a verb, that verb would be the Russian 'be', not a Russian 'have'. Thus, while we may well want to postulate an abstract verb-like element in (11), it should rather be one neutral between 'be' and 'have' (cf. Bach (1967)); in effect, the thematic relations should probably bear the brunt of the task of interpretation.

Following in essentials Benveniste (1966, chap. 13), we assume that (15), and hence (13), is not merely a superficial variant of a corresponding sentence with overt copula. In other words, our analysis does not carry the expectation that (13) and (17) are equivalent in interpretation (cf. Borkin 1973)):

- (17) John believed Mary to be a genius

We assume (13) and (17) to differ at LF at least in the 'be' vs. non-'be' contrast, and probably also in that (17), but not (13), has COMP and INFL.<sup>2</sup>

Just as (13) and (17) are not equivalent in interpretation, we would not expect (11) and (18) to be (cf. Fodor (1970) and Ruwet (1972, chap. 4)):

- (18) John caused Mary to have a book
- 
- John let Mary have a book

(Here, there is also a difference in the matrix verb – cf. note 1). However, by treating (11) as bisentential, we do create the expectation that it will behave on the whole like (18) with respect to binding:

- (19) John gave Mary a picture of himself
- 
- (20) John let Mary have a picture of himself

To us, these two have the same status (both acceptable). Both require relaxing the strictest interpretation of Opacity (cf. Chomsky (1980, 13, 40)), but this is a known phenomenon in causative constructions:<sup>3</sup>

- (21) Why are they letting the honey drip on each other's feet?

The same holds for French – cf. Kayne (1975, sect. 4.8) and Rouveret and Vergnaud (1980, sects. 4-8).

If a 'be'-less copula sentence can be embedded under 'believe' and a 'have'-less 'have'-like sentence under causative 'give', one might wonder about the other two combinations. One, the embedding of a 'be'-less copula sentence under a causative, is familiar:

- (22) John made Mary unhappy
- 
- His disappearance made it obvious that he was the culprit

The other, i.e. 'have'-like under 'believe', doesn't exist in English, but does in French (examples from Ruwet (1982, chapter 5)):<sup>4</sup>

- (23) Je lui croyais une maîtresse dans chaque port
- 
- (‘I thought him a mistress in every port’)
- 
- Pierre se croit des ennemis partout
- 
- (‘Pierre believes himself enemies everywhere’)

## 7.3. DERIVED NOMINALS

The aim of the preceding section was to sketch briefly and to make plausible

a 'V [NP NP]' analysis for 'V NP NP'. In § 7.3, we attempt to show that such an analysis is supported by empirical considerations in the domain of (English) nominalizations. We shall be primarily concerned with derived nominals, and in particular with the following question: Why do certain types of sentences have derived nominal counterparts, and others not?

7.3.1. *By Phrases and Empty Objects*

Chomsky (1970, 204) discusses one type that does, namely simple passives such as 'The city was destroyed by the enemy':

- (24) the city's destruction by the enemy

Emonds (1976, 66, 96) gives 'Germany's defeat by Russia', 'the offer's acceptance by John', 'John's arrest by the police'. Wasow (1977, 348) gives 'John's rejection by Harvard', 'Mary's dismissal by the school board', 'our acquittal by the jury', 'his enlightenment by the guru'. We add a number of examples of our own:

- (25) We all feared his betrayal by the Party
- 
- We were all awaiting its perusal by Mary
- 
- Its removal by Mary signified that ...
- 
- Her renewal by the Board was foreordained
- 
- Its retrieval by John won't be easy
- 
- The decision's reversal by the presiding judge came as a surprise to us all.
- 
- The play's revival by the NET is favored by all
- 
- (26) Everyone is calling for the new law's adoption by the Senate
- 
- Everyone condemned Kennedy's assassination by Oswald
- 
- Everyone is calling for their canonization/consecration by the Church
- 
- Greenland's colonization by the Danes took place centuries ago
- 
- Their confiscation by the authorities caused a scandal
- 
- Its contamination by a dangerous bacterium was what ...
- 
- His overly rapid cremation by the authorities caused a scandal
- 
- The value's determination by Gauss ended years of speculation
- 
- Its formalization by Gauss led immediately to further breakthroughs
- 
- During the course of its digestion by worms, chlorophyll ...
- 
- The microbe's identification by Pasteur led to a major breakthrough
- 
- Uganda's invasion by Tanzania caused little stir
- 
- Its omission by Bill is surely significant
- 
- We are all in favor of its popularization by the media
- 
- Its purification by Lavoisier came as a landmark in the history of chemistry

Everyone is calling for the treaty's ratification by the US  
 Everyone is calling for Mary's sanctification by the Church  
 The Party's subversion by X disappointed many believers  
 Her vilification by the council was unwarranted

- (27) How can one not condemn a child's abandonment by its parents?  
 Its annulment by the authorities came as a surprise  
 John's arraignment by the magistrate took place at noon  
 At first, noone was aware of Iran's bombardment by Syria  
 Their harassment by the Secret Service was unjustified
- (28) Mary's capture by the pirates took place yesterday  
 They are all calling for John's censure by his superiors  
 Its erasure by the authorities caused quite a scandal

In our judgment, the pre-N 'NP's' of (24) – (28) do not, in the general case, alternate with a post-N 'of NP's' (unlike 'John's car' – 'a/that/any car of John's):

- (29) \*any destruction by the enemy of the city's  
 \*that arrest of John's by the police  
 \*any acquittal by the jury of ours  
 \*any betrayal of his by the Party  
 \*a reversal by the presiding judge of the decision's  
 \*a revival by the NET of the play's  
 \*this adoption by the Senate of the new law's  
 \*that assassination by Oswald of Kennedy's  
 \*We would be against any canonization of theirs by the Church  
 \*Any confiscation by the authorities of theirs would cause a scandal  
 \*any overly rapid cremation by the authorities of John's  
 \*that identification by Pasteur of the microbe's  
 \*Any invasion by Tanzania of Uganda's will meet with resistance  
 \*No ratification of the treaty's by the US can be expected  
 \*Sanctification by the Church of Mary's is unlikely  
 \*Any subversion of the Party's by X will be opposed  
 \*All that vilification by the council of poor Mary's was unwarranted  
 \*Any arraignment of John's by the magistrate must have prior approval  
 \*This abandonment of John's by his former friends is just vile  
 \*Any bombardment by Syria of Iran's will be condemned by the UN  
 \*Harassment of John's by the Secret Service is unnecessary  
 \*That capture by the pirates of hers was inevitable  
 \*Immediate censure of John's by his superiors is desirable

Our analysis is as follows: (24)-(28) have the standard trace theory representation:  $[NP's]_i$  N  $[NP_i e]$  by NP, e.g. '[the city's]<sub>i</sub> destruction  $[NP_i e]$  by the

enemy'. This representation is well-formed. That of (29) is: Det N  $[NP_i e]$  by NP of  $[NP's]_i$ . The empty category here in (29) is in violation of the ECP as formulated in chapter 3 (47), since the empty category is not *c*-commanded by (more precisely now: there is no unambiguous path from the empty category to) its antecedent  $[NP's]_i$ , because of the presence of 'of', which we assume to be present in LF, in the case of 'of NP's'. The empty category in (24)-(28) is licit, since there is no interfering 'of'. (We assume 's to be under the NP node (unlike 'of') in LF).

Note that it would not be possible for (29) to evade the ECP through the use of an intermediate trace in determiner position:  $[NP_i e]$  harassment  $[NP_i e]$  of  $[NP_i$  John's]. In such a structure, the trace to the right of the N would be properly bound by that in determiner position, but the latter would itself be in violation of the ECP, again because of the 'of'. In the same way, it follows that in (30), there can be no trace in determiner position:

- (30) this harassment of her of yours

In other words, the understood subject relation between 'you' and 'harassment' is not directly represented in LF (unless: 'this harassment<sub>j</sub> of her of yours  $[N_i$  PRO] – cf. Dresher and Hornstein (1979)), contrary to the object relation in (24)-(29).

That a subject-verb relation need not be represented in the derived nominal in a way that is completely parallel to the subject-verb phrase configuration in S is of course indicated by (31), as well as by (24)-(28):

- (31) any attempt on the part of John to...

That there is a subject-object asymmetry with respect to the need for a canonical syntactic configuration is also supported by the following:

- (32) The Russian bombardment of Iran will be condemned  
 The Tanzanian invasion of Uganda is imminent
- (33) \*?The Iranian bombardment by Russia will be condemned  
 \*?The Ugandan invasion by Tanzania is imminent

Whereas (32) is easily interpreted as comparable to 'Russia's bombardment of Iran', 'Tanzania's invasion of Uganda', (33) does not seem at all parallel to 'Iran's bombardment by Russia', 'the invasion of Uganda by Tanzania'.

We attribute the deviance of (33) to the fact that the object relation must be represented in LF as 'N (of) NP', combined with the fact that an adjective cannot bind a NP trace: '\*the Iranian<sub>i</sub> bombardment  $[NP_i e]$  by Russia'. It must be the case, then, that in (32), the adjectives bind no trace in determiner (or any other) position, i.e., that the subject of 'bombardment' and 'invasion' need not be represented by NP (although the object must be).

We have so far been using only examples with full passives, i.e. with an



overt 'by'-phrase, in (24)-(29) and (33). It seems that in various domains (cf. Dowty (1978, 422-3) and the discussion of adjectives in -able below) the presence vs. absence of the 'by'-phrase is important. For example, the generalization reflected in (29), which continues Chomsky's (1970, 202-7) observations concerning 'picture'-nouns (though without the need for rule ordering), is noted by Stockwell, Schachter and Partee (1973, 682) to admit of certain exceptions:

- (34) That promotion of mine has been delayed again  
Which defeat of Stevenson's are you talking about?

These seem less good with a 'by'-phrase:

- (35) ??That promotion of mine by the Ministry has...  
??That promotion by the Ministry of mine has...  
??Which defeat of Stevenson's by Eisenhower...  
??Which defeat by Eisenhower of Stevenson's...

This suggests that the presence of the 'by'-phrase strengthens the requirement that the object be represented by an NP. In the absence of a 'by'-phrase, certain N's may be able to do without that NP node, and hence not need an antecedent for it in determiner position.

The contrast between (34) and (29) can be related to that between (36) and (33):

- (36) One more French defeat and Napoleon will be sacked!

Again, a 'by'-phrase diminishes acceptability:

- (37) ??One more French defeat by Russia and...

We conclude that 'defeat' and 'promotion' (cf. 'debacle' and 'award') can occur without an NP object in (34) and (36).<sup>5</sup>

A relationship between the presence of a 'by'-phrase and the presence of a syntactic representation for an object ((34) and (36) having neither, (24)-(29) having both) is also visible, if we are correct, in the domain of forms in '-able'. Consider (38) (from McCawley (1975), with (38b) due to Ross):

- (38) a. This book is readable by a 10-year old  
b. The existence of stranded prepositions is not accountable for under Schwartz's assumptions.

In the same spirit, we would even tend to accept (39):<sup>6</sup>

- (39) ?Prisoners are sendable linguistics books under certain conditions.

(but not '\*Linguistics books are sendable prisoners').

Our interpretation of this construction is that it is comparable to the passive, in that it contains a trace: 'This book<sub>i</sub> is readable [<sub>NP</sub> e]<sub>i</sub> by a 10-year old.' This allows bringing together (40) and (41) on the one hand versus (42) and (43) on the other:

- (40) The city's destruction by the enemy is imminent  
(41) Its readability by a ten-year old is not at issue  
(42) \*Mary's reference to by the lecturer shocked everyone  
(43) \*Its accountability for under Schwartz's assumptions is not at issue

(42) and (43) are, given the trace, both excludable by the ECP - cf. § 3.2.3.

Of special interest are certain forms in -able for which a trace-based syntactic analysis is implausible, since there would be a preposition lacking (examples from Zandvoort (1965, 310)):

- (44) Mary is reliable (cf. 'rely on')  
That is not available (cf. 'avail oneself of')  
That is indispensable (cf. 'dispense with')  
That is unobjectionable (cf. 'object to')

Also (from Marchand (1969, sect. 4.2.5)): 'dependable', 'disposable' 'laughable'.

The essential point is that these are all incompatible with a 'by'-phrase:

- (45) \*Mary is reliable by a ten-year old  
\*That is not available by minors  
\*That is indispensable by anybody  
\*That is (un)objectionable by anyone  
\*Mary is dependable by her students  
\*Paper plates are easily disposable even by children  
\*Mary's project is laughable by anyone in power

Compare (46):

- (46) Mary is trustable by a ten-year old  
That is not gettable by minors  
French lessons are dispensable with by most people  
That is deniable by any intelligent person  
Paper plates are easily burnable even by children  
Mary's project is mockable by anyone in power

Similarly, (41) contrasts with 'Mary's dependability (\*by her children)', etc.

Our conclusion is that -able forms (and the corresponding derived nominals) enter into two different types of derivation. One involves a representation in LF with a trace, is compatible with a 'by'-phrase, and often has a colloquial flavor. Another involves a higher degree of lexicalization: the thematic role corresponding to the associated verb need not be assigned to an NP governed by A, the preposition of the associated verb is dropped,<sup>7</sup> a 'by'-phrase is impossible,<sup>8</sup> and there is no colloquial flavor.

To sum up this section, the -able forms of (44) govern no trace, and this property is shared by (34) and (36). The derived nominals which do have a trace governed by N must have that trace connected to its antecedent by an unambiguous path, a condition met in (24)-(28), but not in (29).

### 7.3.2. *N Cannot Govern Across a Boundary*

In § 7.3.1 we saw, in (24)-(28), a series of derived nominals all corresponding to (not the same as 'derived from' – cf. Chomsky (1970)) simple passives. The trace governed by N is connected to its antecedent as required by the ECP. Let us now begin to look at sentence types with traces whose corresponding derived nominals are ill-formed.

Consider the examples in (47), which plausibly involve 'subject to subject raising':

- (47) Mary appears to have left  
 She proved to be a good companion  
 It is likely not to be there  
 Your book is certain to be a success

The corresponding derived nominals are ungrammatical:

- (48) \*Mary's appearance to have left  
 \*her proof to be a good companion  
 \*its likelihood not to be there  
 \*your book's certainty to be a success

Postal (1974, sect. 10.2) has argued that (49) contrasts minimally with (48):

- (49) Bob's tendency to lie to the authorities

Recast in terms of trace theory, Postal's claim is that the structure '[NP's]<sub>i</sub> N [<sub>S</sub>COMP [NP<sub>i</sub> e] to...]' is appropriate and viable for N = 'tendency', despite its not being viable for the N's of (48). However, Postal (1974, 332) notes the existence of (50):

- (50) that/a tendency of Bob's to lie to the authorities

By our reasoning concerning (29), (50) cannot have an empty category in

embedded subject position, since there is no unambiguous path from there to the desired antecedent 'Bob's'. Consequently, (50) must contain PRO in embedded subject position, instead, much as in (31); in which case, (49) can contain PRO, too. We conclude, in agreement with Chomsky (1977, note 47) and Baker (1978, 450-2), that (49) is but an apparent exception to the generalization implicit in (48).<sup>9</sup>

What then is the reason for the contrast between (48) and (24)-(28)? Why are there derived nominals corresponding to simple passives, but not to (47)? The answer here cannot be in terms of *c*-command/unambiguous paths, since in that respect there is no difference between (48) and (24)-(28).

Our hypothesis is, rather, that it is the presence of a sentence boundary between the empty category and N in (48) that creates a violation of the ECP. The ECP requires, apart from the cases of direct government of an empty category by its antecedent (which is not at issue in any of our examples), that the empty category be governed by a lexical category some projection (more exactly: percolation-projection – cf. § 3.2.1) of which contains the antecedent. What is relevant to (48) is the requirement of government by a lexical category.

We propose that the category N has the property that it, unlike the category V (cf. note 17), can never govern across a sentence boundary. Therefore, (48) is in violation of the ECP, since the empty category subject of the embedded S is ungoverned. In (24)-(28), on the other hand, no S boundary separates the empty category from N, so that the desired government of the empty category by N does hold.

This account of (48) extends directly to a set of passives that, contrary to (24)-(28), have no corresponding derived nominal:

- (51) Mary is believed to have left by John  
 She is acknowledged by her superiors to be quite clever  
 He is reported by a good source to have made a killing on the stock market  
 His article is assumed to contain several errors by the editor  
 Your book was judged by the Board to be of little interest  
 Mary has been known by John to tell lies  
 She is supposed by her superiors to be capable of good work  
 She is thought by her colleagues to be in Paris  
 The baby is estimated to weigh about 8 pounds by the doctor.

- (52) \*Mary's belief to have left by John  
 \*her acknowledgement by her superiors to be quite clever  
 \*his report by a good source to have made a killing  
 \*his article's assumption to contain several errors by the editor  
 \*your book's judgment by the Board to be of little interest  
 \*Mary's knowledge by John to tell lies  
 \*her supposition by her superiors to be capable of good work  
 \*her thought by her colleagues to be in Paris  
 \*the baby's estimation to weigh about 8 pounds by the doctor

The verbs of (51) take  $\bar{S}$ -complements: 'V  $\bar{S}$ '. The passivized NP corresponds to the subject of the embedded  $\bar{S}$ . The 'V  $\bar{S}$ ' structure, as well as the absence of any 'raising' operation, is supported sharply by a comparison of English and French, as argued in chapter 5. The structure of (52) can therefore be represented as '[NP's]<sub>i</sub> N [ $\bar{S}$ ... [NP<sub>i</sub> e] to... ]'. Since N cannot govern across  $\bar{S}$ , the empty category is governed by no lexical category and is in violation of the ECP. The contrast between (52) and (24)-(28) thus illustrates clearly the central role of the sentence boundary in determining ungrammaticality.

A third type of sentence having no derived nominal is (53) (cf. Chomsky (1970)):

- (53) John is easy/difficult/tough to please  
Mary is pretty/beautiful to look at
- (54) \*John's easiness/ease/difficulty/toughness to please  
\*Mary's prettiness/beauty to look at

Again, there is an empty category contained within a sentence not containing the required antecedent. The structure of (54) is '[NP's]<sub>i</sub> N [ $\bar{S}$ ... V (P) [NP<sub>i</sub> e]]'. If Chomsky's (1977) analysis of these constructions is correct, then there is also an empty category in COMP (cf. § 3.2.3), which empty category is un-governed (and hence an ECP violation), since N cannot govern across  $\bar{S}$ . If Chomsky's (1977) analysis is incorrect, then the only empty category in question is that which is the object of 'V (P)'. Although it is governed by a lexical category, no percolation projection of that lexical category contains the required antecedent, assuming that N cannot percolate an index down to  $\bar{S}$ , so that the ECP violation remains.<sup>10</sup>

We note that this analysis of (54), (52), (48) vs. (24)-(28) answers a (correct) criticism of Chomsky (1970) made in Ross (1974, sect. 3.5.2), namely that Chomsky's (1970) account of (54) and (48) was incomplete, in that there was no reason given for the inability of those two kinds of 'raising' to generalize to within NP's, as the leftward half of passive did in cases such as (24)-(28). Our answer, within the general framework of the lexicalist hypothesis and of trace theory, is that all (movement) rules generalize to within NP's, but that the outputs of some will run afoul of a very general principle determining the distribution of empty categories.<sup>11</sup>

An ECP account of (54), (52), (48) does not prohibit the existence of 'NP's N [ $\bar{S}$  NP to VP]', if NP is PRO, rather than an empty category. Thus (55) is correctly permitted:

- (55) John's eagerness to please

Similarly, this structure is admissible for N = 'demand', 'desire', 'intention', 'offer', 'promise', 'request', 'wish', 'aspiration(s)', 'decision', 'lust', 'plea', 'plot', 'struggle', 'threat', 'thirst', 'failure', 'haste', 'refusal', 'freedom', '(in)ability', 'reluctance', 'hesitation', 'inclination', 'anxiety', 'resolution', 'determination', 'agreement', 'willingness', 'attempt'.<sup>12</sup>

The admissibility of (55) as a function of the presence of PRO does not lead to excessive elasticity, in the sense of incorrectly allowing (54) with PRO instead of [e] for some N, because PRO is prohibited from object position by Chomsky's (1981a,b) binding principles.

The construction of (53)-(54) contrasts minimally with (56)-(57), as well as with (55):

- (56) John needs your help  
John successfully avoided Bill's criticism
- (57) John's need for your help  
John is in need of your help  
John's successful avoidance of Bill's criticism

The examples of (56) seem to be instances of an understood object of 'help', 'criticism' whose antecedent is 'John' (construction noted by Lakoff and Ross (1977, 2)<sup>13</sup>), and in this respect seem to resemble (53). Yet the derived nominals of (57) are well-formed, contrary to (54). By our reasoning, they can therefore not contain an empty category as object of 'help', 'criticism', nor could such an object be PRO. The same presumably is true, then, of (56). Thus (56) and (57) must be like (44), (36) and (34) in not having an object represented as NP. This correlates with (58) and (59), which are missing a preposition, just like (44):

- (58) John needs your response  
John successfully avoided Mary's anger

(cf. 'respond/response to', 'angry/anger at')

### 7.3.3 *Further Instances of V [NP XP]*

The ECP account presented in § 7.2.2 of (54), (52), (48) vs. (24)-(28) depended crucially on the presence of a sentence boundary in the former group vs. the absence of a comparable boundary in the latter. Taking in particular (52) (\*John's belief to have left by Mary') vs. (24)-(28) ('the city's destruction by the enemy'), both of which are derived nominals corresponding to passive sentences, we see that the ungrammaticality of the former is due to its involving the movement of a NP from within a lower  $\bar{S}$ . Extrapolating now, we would expect that, in general, derived nominals corresponding to passives will not exist if the passive sentences are akin to (52) in containing an embedded sentence.

We claimed in § 7.2.3 that sentences such as (13) ('John believed Mary a genius') contain an embedded S whose subject is 'Mary'. The same must then hold true of (59), where the embedded subject is the trace of 'Mary':

- (59) Mary was believed a genius by John

Consequently, the ECP, combined with the inability of N to govern across  $\bar{S}$  or S, accounts for the absence of a corresponding derived nominal:<sup>14</sup>

- (60) \*Mary's belief a genius by John  
 \*her assumption dangerous by the police  
 \*his judgment well-adjusted by the psychiatrist  
 \*her thought pretty by Tom and Bill  
 \*her consideration a genius by her superiors

That (60) can be accounted for in the same way as (52) (\*Mary's belief to be a genius by John) is not surprising. Now we argued in § 7.2.3 that double object verbs like 'give' [V NP NP] must, as a consequence of the unambiguous path requirement on government, be analyzed as 'V [ $\bar{S}$  NP NP]'. Hence the corresponding passive will also have an embedded S, just as in the case of (59), with an empty category in subject position. Examples of such passives are given in (61):

- (61) Mary was given the letter by her teacher  
 She was offered a crayon by her classmate  
 We were sold that defective car by this salesman  
 John has been rented office space by a friend of his  
 He was tossed the ball by the coach  
 He was administered a beating by the older kids  
 You were loaned that bicycle by your cousin  
 He was ordered a meal by the nurse  
 John was assigned a tutor by the administration  
 He was allowed some free time by the sergeant  
 We were bequeathed a sum of money by an aunt  
 You have been allotted a large office by the Dean  
 She was wished a Merry Christmas by all her friends  
 He is envied his happiness by all his colleagues  
 He was refused an office by the Dean  
 They were denied the right to vote by the registrar  
 He has been conceded a great deal of freedom by the administration

For example, the structure of the first example under our hypothesis is 'Mary<sub>i</sub> was given [ $\bar{S}$  [NP<sub>i</sub> e] a pencil] by her teacher'.

The existence of that embedded S node, combined with the ECP and the inability of N to govern across S or  $\bar{S}$ , explains the ungrammaticality of (62):<sup>15</sup>

- (62) \*Mary's gift of the letter by her teacher  
 \*her offer of a crayon by her classmate  
 \*our sale of that defective car by this salesman  
 \*John's rental of office space by a friend of his  
 \*his toss of the ball by the coach

- \*his administration of a beating by the older kids  
 \*his order of a meal by the nurse  
 \*John's assignment of a tutor by the administration  
 \*his allowance of some free time by the sergeant  
 \*our bequest of a sum of money by an aunt  
 \*your allotment of a large office by the Dean  
 \*her wish of a Merry Christmas by all her friends  
 \*his envy of his happiness by all his colleagues  
 \*his refusal of an office by the Dean  
 \*their denial of the right to vote by the registrar  
 \*his concession of a great deal of freedom by the administration

((62) is of course bad for an additional reason if the 'of' is dropped, that having to do with Case (since N can't assign Case, the NP in question would violate Chomsky's (1980, 25) Case filter<sup>16</sup>.) Now we might try to account for (62) solely via some condition on the rule of 'of'-insertion (genitivization), but that doesn't seem promising, on the one hand because many of the other facts we have seen and will see show that such an approach would be too narrow, and on the other because of the wellformedness of (61), where Case is successfully assigned to the corresponding NP complement of the past participle.<sup>17</sup> We conclude that the explanation for (62) depends crucially on the existence of an embedded S.

We note in passing that (62) contrasts minimally with certain other derived nominals which correspond successfully to sentences whose thematic relations would seem to mimic those of (61):

- (63) John received the letter  
 He lost the right to vote  
 He inherited a sum of money  
 He possesses a large estate  
 He owns a defective car

These are quite close to (61), especially to the examples with 'give', 'deny', 'bequeath', 'sell'. Yet the derived nominals based on (63) are well-formed:

- (64) John's receipt of the letter  
 his loss of the right to vote  
 his inheritance of a large sum of money  
 his possession of a large estate  
 his ownership of a defective car

The reason is that the verbs of (63) have a single NP complement, whereas those of (61) have two. Having two, they are forced by the unambiguous path requirement on government to organize those two NP's as arguments of an embedded S.<sup>18</sup> There is no such S in (63) (put another way, the subject NP in (63) binds no trace).

Williams (1974, 44) suggests a parallel between 'give NP NP' and 'rob NP of NP', and hence, implicitly, between (61) and (65):

- (65) Mary was robbed of her money by John  
 She was cured of her cold by the doctor  
 She was depleted of her resources by the disease  
 John was acquitted of the crime by the judge  
 They were deprived of their right to vote by the President  
 They were divested of their jewelry by the robbers  
 We were dispossessed of our property by the new law  
 They were purged of their sins by the priest  
 He was absolved of his sins by the priest  
 He was exonerated of any wrongdoing by the judge  
 It was drained of water by the engineer

To our ear, the corresponding derived nominals are ill-formed, like those of (62):

- (66) \*Mary's robbery of her money by John  
 \*her cure of her cold by the doctor  
 \*her depletion of her resources by the disease  
 \*John's acquittal of the crime by the judge  
 \*their deprivation of their right to vote by the President  
 \*their divestment of their jewelry by the robbers  
 \*our dispossession of our property by the new law  
 \*their purge of their sins by the priest  
 \*his absolution of his sins by the priest  
 \*his exoneration of any wrongdoing by the judge  
 \*its drainage of water by the engineer

In much of (65), the 'of'-phrase is optional. It seems to us that the corresponding derived nominals, without the 'of'-phrase, are clearly better than (66):<sup>19</sup>

- (67) Mary's robbery by John  
 her cure by the doctor  
 John's acquittal by the judge  
 his exoneration by the judge  
 its drainage by the engineer

The ungrammaticality of (66) follows from the ECP combined with the inability of N to govern across S, if 'V NP of NP' in (65) has the structure 'V [S NP of NP]'. The contrast with (67) is straightforward if (67) simply has no 'of NP' constituent at all, and hence no need for an embedded S, much as in the discussion of (64) (again, despite the fact that the (thematic) relation between 'Mary' and 'robbery' is the same in (67) as in (66)).

Although (65) has something in common with (61), it may have as much or more in common with (68):

- (68) Mary was presented with a medal by the organizing committee  
 She was provided with a new valise by her parents  
 She was credited with the money by the bank  
 She was familiarized with the library by the librarian  
 We were supplied with the necessary information by the tourist office  
 John was served with a summons by the official

To our ear, the derived nominals corresponding to (68) are again ill-formed:

- (69) \*Mary's presentation with a medal by the organizing committee  
 \*her provision with a new valise by her parents  
 \*her credit with the money by the bank  
 \*her familiarization with the library by the librarian  
 \*our supply with the necessary information by the tourist office  
 \*John's service with a summons by the official

As with (66) and (62), this follows if the construction of (68) has the structure 'V [S NP with NP]'.<sup>20</sup>

What are we to make of this structure? Some of the verbs of (68) also enter more or less naturally into the 'V NP NP' structure, e.g. 'They supplied us (with) the information'. The two possibilities are quite close semantically. Speculating somewhat, we suggest the following proportion: 'V NP with NP': 'V NP NP': embedded antipassive: embedded ergative. More specifically, there is in certain languages an alternation such that, for a given verb taking subject and object, one can have either 'NP<sup>S</sup> ergative NP<sup>O</sup> absolutive V' or 'NP<sup>S</sup> absolutive NP<sup>O</sup> oblique V' (cf. Postal (1977)), where NP<sup>S</sup> is the subject and NP<sup>O</sup> the object. For 'V NP NP' in English, with V = 'give', etc., we proposed 'V [S NP NP]', with the first NP, the subject, being comparable to what in Russian is a PP. Let us suppose that that pattern in Russian, and by extension, in English, is a verbless counterpart of the 'NP<sup>S</sup> ergative NP<sup>O</sup> absolutive' construction. Then 'V [S NP with NP]' is essentially the embedding (under a causative) of a verbless S, whose subject is like the absolutive subject of the 'antipassive', and whose 'with NP' is like the oblique object of the 'antipassive'.<sup>20</sup>

We might take the 'rapprochement' speculated on in the preceding paragraph to be made more pointed by the postulation of the embedded S.<sup>21</sup> The same kind of potential advantage to postulating an embedded S can be illustrated through consideration of Anderson (1977), whose proposals include a 'rapprochement' which ours of the preceding paragraph resembles partially. Anderson has a 'Theme-rule' which associates a relation of Theme with a Direct Object. It is clear from Anderson (1971, 393-5) that in the 'V NP NP' construction it is the second NP (only) which should be assigned the relation of Theme. But no simple definition of Direct Object will have that effect, unless 'V NP NP' is really 'V [S NP NP]', where the second NP is straightforwardly the Direct Object (and the first NP the subject) of the embedded S.<sup>22</sup>

To sum up this section so far, we have argued that the account developed

in § 7.3.2 for the absence of derived nominals corresponding to sentences involving an empty category in a lower  $S/\bar{S}$ , as illustrated by (48), (52) and (54), extends automatically to several instances of double complement constructions, namely (60), (62), (66) and (69), given the hypothesis that all four of these are themselves to be analyzed as involving S-embedding.

For the case of (62), we argued explicitly in § 7.2.2 that the unambiguous path requirement on government obliges us to analyze 'V NP NP' as 'V [<sub>S</sub> NP NP]', so that the fact that 'V [<sub>S</sub> NP NP]' turns out to play an explanatory role in the area of derived nominals constitutes indirect evidence for the notion of unambiguous path.

Alternatively, one might accept 'V [<sub>S</sub> NP NP]', yet deny that the formal notion of unambiguous path is behind it, by claiming that what is behind it is rather some general requirement of 'semantic decomposition'. This seems implausible to us, for two kinds of reasons. First, as we shall see in § 7.4.3, the near-synonymous 'V NP to NP' has a rather different behavior in derived nominals from that of 'V NP NP', so that '[V/N NP] to NP', must, at least sometimes, be the correct structure for it. This is hard to reconcile with the idea that 'V [NP NP]' exists for semantic reasons. Second, there is the contrast between (66) and (67), which differ only in that a certain complement is expressed overtly in one but not the other. If the function of 'V [<sub>S</sub> NP of NP]' were truly to express the causative meaning, then we would expect 'V [<sub>S</sub> NP [V]]'. But then (67) should be excluded, too, via the ECP and the inability of N to govern across S.

This second point can be put more generally: If (60), (62), (66) and (69) are excluded as a function of their embedded S node, and if that S node reflects some general requirement of causative decomposition, then all causatives should be prohibited from such derived nominals. But that is not the case, as many of the examples of (24)-(28) indicate.<sup>23</sup> We conclude that there is no general requirement, in LF, that causatives take an embedded S.<sup>24</sup>

The conclusion that the embedded S of (60), (62), (66) and (69) is not attributable to any general decomposition requirement, but rather to the unambiguous path requirement on government could also be put as follows: Intolerance (by the language faculty) of a specific kind of formal ambiguity has as a consequence that no lexical item can have more than one immediate complement.<sup>25</sup>

#### 7.4. EXTENDING THE ANALYSIS

§ 7.3 was primarily concerned with constructing an account of the distribution of derived nominals corresponding to passive sentences. It was found that such nominals are well-formed only if the trace in the corresponding passive is not separated by a sentence boundary from the lexical item that needs to govern it. The distribution of such sentence boundaries is best understood as being determined by the unambiguous path requirement on

government. In § 7.4.1, we shall consider derived nominals corresponding to the active counterparts of the passive sentences in question, and we shall see that they pattern in essentially the same way. In § 7.4.2-7.4.4, we shall consider some additional sentence types, including both active and passive forms.

##### 7.4.1. *Derived Nominals Corresponding to Active Sentences*

The derived nominals that correspond to the active counterparts of the simple passives whose derived nominals are (24)-(28) are well-formed:

- (70) the enemy's destruction of the city  
 the judge's reversal of the decision  
 the NET's revival of the play  
 the Senate's adoption of the new law  
 Oswald's assassination of Kennedy  
 Pasteur's identification of the microbe  
 Tanzania's invasion of Uganda  
 their abandonment of their child  
 their capture of Mary  
 etc.

(If the object of 'of' is a pronoun, then these are slightly unnatural – this seems irrelevant to our concerns, and we will not mention it again.) However, the active counterparts to (52) are ill-formed, just as (52) itself is:

- (71) \*John's belief of Mary to have left  
 \*the editor's assumption of the article to contain several errors  
 \*the Board's judgment of your book to be of little interest  
 \*John's knowledge of Mary to tell lies  
 \*the doctor's estimation of the baby to weigh about 8 pounds, etc.

Similarly, Chomsky (1970, 201) gives '\*our consideration of John to be a fool'. Postal (1974, 346-7) assigns \*to comparable examples with 'proof', 'finding', 'demonstration', 'admission', 'disclosure' and ten others of the 'want' type. The full sentences corresponding to (71) are of course well-formed in English, and have a representation of the form '... V [<sub>S</sub> COMP NP to VP]'.

What becomes of the corresponding structure with N in place of V? If the embedded subject NP is not preceded by 'of', we obtain (72), which is excluded by Chomsky's (1980) Case filter:

- (72) \*John's belief Mary to have left, etc.

This is so, since N, unlike V, cannot assign Case. But even if N could assign (objective) Case in some instances, it could not do so here, since N cannot

govern across S, as we saw in § 7.3. This in turn suggests a solution to (71): The 'of'-insertion rule that applies successfully in (70) (cf. Chomsky (1970, (text to) note 28; 1980, note 33)) depends on government, i.e., it can apply only when N governs NP.<sup>26</sup> Since government of the embedded subject NP by N in 'N [<sub>S</sub> COMP NP to VP]' is blocked by the  $\bar{S}$ -boundary, 'of' cannot be inserted, so that the Case filter violation remains. (Thus (71) is an instance of illicit 'of'-insertion, or perhaps of illicit genitivization (cf. Vergnaud (1974, 248)).<sup>27</sup>)

Just as (71) shares the ill-formedness of (52), so does (73) that of (60):

- (73) \*John's belief of Mary a genius  
 \*their assumption of John dangerous  
 \*the psychiatrist's judgment of the student well-adjusted  
 \* their consideration of Mary a genius

(The last is essentially from Chomsky (1970, (32c)).) Our account of (73) is the same as that of (71), since, under our hypothesis, (73) basically differs from (71) only in lacking the overt embedded V. In other words, the NP preceded in (73) by 'of' is again separated from N by an S-boundary, and hence not governed by N. As a consequence, 'of'-insertion is illegitimate, and without 'of', (73) would violate the Case filter.<sup>28</sup>

Similarly, the ill-formedness of (62) is mirrored in (74):

- (74) \*her teacher's gift of Mary of the letter  
 \*her rental of John of office space  
 etc.

If these are 'V/N [<sub>S</sub> NP NP]', as we have been arguing, then the inability of N to govern across S leaves the embedded subject NP with no legitimate way to escape the Case filter.

Exactly the same reasoning holds for (75) and (76), which are the 'active' counterparts of (66) and (69):

- (75) \*John's robbery of Mary of her money  
 \*the doctor's cure of Mary of her cold  
 \*the disease's depletion of Mary of her resources  
 \*the judge's acquittal of John of the crime  
 \*the President's deprivation of the strikers of their right to vote  
 \*the robbers divestment of the people of their jewelry  
 \*the new law's dispossession of the farmers of their property  
 \*the priest's purge of John of his sins  
 \*the priest's absolution of John of his sins  
 \*the judge's exoneration of John of any wrongdoing  
 \*the engineer's drainage of the pond of water

(On the less sharp judgment with 'exoneration', cf. the end of note 19.)

- (76) \*the organizing committee's presentation of Mary with a medal  
 \*John's provision of Mary with good reason to hate him  
 \*the bank's credit of Mary with the money  
 \*her familiarization of John with the library  
 \*the tourist office's supply of my friends with the information  
 \*their service of John with a summons

To our ear, these are all deviant. If there is some hesitation about some of (76), we would attribute it to an attempt to interpret the 'with'-phrase as a true instrumental (cf. also note 19). Again, the embedded S-node is responsible, in conjunction with the inability of N to govern across it.

#### 7.4.2. *Object Control Verbs*

Let us now turn to some other sentence types, first that of (77)/(78):

- (77) Mary persuaded John to leave  
 (78) John was persuaded to leave by Mary

These are instances of object control, i.e. the structure is 'V NP  $\bar{S}$ ' rather than 'V  $\bar{S}$ ', as it was with 'believe'. We find the corresponding derived nominals impossible:

- (79) \*Mary's persuasion of John to leave  
 (80) \*John's persuasion to leave by Mary  
 \*John's persuasion by Mary to leave

Anderson (1977, 372) gives, and we agree, (81) and (82) as well-formed:

- (81) Mary's persuasion of John  
 (82) John's persuasion by Mary

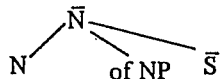
The contrast between (79)/(80) and (81)/(82) recalls that between (66) and (67), and that between (75) and (83):

- (83) John's robbery of Mary  
 the doctor's cure of Mary  
 the judge's acquittal of John  
 the judge's exoneration of John  
 the engineer's drainage of the pond

Our account of (66) vs. (67), which carries over immediately to (75) vs. (83), runs as follows: (66) and (75) have two complements, which are organized

into an embedded S, primarily as a function of the unambiguous path requirement on government.<sup>29</sup> In (67) and (83), there is a single complement, and hence no need for an embedded S, since the path from that single complement to N is unambiguous without it.

It is therefore very tempting to propose that (79)/(80) vs. (81)/(82) be accounted for in exactly the same way: The latter pair has simply 'N (of) NP', with NP empty in (82). The former has at first glance 'N (of) NP  $\bar{S}$ ', and at second 'N (of) [ $\bar{S}$ NP  $\bar{S}$ ]'. Put another way, in (79) and (80), the presence of  $\bar{S}$  as a sister complement to '(of) NP' would make the path from NP to N 'ambiguous':



Consequently, the correct structure must have NP and  $\bar{S}$  within an embedded constituent, S. (We assume '[N NP] $\bar{S}$ ' to be implausible here – cf. note 29 and § 7.4.3 below.) But then NP is not governed by N, since N cannot govern across S, so that (80) violates the ECP and (79) the Case filter.

V, on the other hand, can govern across S and  $\bar{S}$ , so that (77) and (78) are admissible, with the structure '...V [ $\bar{S}$ NP  $\bar{S}$ ]'. As before, we want to interpret this as an S with a subject NP, and with an  $\bar{S}$  probably to be taken as the complement of an unrealized V.<sup>30</sup>

The ungrammaticality of (79)/(80) seems quite general for object control verbs of the type 'V NP  $\bar{S}$ ' (more exactly, 'V [NP  $\bar{S}$ ]', if our account of these facts is correct<sup>31</sup>):

- (84) \*Mary's compulsion of her husband to quit his job  
 \*her encouragement of John to take up linguistics  
 \*his conviction of Mary to take up linguistics  
 \*their obligation of John to join the army  
 \*his inducement of Mary to run away with him  
 \*its impulsion of Mary to sue for divorce  
 \*her permission of John to buy himself a new car  
 \*their allowance of John to smoke  
 \*her defiance of John to jump into the water
- (85) \*his compulsion by Mary to quit his job  
 \*John's encouragement to take up linguistics by his parents  
 \*his obligation by his parents to join the army  
 \*her conviction by John to take up linguistics  
 \*her inducement by John to leave her husband  
 \*Mary's impulsion to sue for divorce by John's atrocious behavior  
 \*John's permission by Mary to buy himself a new car  
 \*his allowance to smoke by his doctors  
 \*his defiance by Mary to jump into the water

Again, there exists a contrast between these double complement derived nominals and the single complement derived nominals of (86) and (87):

- (86) Mary's (constant) encouragement of John (\*to tell the truth) has been an important factor in their success

(cf. also 'Mary's defiance of John')

- (87) John's (constant) encouragement by Mary (\*to perfect himself in mathematics) has been an important factor in their success.

(cf. also 'John's defiance by Mary').

Postal (1974, 345-6) notes '\*your prevention/stoppage/keep/prohibition/discussion/deterrence/discouragement of Bob from leaving'. Again, the corresponding passive-like derived nominals are excluded, too:

- (88) \*his prevention/stoppage/keep/prohibition/dissuasion/deterrence/discouragement by Mary from leaving  
 \*his prevention/... from leaving by Mary

If these verbs are instances of control, then our hypothesis assigns them the structure 'V [ $\bar{S}$ NP from  $\bar{S}$ ]'. Conceivably, some of them are rather 'V [ $\bar{S}$ COMP NP from VP]'. In either case, the inability of N to govern across S or  $\bar{S}$  then accounts for the ill-formedness of both Postal's examples and (88). That such a verb can have a corresponding derived nominal when constructible without the 'from'-complement is accounted for, too, just as in the discussion of (83):

- (89) her (constant) discouragement of Bob  
 (90) his (constant) discouragement by Mary

#### 7.4.3. [*V NP*] *XP*

We have argued so far that a number of double complement constructions have their two complements enter into an embedded S constituent: 'believe [ $\bar{S}$  Mary a genius]' (cf. (73)); 'give [ $\bar{S}$  Mary the letter]' (cf. (74)); 'rob [ $\bar{S}$  Mary of her money]' (cf. (75)); 'present [ $\bar{S}$  Mary with a medal]' (cf. (76)); 'persuade [ $\bar{S}$  John  $\bar{S}$ ]' (cf. (79)/(80)); dissuade [ $\bar{S}$  Bill from  $\bar{S}$ ]' (cf. (88)). This allowed us to account for their not having a corresponding derived nominal, in terms of the ECP, the Case filter, and the inability of N to govern across S or  $\bar{S}$ . These facts were thereby related to the absence of derived nominals for other, more obviously sentential constructions such as 'believe [ $\bar{S}$  Mary to have left]' (cf. (71)); 'John<sub>i</sub> is easy [ $\bar{S}$  PRO to please [ $\bar{N}P_i$  e]]' (cf. (54)); and 'Mary<sub>i</sub> appears [ $\bar{S}$  [ $\bar{N}P_i$  e] to have left]'.<sup>32</sup>

Under this analysis, it is not simply the fact of having two complements, but the fact that they form an embedded constituent, which makes the derived nominals impossible. This is shown clearly by the existence of other types of double complement constructions that do have corresponding derived nominals:



- (91) John's presentation of a medal to Mary  
 his offer of a book to Mary  
 his recommendation of Mary to the Board  
 their surrender of the city to the enemy  
 her explanation of the problem to the students

(similarly: 'promise', 'recitation', 'declaration', 'advance', 'gift', 'concession', 'loan', 'sale', 'donation', 'distribution', 'contribution', 'toss', 'grant', 'assignment', 'bequest', 'denial', 'refusal', 'allotment'.)

- (92) John's theft of the money from Mary  
 his purchase of that book from the bookdealer  
 his deliverance of Mary from her captors  
 his drainage of the water from the pool

- (93) the witches' transformation of the prince into a toad

On our reasoning (91)-(93) evidently cannot be instances of the structure 'N [<sub>S</sub> NP PP]', since the NP would be unable to receive (genitive) Case (i.e. 'of') by virtue of the S boundary. Nor can they be instances of '[N NP PP]', with three sister nodes, since NP could again not receive (genitive) Case, or 'of'; this time, because there would be no unambiguous path from NP to N. Therefore, the PP must be exterior to the constituent containing N and NP: '[[N-NP] PP]' (this is the structure prior to 'of'-insertion).<sup>32</sup>

Certain PP's, such as those of (91)-(93), can thus occur outside the minimal constituent ( $\bar{N}$ ) containing N, while others, such as the second 'of' phrase of (75) and the 'with'-phrase of (76) cannot. Nor can the controlled  $\bar{S}$  of (84)-(85) or the controlled 'from ... ing' phrase of (88). The 'from'-phrase of (92) thus contrasts with the latter, as does (93) with (94), to our ear:

- (94) \*John's coercion of Mary into supporting him  
 \*his provocation of Mary into slandering him  
 \*his seduction of Mary into accompanying him

(vs. 'his seduction of Mary', 'her seduction by John (\*into agreeing to leave)', like (86)-(87), (89)-(90)).

Extending this bifurcation to the realm of V, we conclude that certain PP's can occur outside  $\bar{V}$ : '[present a medal] to Mary', '[deliver Mary] from her captors', '[transform the prince] into a toad', while others cannot: \*[rob Mary] of her wallet', \*[present Mary] with a medal', \*[persuade Mary] to leave', \*[dissuade Mary] from leaving', \*[coerce Mary] into supporting him'.

Taking the last three examples, i.e. the control cases, first, the impossibility of these structures might follow from a requirement on a certain class of control constructions (cf. Williams (1980, sect. 2.1)) to the effect that the antecedent of PRO c-command it (in our terms, that there be an unambiguous path from PRO in such structures to its antecedent).<sup>33</sup>

Examples (91)-(93) can contrast with these, since they do not involve control. The difference between (91)-(93) and 'rob NP of NP', 'present NP with NP' may have to do with the resemblance of the PP's in the former set to locatives/directionals. This difference corresponds closely to a distinction proposed by Williams (1974, chap. 2, sect. 2.2) and also to one proposed (for reasons having to do with the scope of 're-') by Carlson and Roeper (1980, 147) between arguments and complements of a verb (the PP's of (91)-(93) would be complements, but not arguments, of V),<sup>34</sup> as well as to a point made by Jespersen (1970/4, III, sect. 14.8<sub>2</sub>) concerning 'V NP to NP' and 'V NP NP': "The 'to'-phrase is placed in another relation to the verb than the indirect object; it is ... intrinsically more loosely connected with it ..."

This distinction between '[ $\bar{V}$  V NP] XP' and 'V [<sub>S</sub> NP XP]' may be supported by (95) vs. (96):

- (95) ??Mary was given/told something to (by John)  
 \*?She's been stolen something from (by that thief)  
 ??She was thrown something at (by the hoodlums)

- (96) \*\*The money was credited somebody with (by the bank)  
 \*\*The crime was acquitted somebody of (by the judge)

Although (95) is quite marginal, (96) seems far worse. The extra ill-formedness of (96) can, under our hypothesis, be attributed to Chomsky's (1980) Opacity condition,<sup>35</sup> since we have for (96) 'NP<sub>i</sub> be V [<sub>S</sub> NP with/of [<sub>NP</sub> e]]', where the trace is unbound within S in the domain of the subject. This does not hold of (95): 'NP<sub>i</sub> be [ $\bar{V}$  V NP] to/from [<sub>NP</sub> e]'.<sup>36</sup>

#### 7.4.4. Further Sentence Types

In this final section, we note briefly some further sentence types whose corresponding derived nominals are of interest in the context of our previous proposals. First, there is a fact noted in Chomsky (1970):

- (97) \*John's amusement of the children with his stories

Amritavalli (1980) has shown this to be a very general fact about derived nominals corresponding to verbs having an 'Experiencer' object and a 'Causer' subject. Amritavalli (1980, 340) formulates a lexical redundancy rule to express this generalization. But why such a generalization should exist is not thereby accounted for (had (97) been grammatical, a different lexical redundancy rule could just as easily have been formulated, without affecting anything else in the grammar). Let us speculate in the following direction: There is something anomalous about a direct object Experiencer, namely that one would normally expect an Experiencer to be the subject,<sup>37</sup> perhaps on the basis of some thematic hierarchy (cf. the (stricter) exclusion of agent from object position; cf. also Ruwet (1972, chap. 5, sect. 6.1)). Consequently,

the direct object in 'The stories amused the children' must really be a subject (as Chomsky (1970, (12)) had proposed): 'The stories amused [<sub>S</sub> the children ...]'. In which case, the corresponding derived nominal is excluded by the inability of N to govern across S, as above. (And there is still no (undesirable) implication that causatives in general will have an embedded S (cf. the discussion at the end of section 3), since single non-Experiencer objects of causatives can remain objects.)

Second, there is what we might call the intransitive counterpart to (the actives of) (68):

- (98) The table is thick with dust  
The forest abounds with game

This construction has something in common with 'The table is hard to move', in that it is not 'the table' that is 'hard', or 'thick'. The semantic relations are perhaps more transparent in 'The dust is thick on the table', 'Game abounds in the forest'. The derived nominal seems impossible, as with (76):

- (99) \*the table's thickness with dust  
\*its abundance with game

(vs. 'the dust's thickness on the table'; 'its abundance in the forest'). This would follow from our hypotheses if (98) had the structure 'the table<sub>i</sub> be thick [<sub>S</sub> [<sub>NP</sub> <sub>e</sub>] with dust]', 'the forest<sub>i</sub> abounds [<sub>S</sub> [<sub>NP</sub> <sub>e</sub>] with game]' (comparable to 'The table<sub>i</sub> seems [[<sub>NP</sub> <sub>e</sub>] (to be) lost]', explicitly representing the fact that 'table' and 'forest' are not 'true subjects' of 'thick' and 'abound').<sup>38</sup>

The examples in (98) are of course comparable to the oft-discussed 'The garden is swarming with bees', 'The table is crawling with aphids' (e.g. Anderson (1971)). Again, there is no derived nominal, so that the same analysis should hold as for (98):

- (100) \*the garden's swarm with bees  
\*the table's crawl with aphids

Here, there is no contrast with '\*the bees' swarm in the garden' (in the desired sense) or '\*the aphids' crawl on the table'. There is, however, one between (101) and (102):

- (101) the swarming of bees in the garden  
the crawling of aphids on the table
- (102) \*the swarming of the garden with bees  
\*the crawling of the table with aphids

This follows as with (99) if the '-ing' form in (102) is  $\bar{N}$  (cf. note 31) and not V, since the structure '... N [<sub>S</sub> NP with NP] will admit neither extraction of the first NP nor 'of'-insertion, given that N cannot govern across S.

In conclusion, then, the 'V [NP XP]' structure that we have postulated as a result of replacing *c*-command by unambiguous paths seems to be appropriate for a wide range of constructions, and, in combination with the ECP, the Case filter and the inability of N to govern across S or  $\bar{S}$ , to account for the fact that these constructions lack derived nominals.

## NOTES

1. Nor that there is replacement of 'give' by 'cause'. The text analysis, which might be characterized as 'thematic, or argument, decomposition', is not subject to the criticisms directed by Oehrle (1977, 206-7) at Green (1974). For example, '\*His nervousness gave John an accident' could reflect the fact that the thematic roles in 'John had an accident' are not those of 'John has a bicycle/blue eyes' (which we assume stable over the possession/ownership range); whereas 'bicycle', 'blue eyes' are presumably 'theme', 'accident' is plausibly not.

On the way in which Case is assigned to the two NP's in (11), see note 17.

2. The absence of COMP is what allows (13) to exist in French. The presence of COMP in French blocks government of the embedded subject NP, thereby excluding (17) in the simple case in French; see chapter 5 for more detailed discussion. These formal differences between (13) and (17) should suffice to account for the differences in interpretation brought into focus by Ruwet (1979), without one having to attribute to (13) a bare S-less 'V NP NP' structure; to do so would lose the results of chapter 5, if 'V NP NP' generalized to 'believe/croire NP  $\bar{S}$ /VP', and would seem to make it more difficult to account for '\*John believed that Mary was a genius obvious' (cf. Ross (1974, sect. 2.16)), which would follow, assuming Koster (1978), from the lack of a TOPIC node with S (whereas 'believe NP NP/AP' could incorrectly generalize to '\*believe  $\bar{S}$  NP/AP').

3. Although (19) and (20) differ in that the latter has an overt embedded V, they may actually both be instances of V-S, i.e. with no COMP (and no INFL: \*...let Mary to have...); this seems the most attractive way of accounting for 'J'ai laissé Marie partir' vs. '\*Je crois Marie être partie' (cf. note 2).

On '\*?He gave her a piece of his mind while sunning herself', note '\*?He let her have a piece of his mind while sunning herself'. Also: '?The sight of him gave Mary an idea while sunning herself on the beach'. Whether the subject of a sentence embedded under a causative can control this kind of adverbial seems to depend in part on the embedded subject's 'degree of independence' (cf. Boons, Guillet and Leclère (1976, 78ff.)) with respect to the subject of the causative. (It is not an accident that 4 of 5 such examples in Kayne (1975, sect. 3.2) have non-agentive subjects of 'faire'.)

4. Ruwet notes that these are sometimes better with a clitic than with 'à-NP'; a lexical dative NP without 'à' is of course excluded in French. For some discussion, see Kayne (1975, sects. 1.11, 2.12-2.15, 4.7, 5.10) and Rouveret and Vergnaud (1980, sect. 5).

5. On 'John got a promotion (from/\*by Bill), gave Mary a promotion, suffered a severe defeat in chess (at the hands of/?by Bill)', cf. Jackendoff (1974).

In 'In John's case, harassment by the Secret Service is not called for', there might be PRO (presumably in determiner position). Such a PRO must be impossible in (29), presumably because of 'disjoint reference'.

In terms of the  $\theta$ -criterion (cf. Chomsky (1981b;1982a)), we might say that the  $\theta$ -role that a verb taking an obligatory object assigns to that object is, in the unmarked case, obligatorily found on the derived nominal, and furthermore must be assigned in LF to some NP governed by N. Various lexical processes will allow this requirement to be relaxed, as in (34) and (36).

We need also to specify, concerning (29), that 's-insertion is not free, so that if the lexical NP object of N remains in its base position, 'of', but not 's, can be inserted.

6. But not '\*John is believable to have lied'; perhaps there is a stylistic clash. (Or note '\*?John can be believed to have lied')

7. The relation, if any, between this phenomenon and that discussed by Maling (1977) (cf. Guiraud (1966, 41)) needs to be elucidated.
8. On 'by'-phrases, cf. also Williams (1981/1982).
9. On 'John's likelihood of winning', see chapter 3, note 25 and references cited there. It should be noted that the actual extension of the trace-containing construction (47) is smaller than in Perlmutter (1970) and Ruwet (1972, chap. 2), if Rouveret and Vergnaud (1980, note 39) and §5.1 are correct.
10. In § 3.2.3, this property is the same as the previous inability of N to govern 'across'  $\bar{S}$ .
11. Other principles might be relevant, too. For illustrations of the generality of the ECP, see chapter 3. Our proposal to exclude (54), (52) and (48) in terms of a particular property of N, as opposed to V, naturally leads to the question of why N should have that property; for some preliminary discussion, cf. chapter 3, note 54.

Note that our account of (54) carries over to N's not related to any V, e.g., '\*the sun's yen for Nan to spin on' (from Ross (1974, sect. 3.5.2.1)).

12. There is no implication that this structure with PRO will always be well-formed – cf. note 34 below.
13. Cf. also Iannucci (1979). His (p. 328) 'The problem resisted solution by the research team' might be [PRO<sub>i</sub> solution [NP<sub>i</sub> e]] – cf. note 5. Whether this is related to 'difficult of execution' (Jespersen (1970/4, III, sect. 11.6)) (and whether the latter has a derived nominal) is unclear to us.
14. And for '\*Mary's appearance unhappy' (in the sense of (47)), '\*her proof a good companion', parallel to (48), assuming (plausibly) 'Mary; appears [<sub>S</sub> [NP<sub>i</sub> e] unhappy]'. Note also '\*her remainder unhappy', '\*her becomal unhappy', '\*her beal unhappy'; cf. Stowell (1978) and Couquaux (1979, sects. 2 and 3).

We do not agree with Williams (1980, sect. 2.4) that 'predicates' are excluded from NP's in general. We accept 'Her arrival (on stage) sick was the last thing we expected', presumably with PRO (not [e]) as the subject of 'sick'. Cf. note 12.

15. The impossibility of such derived nominals (as well as those of (52) and (60)) is noted by Wasow (1977, 348), who remarks on the importance of the fact that some transformations do apply to nominals (cf. the reference to Ross (1974) in the discussion following (54)). We should perhaps make clear that although we present passives first, the ill-formedness of (62) depends fundamentally on the double-NP complement structure, as consideration of the corresponding actives will show in § 7.4.
16. By itself, this is not entirely satisfactory, since we want to know why N cannot assign (objective) Case. The approach we favor, which will attempt to merge this property of N with the inability of N to govern across a boundary, is indicated in chapter 3, note 54.
17. Probably in a manner related to that in which Case is assigned from 'faire' to arguments of the lower V in the French causative construction – cf. Rouveret and Vergnaud (1980, sect. 2.5.4) and chapter 2, note 31. Thus, strictly speaking, 'give' does not itself govern the second NP, although it does the first (across an allowed single S-boundary – cf. chapter 3, note 1; § 5.3).
18. We should emphasize that it is the existence, more than the label, of that node that is crucial.
19. Jespersen (1970/4, V, sect. 7.1.) notes 'my son's robbery' as possible with 'my son' as the underlying object.

It may be the existence of (67) that makes judgments on some of (66) less sharp for some people than on (62), e.g. 'his exoneration by the judge of any wrong-doing' (we shall continue to consider (67) ungrammatical). It could also be that the 'of'-phrase is marginally amenable to being analyzed like 'from' – v. § 7.4 below and Brorström (1965, sect. I E); in fact, we find '?exonerate John from all responsibility'.

20. This object can actually be in an instrumental case in Eskimo, according to data quoted in Postal (1977, 351). Our analysis, if correct, supports Postal's (1977, 355) general claim that "the anti-passive phenomena of so-called 'ergative' languages [are] instantiated in more masked varieties in languages not necessarily manifesting superficial ergative features." (Whether Postal's particular choices for such instantiation are correct is a separate question, as is that of the optimal set of grammatical primitives.) For an argument in a different context that (most)

ergative languages are less different from non-ergative languages than they might appear at first glance, see Anderson (1976).

21. There is also now a point of similarity between 'V [NP with NP]' and 'With John as our guide, . . . ' or, more strikingly, its French counterpart, for which there is evidence in favor of the structure [[PRO] avec NP]: On NP rather than NP- $\bar{S}$  as sister(s) of 'avec', see chapter 4, note 26; on PRO, 'Avec tous le même type pour guide, . . . ' (Ruwet (1978, 197)) and Stowell (to appear).

Presumably the 'of' of (65): the 'with' of (68): 'from': 'to'. Another asymmetry between 'with' and 'without', with 'with' again more 'grammaticalized', is discussed by Hantson (1980).

22. In Anderson (1971) the problem did not arise in the same way, since 'V NP NP' was taken to be transformationally derived. We are here assuming it not to be – cf. Oehrle (1976).

23. Cf. also Smith (1972).

24. We agree here with Chomsky (1970, 215) on 'growth' (vs. Chomsky (1970, 192)).

25. There is a point of similarity here with Chomsky (1965, chap. 2, note 7).

26. Or conceivably when NP governs N – this would not affect the essentials of the text discussion. The impossibility of '\*John's belief for Mary to have left' is a fact about the cooccurrence of 'belief' and 'for', as in Chomsky (1973, note 56), although independent of (71), from our point of view.

27. Cf. the absence of genitive Case in a Latin construction, similar to (72), cited by Bolkestein (1979, 31). In Latin, the construction is grammatical, since Latin infinitival subjects can receive accusative Case without the need for any Case-assigner outside S, as Bolkestein shows; cf. Rouveret and Vergnaud (1980, Appendix C).

Jespersen (1970/4, V, sects. 7.6, 18.8.) gives literary examples which appear to be of (71), e.g. (from G. Eliot) 'there was no more need of them to think of parting'. To our ear, they are all unacceptable. Perhaps 'of' there could be a Case-assigning complementizer; alternatively, cf. 'I beg of you not to go', 'I appeal to you not to go', and 'my appeal to him not to go', whose grammaticality is discussed in note 34.

Postal (1974, 348) gives '?your estimate of Bob's weight to be 200 pounds'. However, he also gives (p. 350n) '\*my estimate of it to be snowing six inches per hour', which we interpret as indicating that the former is to be grouped with 'N of NP as X', where NP is not a subject of  $\bar{S}$  – see notes 34 and 9.

28. Possible is 'She was distressed at the thought of him alone in New York' (cf. Jespersen (1970/4, V, sect. 5.4)). But given '\* . . . at the thought of there likely to be another war', '\* . . . of it inevitable that they should die', '\* . . . of now a poor time to visit Syria' (on 'now', cf. Keyser and Postal (1976, 244)), the grammatical sentence is presumably ' . . . of [NP NP X]' (cf. note 21), and not ' . . . of  $\bar{S}$ '.

29. Also implicated is whatever excludes '[robbery of Mary] of the money' – cf. § 7.4.3.

30. In deciding what thematic relations are involved, we would want to take into account 'persuade NP of NP' = 'persuade [<sub>S</sub> NP of NP]', given '\*Mary's persuasion of John of the justice of the cause', '\*John's persuasion of its justice by Mary'. Cf. Jackendoff (1978, 223-6) on 'circumstantial location'.

Like 'persuade [<sub>S</sub> NP of NP]' is 'accuse [<sub>S</sub> NP of NP]': 'Mary's accusation of John (\*of indifference)', 'John's accusation by Mary (\*of indifference)', and probably 'remind' (on which, cf. McCawley's (1975, sect. 4.6.2) suggestion that "some kind of causative analysis of *remind* may give a closer approximation to the truth than does Postal's [(1970b)] proposal.").

31. Postal (1974, 346n) cites a suggestion by Baker and Ross in favor of an output condition blocking '\*[X N of NP infinitive]'. It is clear from (85), and from all the other constructions we have discussed that lack derived nominals, that such a condition is far too narrow.

Note '\*John's persuasion/conviction of Mary that all is well', suggesting 'persuade/convince [<sub>S</sub> NP  $\bar{S}$ ] here, too; and 'Mary's conviction (\*by John) that all is lost', suggesting that 'conviction' can correspond to an adjectival 'convinced': 'Mary is convinced that all is lost', having no trace, like ' . . . sure/certain that . . . '. Similarly for 'John's temptation (\*by Mary) to cheat on the exam' and adjectival 'tempted'. Also for 'predisposition', 'motivation' and adjectival 'predisposed', 'motivated'.

Concerning (79), we note further that Fraser (1970, 92) gives '\*Our persuading of John to go . . .'. This suggests that the '-ing' form he is studying acts as N with respect to cross-S

government (and 'of'-insertion). There is bound to be dialectal variation here, since Jespersen (1970/4, V, sect. 8.4.) has 'The giving of words figurative meanings...' (cf. Wik (1973, 136)). For such speakers, the 'ing' form acts like V with respect to cross-S government, and like N in its ability to set off 'of'-insertion on the NP it governs. In the gerundive nominal 'our persuading John to go', the 'ing' form acts like V in both respects (cf. Jackendoff (1977, sect. 9.2)).

32. Another possibility, which seems less plausible, is '[Det [N NP]] PP'.

33. If so, then the antecedent must necessarily be the trace, not the surface subject of 'be', in 'John<sub>i</sub> was persuaded [<sub>NP</sub> e<sub>i</sub>] [PRO to leave]'; other wise (80), (85), (88) and '\*her seduction by John into helping us' might slip through; i.e., the controller must be in 'thematic position'. This requirement holds, too, for (the trace of) French 'se' (cf. Kayne (1975, sect. 5.6) and Couquaux (1979, 256-7)), though not for control cases like 'John was photographed while sleeping' (cf. Williams (1974, chap. 3, sect. 2.8)), nor for 'They seem to each other to be happy' (cf. Chomsky (1982a)), nor for 'They were *all* seen by Mary' (cf. § 4.1.2).

34. Note that (91)-(93) do not imply that the PP must always be outside  $\bar{V}$ , so that we could consider them optional arguments of V; this seems consistent with Carlson and Roeper's (1980, 146) judgments on 're-'. It would make 'She finally introduced Bill and Peter to each other yesterday' straightforward (note that comparable reflexive examples are (partially) rejected by Postal (1971, chap. 15) and Green (1974, sect. 5C1)). There is a prediction that '?her (long-awaited) introduction of Bill and Peter to each other (yesterday)' is deviant, assuming the simplest formulation of the binding principles, even if 'of' is discounted (unless there is a common point with '?To each other, their faces seemed perfectly natural'); discounting 'of' is probably called for in 'the well-known hatred for each other of Bill and Peter'.

The impossibility of control in (79)/(80), (84)/85, (88) and (94) contrasts with (55) 'John's eagerness to please', etc. This is straightforward, since (55) has no second complement. As for 'John's appeal to Mary to intervene on his behalf', it must be '[N PP]  $\bar{S}$ ', i.e. a control construction not requiring 'c-command' – cf. 'Mary, to whom John has appealed to intervene on his behalf, ...' and Williams (1980, sect. 2.3.2.2).

The same holds for 'John's characterization/impression of Mary as PRO (being) a physicist', which must be '[N NP] as  $\bar{S}$ '; unless it is '... of [<sub>NP</sub> Mary as  $\bar{S}$ ] – cf. 'this photograph of Mary as a four-year old', § 4.2.2, and note 21 of this chapter.

Not all instances of (55) are possible: '\*John's love/hate/hatred/likes/declination/condescension/care/continuance/growth/start/management/neglect (Baker (1978, 443))/omission/try to V...'. There may well not be a homogeneous explanation; e.g. at least 'love', 'hate', 'like' are NOC, and 'try' OC in Williams' (1980, sect. 2) sense. On 'John's attempt/\*try to leave', note 'give it a try/\*attempt' and many other differences; also '\*his try of linguistics'; Jespersen (1970/4, VI, sect. 7.2.) has '... have another try to...'

K. Safir has brought to our attention '\*John's belief/acknowledgement/knowledge PRO to have won', which cannot be excluded via government of PRO parallel to '\*John believes/acknowledges/knows to...' (cf. Rouveret and Vergnaud (1980, sect. 1.6) and chapter 5 this is plausible, since the former is bad in French even though the latter is possible – cf. '\*John's denial of having made a mistake' (vs. '... of the truth').

35. Perhaps also, given (19), to some more specific condition prohibiting the strong kind of reanalysis needed in passives from reanalyzing 'V NP P' where NP is not an immediate argument of V. (We call NP an 'immediate argument' of X if NP is immediately dominated by  $\bar{X}$ .)

36. 'This book was given John by Mary' ('old' – Jespersen (1970/4, III, sect. 15.22)), which is acceptable to us with low stress on John (though not to Oehrle (1976, Part II, sect. 2.1.1), except with a pronoun, apparently), must not be 'NP<sub>i</sub> be V [<sub>S</sub> NP [<sub>NP</sub> e]]', but more plausibly 'NP<sub>i</sub> be V [<sub>S</sub> [<sub>NP</sub> e] NP]', as suggested (apart from the  $\bar{S}$ ) in Lightfoot (1980, note 9) to relate it to 'I gave it him', primarily British (cf. Jespersen (1970/4, III, sect. 14.7<sub>e</sub>) and Curme (1977, II, sect. 11.1)).

This last is unacceptable to us, so that for us 'give' can assign Case to the 'dative' only if the 'dative' is contiguous to it, with contiguity allowing for an intervening Case-less empty category – cf. Kayne (1978, note 20) and Jaeggli (1980). This contiguity requirement may provide a handle on '\*Mary sent up John a couple of books' (judgments vary – cf. Emonds (1976, sect. III.3)).

We plan to take this up again in future work, in the context of the general interaction between unambiguous paths and particles (also extraposition, predication, adverbs and (ethical) datives).

37. At least in the absence of a controlling agent (cf. note 3); this might allow an account of the two exceptions given in Amritavalli (1980, note 19).

38. Though without making 'dust' and 'game' subjects, just as 'present [Mary with a medal]' doesn't make 'medal' direct object – cf. the discussion of (68). (98) contrasts with 'Milk is rich in calcium', 'its richness in calcium'. Perhaps like (98) is 'John is full of jokes', '\*his fullness of jokes'. Also 'Mary is red with envy', '\*her redness with envy', perhaps to (98) as 'pretty' to 'easy' in (53) (calling for a refinement of the notion 'true subject' in the text).

## Connectedness

In § 8.1., we discuss certain restrictions on the distribution of parasitic gaps that are unexpected under Chomsky's (1982b) analysis. We argue that these restrictions justify substituting for his original formulation of the Empty Category Principle (ECP) one along the lines of chapter 3. In § 8.2, we examine some apparent difficulties that arise when that reformulation is confronted with other configurations of parasitic gaps. These suggest a generalization of the ECP in terms of the notion "connectedness" (in the sense of graph theory). This Connectedness Condition dissolves the apparent difficulties, while maintaining the results of § 8.1, and in addition provides a solution for an otherwise opaque problem concerning multiple interrogation and multiple negation. Multiple-*wh* relatives are then introduced, and are shown to be well behaved.

§ 8.3 proposes an account of certain asymmetries between empty categories, on the one hand, and resumptive pronouns, *wh*-phrases, and negative phrases, on the other. The phenomenon of "pied piping" is reconsidered. § 8.4 broaches the extension of this analysis to lexical anaphors.

### 8.1. THE ECP AND PARASITIC GAPS

#### 8.1.1. Parasitic Gaps

With the original formulation of the ECP (requiring that a nonpronominal empty category be properly governed either by a lexical category or by a coindexed category (Chomsky (1981b,250)), Chomsky (1982b, 53-55) can account directly for contrasts such as (1a) vs. (1b):<sup>1</sup>

- (1) a. ?a person that they spoke to because they admired  
b. \*a person that they spoke to because          admired them

The parasitic gap in the *because*-clause is properly governed by V in (1a), but by no lexical category (or coindexed category) in (1b). However, within the following pairs, proper government holds uniformly, yet a sharp contrast persists:

- (2) a. ?the person that John described without examining any pictures of  
 b. \*the person that John described without any pictures of being on file  
 c. ?the paper that we should destroy before someone steals a copy of  
 d. \*the paper that we should destroy before a copy of gets stolen by someone
- (3) a. ?the books you should read before it becomes difficult to talk about  
 b. \*the books you should read before talking about becomes difficult  
 c. ?the animals that they photographed because they weren't able to give peanuts to  
 d. \*the animals that they photographed because giving peanuts to was illegal  
 e. ?the negotiations that they followed without knowing whether they should consider writing about  
 f. \*the negotiations that they followed without knowing whether writing about was a good idea
- (4) a. ?the girl that we photographed before meeting the husband of the sister of  
 b. \*the girl that we photographed before meeting the sister of's husband

It seems clear that these are akin to the simpler (5a,b):

- (5) a. the books that it became difficult to talk about  
 b. \*the books that talking about became difficult

Now from Chomsky's (1982b) point of view, the gaps in (5) are "normal", i.e. produced by applications of Move  $\alpha$ ; hence, the deviance of (5b) is potentially attributable to Subjacency, as in Chomsky (1977, 112). However, the offending gaps in the evenlettered examples of (2)-(4) are "parasitic", i.e. not produced by movement, so that Subjacency cannot give a uniform account of (2)-(5); nor can the original formulation of the ECP, since proper government by a lexical category holds in each example.

In § 3.2.2, we proposed accounting for pairs like (5a,b) via a reformulation of the ECP, essentially taking proper government to be necessary, but no longer sufficient. The point is that an ECP approach to (5) will extend straightforwardly to (2)-(4), since it is indifferent to the source (movement or base-generation) of the (nonpronominal) empty category. Therefore, the restriction illustrated in (2)-(5) supports such an extension of the ECP.

### 8.1.2. The ECP and g-Projections

The ECP formulation adopted in (47) of chapter 3 required, apart from instances of proper government by a coindexed category, that an empty category  $\beta$  have a  $c$ -commanding antecedent  $\alpha$  such that "there exists a lexical category X such that X governs  $\beta$  and  $\alpha$  is contained in some percolation projection of X". The notion of percolation projection was defined in terms of superscripts, which were taken to percolate downward from the governor to the head of the governed category. The absence of preposition stranding in French was claimed to reflect the inability of French Ps to inherit a superscript from their maximal projection. This did not correctly distinguish (6) from (7):

- (6) \*ce qu'elle tient à  
 that that she holds to  
 'what she is keen on'
- (7) ce qu'elle tient à faire  
 that that she holds to do  
 'what she is keen on doing'

Despite the impossibility of P-stranding, extraction from within the infinitival complement of a preposition is possible. But if  $\bar{a}$  can receive a superscript in neither (6) nor (7), then *faire* in (7) cannot receive the superscript of the V *tenir*; consequently, projections of *tenir* are not percolation projections of *faire*, and (7) is wrongly excluded. <sup>not?</sup>

For this and other reasons, we shall now propose a modification of the notion of percolation projection. First, it seems possible to dispense with superscripts. Second, we shall emphasize the "bottom-to-top" orientation implicit in "projection", at the expense of the "top-to-bottom" orientation suggested by superscript percolation.

- (8) *Definition:* Y is a *g-projection* of X iff
- a. Y is a projection of X (in the usual sense of  $\bar{X}$ -theory) or of a *g-projection* of X  
 or  
 b. X is a structural governor and  
 Y immediately dominates W and Z, where Z is a maximal projection of a *g-projection* of X, and W and Z are in a canonical government configuration

We assume that V is always a structural governor, but not P. P is a structural governor in English and Icelandic, but not in Romance (cf. chapter 5). Thus, in Romance, P will have no *g-projections* beyond its own normal projections. This will account for (6), with the relevant part of the ECP reading "there exists a lexical category X such that X governs  $\beta$  and  $\alpha$  is contained in some *g-projection* of X".

In (7), the empty category is governed not by P, but by V, which does fall under (8b). Hence, (7) will be distinguished from (6) as desired. The definition of *canonical government configuration* that we are assuming is (9):

- (9) W and Z (Z a maximal projection, and W and Z immediately dominated by some Y) are in a *canonical government configuration* iff
- V governs NP to its right in the grammar of the language in question and W precedes Z  
or
  - V governs NP to its left in the grammar of the language in question and Z precedes W.

Thus, in English and French, [Y W Z] is a canonical government configuration, with Z a maximal projection, but [Y Z W] is not.

The combination of (8), (9), and the ECP has the effect, in English and French, that an empty category must not be unbound within a maximal projection that constitutes a left branch.<sup>2</sup> This excludes the starred examples of (2)-(5), without excluding either (7) or the unstarred examples of (2)-(5).

In (2d), for example, we have ... *before* [S[NP *a copy* [PP *of* [e]]] ...]. The empty category is governed by X = the preposition *of*, a structural governor. The maximal projection of X, which is PP, is a g-projection of X. That PP is on a right branch and hence in a canonical government configuration with its sister node. If the structure is [NP [*a copy*] [PP ...]], then NP is the next g-prōjection up of X. If instead the structure is [NP *a* [Y *copy* [PP ...]]], then the next g-projection of X after PP is Y, and since Y is itself on a right branch, NP is again necessarily a g-projection of X = [P *of*]. At this point, however, the sequence of g-projections of X = [P *of*] ends, since the NP node in question is on a left branch (of S). Thus, no g-projection of X = [P *of*] contains the antecedent of the empty category governed by it, and that empty category is in violation of the ECP.

In (2c), on the other hand, the NP [*a copy of* [e]] is the right branch object of V, so that the VP [*steal a copy of* [e]] constitutes a further g-projection of X = [P *of*]. That VP is itself on a right branch, as is each subsequent g-projection of X, with the result that the antecedent of [e] will clearly be contained in some g-projection of its governor X, as desired. (It does not matter here whether the antecedent is best taken to be *the paper*, or *that*, or an abstract *wh*-phrase between the two.)

In (7) we have, simplifying slightly, ... *tient* [PP *à* [S PRO [Y Infl [VP *faire* [e]]]]]. The empty category is governed by a structural governor X = [Y *faire*]. The maximal projection VP is a g-projection of X, by (8a). Since VP is a right sister of Infl, Y is a further g-projection of X, and similarly for S, for PP, etc. The fact that *à* is not a structural governor is irrelevant—(8b) requires that X be a structural governor, but there is no comparable requirement on W.

Recall that there is no prohibition against a governed empty category itself constituting a left branch:

- (10) Which runner do you believe to have won the race?

Therefore, (10) is correctly distinguished from (11) and (12):

- (11) \*Which book do you believe the first chapter of to be full of lies? (vs. *Which book do you believe the first chapter of?*)
- (12) \*a book that he found the first chapter of missing (vs. *a book that he found the first chapter of yesterday*)

The empty category in (10) is licit, since it is governed by the V *believe*, a g-projection of which contains the antecedent. In (11) and (12), the empty category is governed only by the P *of* a maximal projection of a g-projection of which constitutes, just as in (2d), a left branch (NP), on the hypothesis, now seen to be strengthened, that the NP node in question is in fact on the left branch of an embedded S node: ... *found* [S[NP *the first chapter of* [e]] *missing*]<sup>3</sup>.

That parasitic gaps fall under a g-projection formulation of the ECP is supported by (13), in which the parasitic gap of the (a) and (c) examples is excluded, parallel to the gap in (12).

- (13) a. \*a book that he reviewed without believing [the first chapter of to be full of lies]
- b. ?a book that he reviewed without believing the first chapter of
- c. \*a book that he threw away after finding [the first chapter of missing]
- d. ?a book that he reread after finding the first chapter of

On the other hand, an ECP based on (8) and (9) allows an empty category to be unbound within a left branch category that is not a maximal projection:<sup>4</sup>

- (14) Who did he greet in a funny way?

## 8.2. CONNECTEDNESS

### 8.2.1. The ECP Generalized

#### 8.2.1.1. g-Projection Sets.

There is another type of parasitic gap sentence, which is unexpected, given (8), (9), and the corresponding ECP:

- (15) [?a person who [people that talk to] usually end up fascinated with

Here the empty category object of *to* is unbound within a maximal projection, the embedded subject NP, on a left branch. Yet (15) seems as acceptable

*Chomsky*  
1980  
p. 169

as our previous examples of parasitic gaps, and clearly better than (16a,b):

- (16) a. \*a person who people that talk to usually end up fascinated with him  
 b. \*a person who people that talk to usually have money in mind

The examples in (16), with a single gap, are correctly excluded by the ECP based on g-projections,<sup>5</sup> essentially as with (12).

Before proposing an account of (15), we should point out that the problems that (2)-(5) raise for Chomsky's (1982b) analysis reappear in the context of (15):

- (17) a. ?a person that people who read a description of usually end up fascinated with  
 b. \*a person that people to whom descriptions of are read usually end up fascinated with
- (18) a. ?a book that people that discover the first chapter of usually end up liking  
 b. \*a book that people that discover the first chapter of missing usually end up disliking
- (19) a. ?a person who cousins of friends of usually end up hating  
 b. \*a person who friends of's parents usually end up hating  
 c. ?a person who friends of people that talk to usually end up mistrusting  
 d. \*a person who people that talk to's friends usually end up mistrusting

Within Chomsky's analysis, it is unclear why the (b)/(d) examples should have a status different from that of the (a)/(c) examples, since the parasitic gaps in all are properly governed by a preposition. From our point of view, the starred sentences are correctly excluded (in each, the g-projections of the P that governs the empty category in question are prevented from reaching the antecedent by a left branch NP: *descriptions of* [e], *the first chapter of* [e], *friends of* [e], *people that talk to* [e], while the unstarred ones pose the same problem as (15).

Consider the following pair:

- (20) ?a person who close friends of admire  
 (21) \*a person who you admire because close friends of become famous

((21) contrasts with ?a person who you admire because you know close friends of.) In both (20) and (21), the empty category object of *of* is unbound in a left branch maximal projection, namely the NP *close friends of* [e]. We hypothe-

size that the essential difference between them is this: in (20), that NP, which is a g-projection of *of*, has as its sister a node VP which is a g-projection of the V *admire* that is the governor of the nonparasitic empty category. Such is not the case in (21): no g-projection of *admire* is sister to the NP *close friends of* [e].

Put another way, let us think of the g-projections of the governors of the two empty categories in (20) as going from bottom to top, starting with the governors themselves. Then in (20) the two sequences of projections meet, in the sense that they reach a point such that a member of one sequence is sister to a member of the other. (This does not happen in (21).) We shall take this kind of meeting, informally, to be a necessary condition for the licitness of a pair of empty categories both locally bound by the same antecedent.

More precisely, we have the following definition for the *g-projection set*  $G_\beta$  of a category  $\beta$ , where  $\gamma$  governs  $\beta$ :

- (22) a.  $\forall \pi, \pi = \text{a g-projection of } \gamma \rightarrow \pi \in G_\beta$   
 b.  $\beta \in G_\beta$   
 and  
 b.'  $\delta$  dominates  $\beta$  and  $\delta$  does not dominate  $\gamma \rightarrow \delta \in G_\beta$ .<sup>6</sup>

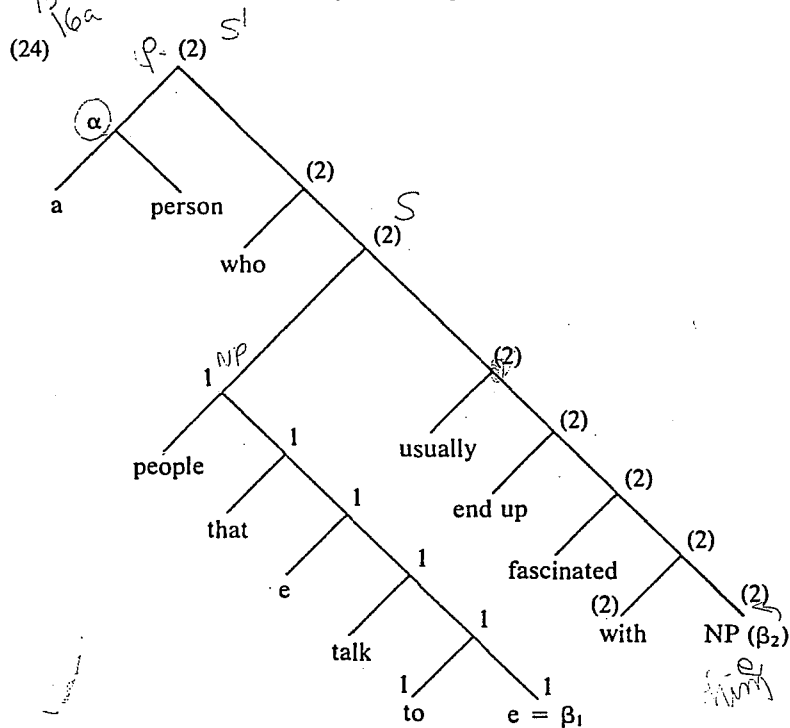
We now generalize the ECP to (23):

- (23) Let  $\beta_1 \dots \beta_j \beta_{j+1} \dots \beta_n$  be a maximal set of empty categories in a tree T such that  $\exists \alpha$  a c-commanding  $\alpha$ ,  $\forall j, \beta_j$  is locally bound by  $\alpha$ . Then  
 a.  $\cup_{1 \leq j \leq n} G_{\beta_j}$  must constitute a subtree of T<sup>7</sup>  
 and  
 b. there must exist a  $\rho$  such that  $\rho \in \cup_{1 \leq j \leq n} G_{\beta_j}$  and  $\rho$  dominates  $\alpha$ .

Principle (23) covers all the examples discussed above, including those of section 1. In particular, it has the property of distinguishing (15) from (16) without using the distinction between movement-produced and base-generated empty categories. Our treatment thus differs from those of Taraldsen (1981, section 2.3) and Chomsky (1982b, chapter 4) in that our analysis of parasitic gaps does not lend support to that distinction.<sup>8</sup>

To illustrate the way in which (23) functions, let us consider (15) vs. (16), as well as (20) vs. (21):

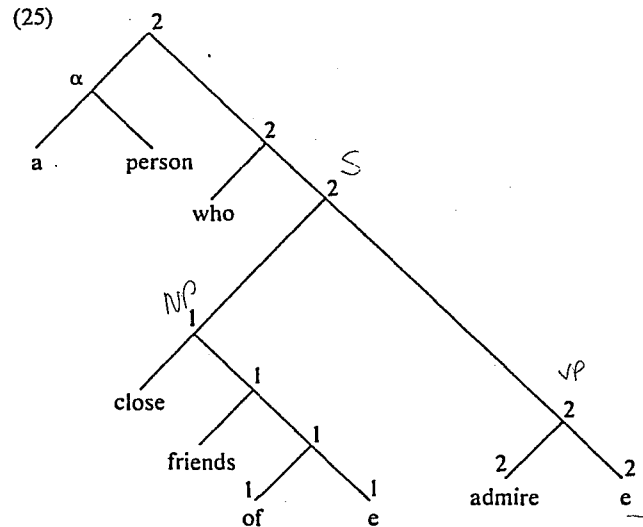




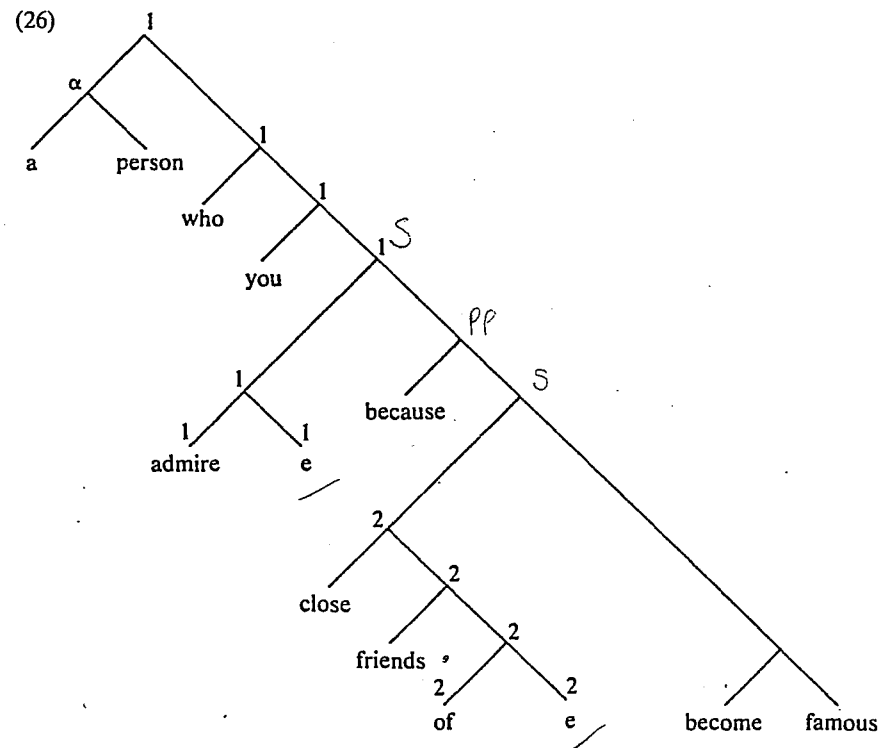
The above diagram corresponds, with some irrelevant simplification, to both (15) and (16a). In (15), the NP object of *with* is [e], so that there are two empty categories  $\beta_1$  and  $\beta_2$ . The nodes that belong to  $G_{\beta_1}$  and  $G_{\beta_2}$  have been endowed with "1" and "2", respectively, for the purposes of exposition.<sup>9</sup> It is clear that taking all the nodes marked 1 together with all the nodes marked 2 yields a subtree, thereby satisfying (23a), and that the uppermost node marked 2 dominates the antecedent  $\alpha$ , thereby satisfying (23b).

In (16a), the NP object of *with* is not empty, so that only  $\beta_1$  is relevant (whence the parentheses around the 2s). The set of nodes marked 1 trivially satisfies (23a), as will always be the case when there is a single empty category locally bound by a given  $\alpha$ . Thus, for single empty categories—i.e. when  $n = 1$ —(23) in effect reduces to (23b), which is essentially the ECP of chapter 3 modulo the replacement of percolation projection by *g*-projection. But the set of nodes marked 1 does not "reach"  $\alpha$ —that is, there is no node marked 1 that dominates  $\alpha$ —and thus (16a) fails to satisfy (23b), as desired.

Example (20) is in all important respects comparable to (15), as (25) shows:



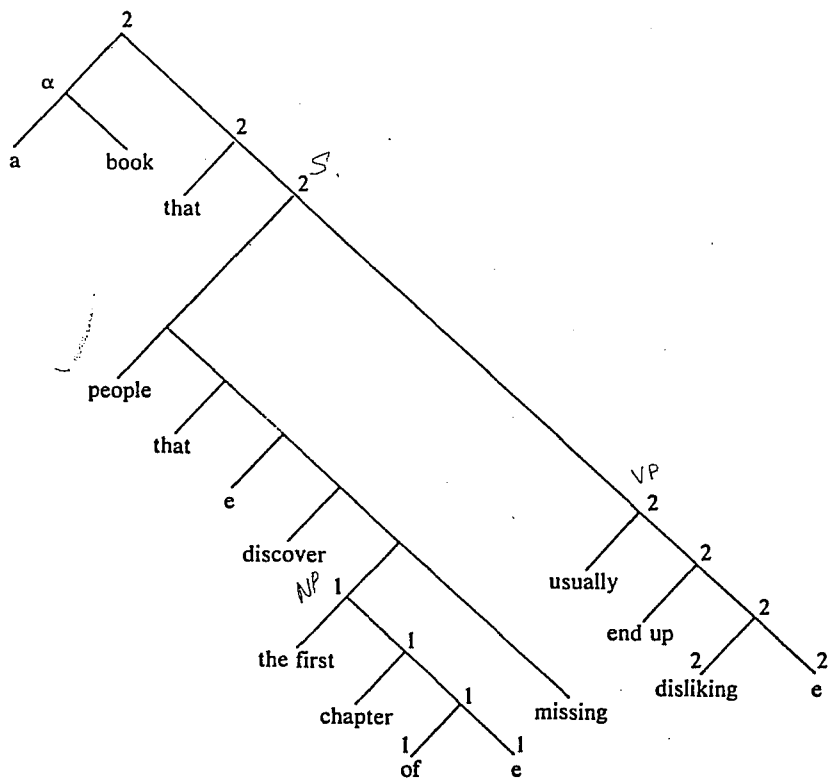
(21), on the other hand is not:



As (26) shows, (21) satisfies (23b) straightforwardly, since there is a numbered node that dominates  $\alpha$ , just as there would be in *a person who you admire because close friends of his become famous*. (Note that the left branch [*admire e*] is not a barrier in either this example or (21) because it is not a maximal projection.) However, (21) (= (26)) violates (23a), since the numbered nodes taken together do not constitute a subtree.

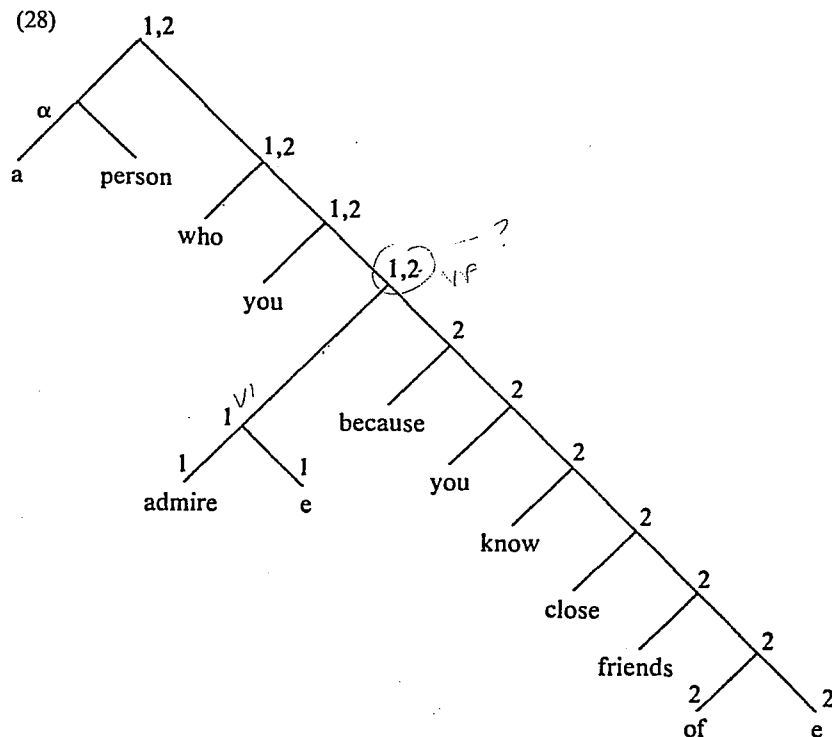
The same type of violation occurs in (17b), (18b), (19b), and (19d), for example, as the following representation of (18b) will make clear:

(27) Viol of 23a



Examples (17a), (18a), (19a), and (19c), on the other hand, are parallel to (20) and (15); that is, they satisfy both parts of (23).

Also compatible with both parts of (23) is the sentence in the text just below (21):



Here the two g-projection sets have a nonnull intersection, as is permitted.

8.2.1.2. The Connectedness Condition for Empty Categories.

The formulation of (23) that we have given accounts for both (16a) and (18b). However, strictly speaking, it does so differently in each case, since (16a) is excluded for failing to satisfy (23b), and (18b) for failing to satisfy (23a). This difference does not seem entirely natural. More generally, while (23a) imposes a kind of connectedness requirement, (23b) seems to be imposing a distance requirement of another sort. Furthermore, (23) contains a third requirement, whose relation to the other two is not made clear, insofar as the antecedent  $\alpha$  must c-command each  $\beta_j$ .

The c-command requirement on  $\alpha$  has the effect that  $\rho$  in (23b) will not only dominate  $\alpha$  but also immediately dominate it.<sup>10</sup> However, if  $\alpha$  is immediately dominated by some member of  $\cup G_{\beta_j}$ , then  $\alpha$  is itself "connected" to that set of nodes. This suggests the possibility of simplifying (23) to (29):

(29) Let  $\beta_1 \dots \beta_j, \beta_{j+1} \dots \beta_n$  be a maximal set of empty categories in a tree T such that  $\exists \alpha, \forall j, \beta_j$  is locally bound by  $\alpha$ . Then  $\{\alpha\} \cup (\cup_{1 \leq j \leq n} G_{\beta_j})$  must constitute a subtree of T.

This reformulation would eliminate the (a)/(b) bifurcation in (23) and, more generally, reduce the notion of *c*-command that is relevant to binding to the notion of connectedness expressed in "constitute a subtree".<sup>11</sup>

8.2.2. Connectedness and Multiple Interrogation.

In § 2.1, we proposed that the violation in (30) is of the same type as the well-known *\*Who does he think that is in love with him?* and that the principle (then, the NIC; now, the ECP) accounting for the latter should be made to account for the former:

(30) \*We're trying to find out which man said that which woman was in love with him.

(Vs. *?We're trying to find out which man said that he was in love with which woman.*) It was, however, not clear why the addition of a third *wh*-phrase to (30) should neutralize the violation;<sup>12</sup>

(31) ?We're trying to find out which man said that which woman was in love with which boy

Rizzi (1982, 175) notes that a similar phenomenon exists with negation in Italian:

(32) Non pretendo che nessuno dica questo  
not I-require that no one says that

(33) Non pretendo che nessuno dica niente  
not I-require that no one says nothing

In (32) *nessuno* cannot have wide scope. In (33) *nessuno*, together with *niente*, can have wide scope. Comparable improvement of an ECP-like violation occurs in the domain of the "superiority" facts:<sup>13</sup>

(34) a. \*I'd like to know where who hid it.  
b. \*I'd like to know what who hid there

(Vs. *I'd like to know who hid it where, I'd like to know who hid what there.*)

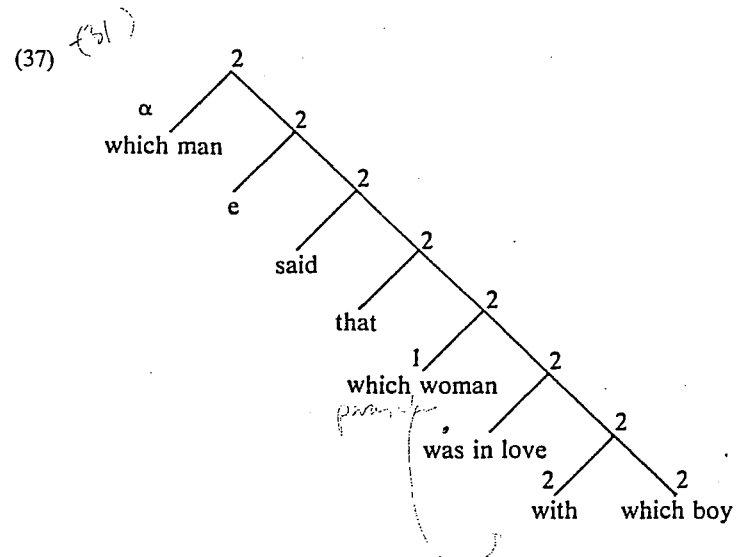
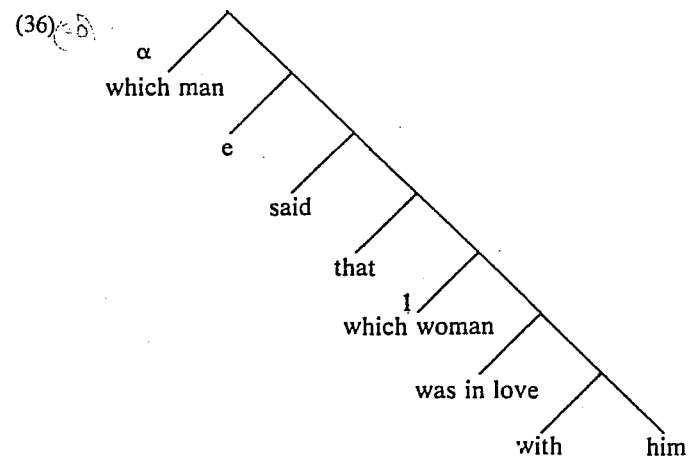
(35) a. ?I'd like to know where who hid what  
b. ?I'd like to know what who hid where.

As with (30) vs. (31) and (32) vs. (33), the improvement in (35a,b) is unexpected under previous analyses of (34a,b).

Consider first (30). Our idea that (30) is parallel to standard ECP violations is independent of the question of LF Movement.<sup>14</sup> For example, a

multiple interrogation interpretation in (30) could require that the *wh*-phrase in A-position be linked to the one in Comp, subject to (29); or, more exactly, that the *g*-projection set of the *wh*-category in A-position, plus the *wh*-category in Comp, constitute a subtree. This would in fact suffice to rule out (30), in which the A-position *wh*-category is ungoverned, so that its *g*-projection set contains it alone.

Consider now (31), under the natural generalization imposed by (29). In a multiple interrogation structure having one *wh*-phrase in Comp to which *n* *wh*-phrases in A-positions are to be linked, it must hold that the union of the *n* *g*-projection sets plus the Comp *wh*-phrase forms a subtree. This condition is met in (31), though not in (30), as (36) and (37) illustrate:

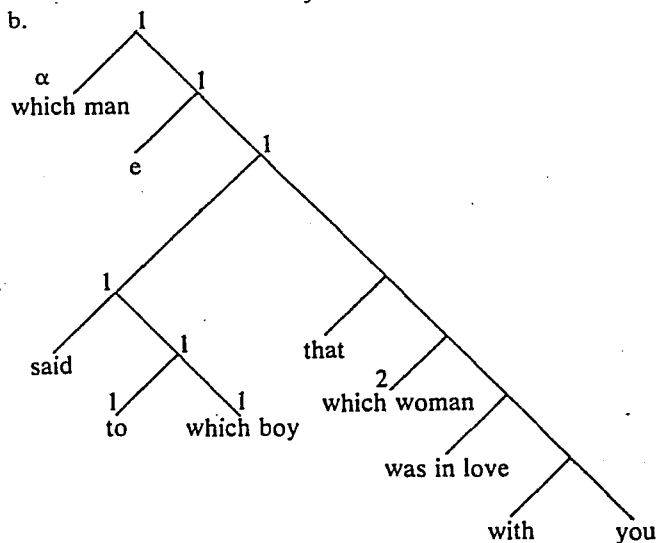


The numbered nodes plus  $\alpha$  form a subtree in (31) (= (37)) but not in (30) (= (36)).

In other words, the contrast between (30) and (31) is of the same kind as the contrast between (15) and (16). In this sense, we could say that in (31) the second *wh*-phrase is parasitic on the third.

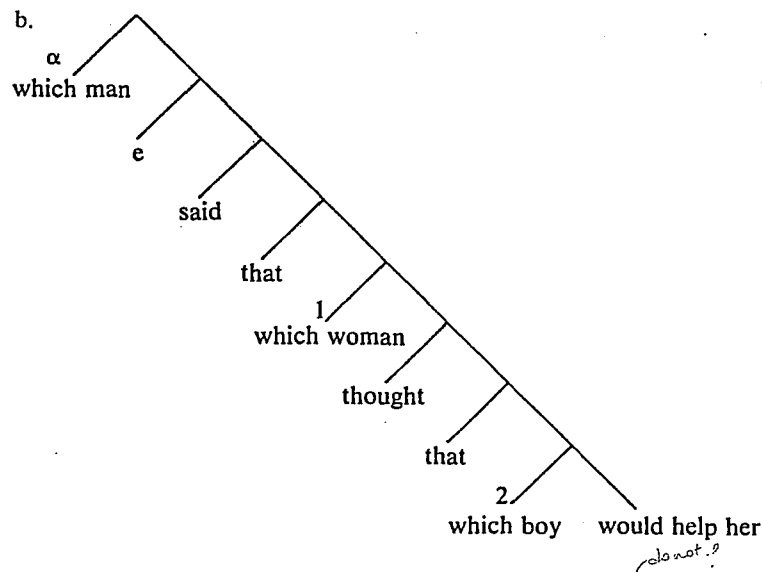
This approach to (31) leads to the prediction that a third *wh*-phrase added to (30) will yield well-formedness in certain cases but not in others, depending on the position:

- (38) a. \*We're trying to find out which man said to which boy that which woman was in love with you.



Similarly:

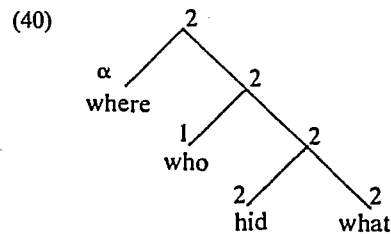
- (39) a. \*We're trying to find out which man said that which woman thought that which boy would help her.



Contrary to the case of (31), the numbered nodes (i.e. the  $G_{\beta}$ ) plus  $\alpha$  form a subtree in neither (38) nor (39).

In the case of Italian negation ((32)-(33)), the union of *g*-projection sets plus *non* must form a subtree.<sup>15</sup> Predictions comparable to (38) and (39) are made.

Turning to (35), we see that it is admitted by the appropriate generalization of (29), essentially as in the case of (31):



(The trace of *where*, whose placement is irrelevant here, though it must be governed for other reasons, is omitted.) A distinction is correctly drawn between (35) and (41):

- (41) \*I'd like to know where who said that what was hidden.

To exclude (34), it suffices that *who* is not governed at all.<sup>16</sup>

8.2.3. *Multiple Interrogation, Multiple Relativization, and the Binding Conditions*

Our claim that the triple *wh*-construction illustrated by (31) and (35) has something significantly in common with parasitic gaps might appear surprising for the following reason: as discussed by Taraldsen (1981, 493), Engdahl (1981, section 7), and Chomsky (1982b), parasitic gaps are subject to an anti-*c*-command requirement, i.e. neither gap of the two (or none, if more than two) may *c*-command the other(s). Yet in (31) and (35) the *wh*-phrase in subject position does *c*-command the one in object position. However, this point of dissimilarity is easy to explain. In the parasitic gap construction, the two (or more) empty categories in question bear identical referential indices, and so run afoul of the binding conditions (Chomsky (1981b; 1982b)) if one is *c*-commanded by another. In the multiple interrogation construction, on the other hand, the two (or more) *wh*-phrases in A-position bear distinct referential indices, so that the binding conditions impose no anti-*c*-command requirement.

In this context, it is noteworthy that there seems to exist a marginal multiple *wh*-construction in which identity of referential indices does hold, along with the anti-*c*-command requirement:

- (42) ?John Smith, whose wife's feelings about whom have changed but little over the years, . . .

*C*-command between the *wh*-phrases seems impossible, as predicted by the binding theory:<sup>17</sup>

- (43) \*John Smith, whose feelings about whom have changed but little over the years, . . .

(We return in § 8.3 to questions raised more generally by *whose*.)

8.2.4. *The Connectedness Condition*

Consider again (34), which raises a separate important question. Given (44),

- (44)  $\Psi$  I'd like to know where<sub>*i*</sub> who hid it [e]<sub>*i*</sub>

we must not be able to form the union of the *g*-projection sets of *who* and [e], since that would (incorrectly) yield a subtree containing both *who* and *where* that would be acceptable to (29). What appears to be at issue is a notion of parallelism. In all instances in which the union of *g*-projection sets has been used advantageously, the  $\beta_j$  have all been of the same type: *n* empty categories, *n* *wh*-phrases, or *n* negative phrases.

We should thus modify (29) to (45):

§ 8.3.1 *Connectedness*

- (45) Let  $\beta_1 \dots \beta_j, \beta_{j+1} \dots \beta_n$  be a maximal set of categories in a tree *T* such that  $\exists \alpha, \forall j, \beta_j$  is uniformly bound by  $\alpha$ .<sup>18</sup> Then  $\{\alpha\} \cup (\cup_{1 \leq j \leq n} G \beta_j)$  must constitute a subtree of *T*.

In (34), *who* and [e] are not bound to *where* uniformly. Therefore, *who* is limited to its own *g*-projection set, which is insufficient. In (35), *who* and *what* (35a)/*where* (35b) are bound uniformly to the *wh*-phrase in Comp; hence, the union of *g*-projection sets comes into play, successfully.

The parallelism requirement of (45) is straightforward if (45) holds at S-structure, but the absence of parallelism in (34) no longer holds subsequent to LF Movement. In particular, after LF Movement (34) would be indistinguishable in essential respects from (35). We conclude that (45)–the Connectedness Condition (henceforth, CC)–must hold at S-structure.<sup>19</sup>

## 8.3. THE CONNECTEDNESS CONDITION AT S-STRUCTURE

8.3.1. *Parallelism and Resumptive Pronouns*

The parallelism requirement imposed by the CC will provide a solution of a kind different from Chomsky's (1982b, 57-61) to the nonlicensing of parasitic gaps by (resumptive) pronouns (cf. (16a)), if the S-structure binding of an empty category by its antecedent is not of the same type as the relationship at S-structure between a pronoun and an operator phrase. Such lack of parallelism appears to be supported by the fact that the link between a pronoun and an operator phrase with respect to which the pronoun acts as a variable is not subject to any ECP-like constraint (in particular, not to the CC itself), contrary to the case of empty categories and their operator phrase antecedents:<sup>20</sup>

- (46) \*Which guys did you say that you didn't know whether were gonna be there or not?  
 (47) ?Which guys did you say that you didn't know whether they were gonna be there or not?

The CC excludes the ungoverned empty category in (46), since the relevant *g*-projection set contains only that category itself (cf. the diagram of (30)). The nonstandard acceptability of (47) indicates that the *wh*-phrase-resumptive pronoun relation is not subject to the CC. A solution via nonparallelism to the problem raised by the nonjoinability of the *g*-projection sets in (16a) would, if correct, remove (16a) as a source of support for the distinction between movement and nonmovement *wh*-constructions.<sup>21</sup>

8.3.2. *An S-Structure Pied Piping Effect with Possessives*

There is an apparent problem concerning the way in which (48) is analyzed by the CC:

(48) I know who is reviewing whose book.

The *g*-projection set of the second *wh*-phrase in (48) must connect with the first *wh*-phrase, yet *whose* is normally considered not to be governed at all. Before proposing a solution for (48), we note that the assumption that *whose* (more generally: *(NP's)*) is ungoverned does seem basically to yield the right results with gerunds:

(49) ?John Smith, whose enemy's publicization of whose mistakes is quite understandable,...

(50) \*John Smith, whose enemy's publicization of whose having made a bad mistake is quite understandable,...

(51) We know who feels sorry about whose troubles/sudden disappearance

(52) \*We know who feels sorry about whose having lost his job/suddenly disappearing

A similar contrast exists with wide scope negation (cf. chapter 2 and Liberman (1974)):

(53) John regretted nobody's departure

(54) John regretted nobody's having left early

If wide scope negation depends on *g*-projections, too,<sup>22</sup> then the unnaturalness of wide scope negation in (54) can be attributed to nongovernment. In that case, something further needs to be said about (53), along with (48), (49), and (51).

The simplest cases of multiple interrogation can be thought of as involving pairings of members of two sets. (For a more precise account, see Higginbotham and May (1981a).) An appropriate answer to *Which man loves which woman?* would consist of a list of pairs, with the first member of each coming from the set of men and the second from the set of women. Now in (48), or in *Which linguist is reviewing which anthropologist's book?*, one might take the two sets to be the set of linguists and the set of anthropologists. Let us propose, however, that the second is instead  $\{x \mid \exists y, y \text{ an anthropologist and } x = y\text{'s book}\}$ . (This may correlate with the fact that one can respond to *Whose book are you reading?* with *Smith's (book)* but not with *Smith.*)

If this proposal is on the right track, then it is reasonable to claim that the *wh*-phrase in (48) whose *g*-projection set is at issue is *whose book* rather than *whose*. Similarly, the negative phrase in (53) or in *John buys nobody's books* will be *nobody's books* rather than *nobody('s)*. Since *whose book* in (48) is governed by *V*, the grammaticality of (48) becomes straightforward.

This accounts properly for (55) vs. (56) as multiple interrogation:

(55) ?We're trying to figure out who said that he loved whose wife

(56) \*We're trying to figure out who said that whose wife loved him

Similarly, wide scope negation seems possible in (57) but not in (58):

(57) In all these years, she's requested that they read not a single author's complete essays.

(58) \*In all these years, she's requested that not a single author's complete essays be put on the reading list.

(56) and (58) are deviant because the *wh*-phrase *whose wife* and the negative phrase *not a single author's complete essays* are ungoverned.

Examples (51) and (52) will be distinguished properly (and similarly for (49) vs. (50) and (53) vs. (54)) if the requisite pairing can be based on the set  $\{x \mid \exists y, y \text{ a person and } x = y\text{'s sudden disappearance}\}$  more easily than on  $\{x \mid \exists y, y \text{ a person and } x = y\text{'s suddenly disappearing}\}$ , so that whereas *whose sudden disappearance* can count as the *wh*-phrase, *whose suddenly disappearing* cannot at all easily, this in turn presumably being related to the following contrast:

(59) Which/what sudden disappearance are you talking about?

(60) \*Which/what suddenly disappearing are you talking about?

Similarly, the set  $\{x \mid \exists y, y \text{ a person and } x = \text{that } y \text{ loved Mary}\}$  must be completely inappropriate, given (30)<sup>23</sup>.

The distinction between *whose sudden disappearance* and *whose suddenly disappearing* reappears in relative clauses, even when there is only one *wh*-phrase:

(61) John Smith, whose sudden disappearance we were quite upset at,...

(62) \*John Smith, whose suddenly disappearing we were quite upset at,...

This suggests that (61) contains a relative clause in which the *wh*-phrase *whose sudden disappearance* corresponds to  $\{x \mid \exists y, y = \text{John Smith and } x =$

y's sudden disappearance}, and that it would be incorrect to take the "pied piping" in (61) to be merely a syntactic wrinkle with no semantic/logical consequences. Put another way, the relative of (61), unlike an ordinary relative such as the one in (63), seems not to be analyzable as involving a simple open sentence predicated of the head.<sup>24</sup>

(63) John Smith, who we knew had suddenly disappeared,...

If so, then (61) has something in common with the nonstandard (64):<sup>25</sup>

(64) ?the guy whose sister I wasn't sure whether she'd be there or not

This distinction between types of relatives appears to play a role in Italian, where such relatives as (61) seem to fall necessarily into the class of what Cinque (1978a; 1982) calls *parenthetical* ( $\neq$  nonrestrictive) *relatives*.

If we accept this section's analysis of *whose book*, etc., we are in a position to make sense of the asymmetry with respect to *NP's* between multiple interrogation and wide scope negation, on the one hand, and empty categories, on the other:

- (65) a. \*Whose did you review book?  
b. \*Who did you review's book?

Given the extensive similarity, expressed through the CC, between the antecedent-empty category relation and the relations involved in multiple interrogation/wide scope negation, the dissimilarity here might be thought disturbing, especially if one were to analyze (48), etc., as involving government of *who(se)*.

Our proposal, however, leaves the *NP's* position ungoverned, so that the empty category in (65) will continue to lack a governor, as desired, since the CC will then exclude (65) straightforwardly. Nor does our proposal to treat *whose book* as being itself the *wh*-phrase extend wrongly to (65). It would make no sense to say that [e] ('s) *book* can be taken as the "empty phrase" whose antecedent is *who(se)*. If *whose book* bears a feature [+wh] in (48), etc., then in (65) that feature is borne by *who(se)* and not by the empty category (nor does there exist a comparable feature [+empty]).<sup>26</sup>

### 8.3.3. S-Structure Pied Piping via g-Projections

The ungrammaticality of (65), as compared with (48), recalls that of (66), as compared with (67):

(66) \*Qui as-tu voté pour?  
who have-you voted for

(67) Qui a voté pour qui?  
who has voted for whom

We shall suggest a partially similar analysis: in (67), the *wh*-phrase the *g*-projection set of which is at issue is not *qui* but *pour qui*, which is governed by V. Again, it makes no sense to say that *pour [e]* in (66) is an empty phrase. Whereas we might think of a feature [+wh] attached to the PP in (67), there would be no comparable feature [+empty] for (66). Consequently, (66) is ruled out by the CC, since Romance prepositions have no *g*-projections other than their own ordinary projections.

Nonetheless, we cannot very well have *pour qui* count as a *wh*-phrase via the same mechanism as the one relevant to *whose book*, since the set { *x* |  $\exists y \dots$  and  $x = \dots$  } associated with *whose book* has no plausible counterpart with *pour qui*, in particular given (30) and (62). We therefore propose the following principle:<sup>27</sup>

(68) If  $\beta$  is a *wh*-phrase and  $Z \in G_{\beta}$ , then Z is a *wh*-phrase.

Applied to (67), (68) makes *pour qui* into the desired *wh*-phrase. (68) allows one to maintain (69):<sup>28</sup>

(69) The Comp of a relative clause can be filled by a complementizer or a *wh*-phrase (and by nothing else).

As a result of (68), (70) is compatible with (69):

(70) l'homme pour qui elle a voté  
the-man for whom she has voted

(69) is consistent with our earlier description of *whose sudden disappearance* in (61) as being (though not as a function of (68)) a *wh*-phrase. Notice in particular that (68) is also inapplicable to (62), for lack of government, so that \**whose suddenly disappearing* there correctly remains a non-*wh*-phrase.

Principle (68) applies in (71), as well as in (70), with the result that the sentential phrase *to speak to whom* counts as a *wh*-phrase:

(71) John, to speak to whom now would be a mistake,...

Furthermore, we can account for the contrast between (72) and (73):

(72) ??John Smith, the possibility of you marrying whom became a reality only yesterday,...

(73) \*John Smith, the possibility of who(m) marrying you became a reality only yesterday,...

In (72), *whom* is governed by V, so that by (68), the NP in Comp counts as a *wh*-phrase. In (73), the  $G_{\beta}$  of the ungoverned subject *who(m)* is limited to  $\beta = \text{who}(m)$ , so that (69) is not met.<sup>29</sup> Similarly, Stockwell, Schachter, and Partee

(1973, 468) note that some speakers accept relatives like the one in (74), but it seems unlikely that anyone would accept (75):

(74) (\*)This is a book before I had read which I was benighted.

(75) (\*\*)This is a book before which was in print I was benighted.

Finally, we account for Cinque's (1982, 273-274) observations:

(76) I suoi studenti, il non aver promosso i quali, potrà  
his students the not having promoted which may  
essere interpretato tendenziosamente, ...  
be interpreted tendentiously

(77) \*I suoi studenti, il non essere i quali stati promossi, ...  
his students the not having which been promoted

(78) ?\*Giorgio, che abbiate scritto al quale, credo che  
George that you-have written to which I-believe (that)  
sia un errore, ...  
is an error

(79) \*\*Giorgio, che il quale sia stato invitato, ...  
George that which has been invited

In (76), *i quali* is governed by V, parallel to (71). In (77), *i quali* is the (unmoved) subject, which is not governed.<sup>30</sup> In (78), the *wh*-phrase *al quale* is governed by V, whereas in (79) *il quale* is again an unmoved subject, whose lack of governor accounts for the extra deviance of (79) over (78) (beyond what is common to both and due to Tense).

#### 8.4. A POSSIBLE EXTENSION TO LEXICAL ANAPHORA

The ungrammaticality of (77) recalls that of (80), discussed by Rizzi (1981, 137; 1982, 105):

(80) \*Gianni ritiene aver se stesso vinto il concorso.  
John believes having himself won the competition

In (80), the subject of the infinitive is an anaphor, and the auxiliary has been preposed, as it has in (77). Our account of (77) depends primarily on that subject position being ungoverned (cf. note 30). The ungrammaticality of (80) would be accounted for in the same way if the CC were extended to cover reflexives and reciprocals.

Such an extension to lexical anaphors would constitute a partial return to

the view of Chomsky (1980), in which empty categories and lexical anaphors fell together under the NIC. In § 2.2, we attempted to generalize the NIC in such a way as to bring together [*e*] and reflexive/reciprocal with *wh* and *neg*. Chomsky's ECP split off empty categories from lexical anaphors in a particular way, and we agreed with that in chapter 3, note 1.

However, we have just argued in § 8.3.2. and 8.3.3. that some apparently special properties of empty categories can be attributed to the way in which *wh* inheritance (broadly construed) works, in which case these special properties do not interfere with a unified CC. Furthermore, the justification for keeping [*e*] = *wh*-trace separate from lexical anaphors that comes from Opacity-like considerations is not relevant to the question of unification through the CC, since the latter is designed not to cover Opacity-type phenomena at all.

Put more generally, a CC approach to lexical anaphora will be predicated on the hypothesis that (at least) two distinct kinds of constraints are involved. The kind that the CC will cover might be called a constraint on the connection between anaphor and antecedent, formulated in terms of *g*-projection sets. The other could be called a constraint on the distance between anaphor and antecedent, and corresponds to the Specified Subject Condition/Opacity/accessible subject idea. (Note that our approach allows dispensing with AGR as an accessible subject.<sup>31</sup>)

That the two types of constraints should be kept separate is supported by Icelandic long-distance reflexives, which violate the distance constraint in specified contexts, but remain subject to the constraint on connectedness (i.e. to the CC), in that they still may not occur in the ungoverned nominative subject position.<sup>32</sup>

Let us therefore consider the possibility that lexical anaphors must meet the CC, i.e. that their *g*-projection set must connect with (form a subtree with) their antecedent.

This would account directly for (80) and for many similar cases, for example:

(81) \*They know (that) each other would be happier in Paris

(82) \*You think (that) yourself is always right

(83) \*They knew about each other's having suddenly disappeared

Like (50), (52), and (62), (83) is deviant because the *NP*'s subject of a gerund is not governed and hence has only the trivial *g*-projection set containing itself.<sup>33</sup> As above, there is a contrast with certain other *NP*'s:

(84) The linguists knew about each other's articles.

This suggests transposing our proposal about *whose book* from § 8.3.2, and saying that in (84) it is the entire NP *each other's articles* whose *g*-projection set is at issue (so that the reciprocal pairing in (84) would be between linguists and articles, rather than between linguists and linguists).



The relative acceptability of (85) would imply that *each other* can fail to be subject to the CC entirely, at least when part of a larger NP:

(85) ?They think that pictures of each other are for sale.

Compare the (to our ear) equally acceptable (86) in which *c*-command is absent:

(86) ?These pictures of each other have been sitting on John and Mary's desks for years.

The grammaticality of (87) would be akin to that of (67):

(87) Ha parlato di sé  
he-has spoken of himself

The anaphoric phrase whose *g*-projection set is at issue would be *di sé* rather than just *sé*.<sup>34</sup>

#### NOTES

1. Cf. Taraldsen (1981, 492) on the earlier Nominative Island Condition (NIC). For further recent discussion of "parasitic gap" constructions (i.e. constructions containing a set of gaps all of which have the same phrase as nearest antecedent), cf. Grosu (1980) and Engdahl (1981). On the "?" of (1a) and other such parasitic gap sentences (which is not relevant to our discussion, insofar as the differential judgments ("?" vs. "\*\*") that we shall try to account for are sharp), see Chomsky (1982b, 36-38).

2. As stated, (9) leads to the expectation that in a strict SOV language like Japanese, there will be no subject-object asymmetries of the sort displayed in (2)-(5). This actually seems to be true for Japanese, to judge by Ross (1967, section 4.4.1) and Kuno (1973a, 238-241). The status of German and Dutch with respect to (9) will be taken up in future work.

The idea that "left vs. right" plays a role in the distribution of empty categories was originally proposed by Cinque (1978b, 347).

The notion of *g*-projection expressed in (8) + (9) has something in common with Cattell (1976, 23, 33); our earlier "percolation projection" was close to Cattell's "syntactic configuration", as M. Baltin (1981) has pointed out (the major difference, in addition to the ECP/government context, was our using "maximal projection" instead of S).

The effect illustrated in the text concerning left branches recalls in part Ross (1967, section 4.3.2.1) and Gazdar (1981, section 2), while having the important advantage of being derived from a theory (ECP + (8) + (9)) that does not asymmetrically stipulate "left" (rather, that asymmetry is inherited from the "initial condition" that in English and French the verb is to the left of its object NP). (Note that examples such as (15) below show that even a partial "left branch prohibition" is descriptively incorrect, although there will remain an inherited left-right asymmetry (that of (2)-(5)), which will continue to follow from the revised theory of § 8.2.)

3. That (11) and (12) are deviant for the same reason as (i)

(i) \*a book that the first chapter of is missing

was originally suggested by Kuno (1973b, 381). ((i) is parallel to (5b).) Kuno (1973b, 380-385) notes that some speakers accept examples like (11) and (12) (cf. Bresnan (1976a, (87b))). Such speakers must admit a slightly looser characterization of *g*-projection than that given in (8),

namely that in (8b) *Y* need not immediately dominate *Z* if *Y* does immediately dominate *W* and *W* governs *Z*.

This looser (8b) continues to exclude (i), since *that* does not govern the subject of a tensed *S*. Kuno (1973b, 379) notes that (iia) is less sharp than (iib).

- (ii) a. ?Of which words is learning the spellings difficult?  
b. \*Which words is learning the spellings of difficult?

Either empty PPs must not be subject to the ECP (cf. Jaeggli (1980)), or Chomsky's (1981b) Projection Principle must fail to impose an empty PP. How best to account for those (apparently few) speakers referred to in Stockwell, Schachter, and Partee (1973, 460) who accept certain instances of (i) but not others remains an open question.

Like (11) and (12) for us is (iii); we agree with Kuno (1973b, 380) that there should be a common account.

(iii) \*the book that I just handed the author of a couple of offprints

Ours is that *hand NP NP* is really *hand (NP NP)*, as argued in chapter 7 (and similarly for certain other double complements), so that the stricter requirement of the text (8b) is not met. Cf. also chapter 9 for arguments that the correct structure for English double object verbs is more exactly *hand (PP NP)* with an empty preposition, thus leading to an ECP account of (iv), essentially as for (iii):

(iv) \*Which usher should we hand our ticket?

Our account of (11)-(13) (cf. also chapter 7 on derived nominals) goes against Bresnan (1982, section 9.6) (which overestimates the similarity, with respect to Case and government, between (10) and the *acc-ing* construction; see § 2.2 and Reuland (1983)).

4. Assuming the manner adverbial to be a sister to  $\bar{V}$ , as in Williams (1974; 1975). The present exposition assumes, although not crucially for the basic *g*-projection idea, that noncoordinate branching is essentially binary; cf. chapter 7.

5. Note that (15) implies that the ECP should not attempt to cover all Complex NP Constraint (CNPC) violations, contrary to the discussion of (74) in chapter 3. We agree here in part with the conclusion of Aoun (1981a).

6. Cross-boundary government is the reason for (b'), which should begin with  $\exists y \dots$ , the intended interpretation of (22) for ungoverned  $\beta$  being that  $G_\beta = \{\beta\}$ .

7. The union of the *g*-projection sets of all the empty categories in question must constitute a subtree.

8. Left open is Chomsky's (1982b, 57) *?a man who(m) to know is to like* (accepted by (23)) vs. *\*a man who(m) to know him is to like* (also accepted by (23)), as well as the NP/PP asymmetry concerning extraction from adverbial clauses (cf. perhaps *?Who did you buy a book by?* vs. *\*By whom did you buy a book?*).

9. We have omitted the category labels in part for convenience and in part to emphasize that they play no role in the definition of *g*-projection (set), except perhaps with respect to  $\gamma$  itself. This recalls the fact that the notion "unambiguous" in chapter 7 is also independent of category labels.

10. This is so if there can be no  $\alpha'$  such that  $\alpha'$  immediately and exhaustively dominates  $\alpha$  (and if we have a strict interpretation of *c*-command). The hypothesis that  $\alpha'$  is not well formed (cf. the

|  
 $\alpha$

intuition, modulo trace theory, behind pruning—Ross (1967, chapter 3)) seems plausible: (a) If  $\alpha = \alpha'$ , see Chomsky (1981b, 303). (b) If  $\alpha$  is categorially distinct from  $\alpha'$ , then there is a violation of a strict interpretation of  $\bar{X}$ -theory. (c) The case in which  $\alpha$  is categorially identical to  $\alpha'$ , but differs in bar (prime) number, reduces to (a) if  $\bar{X}$ -theory should dispense with the notion "number of bars (primes)", as we suspect; cf. Muysken (1982).

11. This potential de-isolation of "c-command" is similar to, but distinct from, the proposal of § 7.1. The present proposal would allow A to be the antecedent of E in [A B[C<sub>1</sub>D<sub>1</sub>E]] if such a structure were compatible with government requirements. The discussion of government in § 7.2 is unaffected by the analysis given here, since (23)/(29) draw on, and so could not characterize, the government relation.

For consistency, we should interpret *bound* in (29) in terms of connectedness, rather than in terms of c-command:  $\alpha$  binds  $\beta$  iff  $\{\alpha\} \cup D_{\beta}$  constitutes a subtree and  $\alpha$  and  $\beta$  are coindexed, where  $D_{\beta} = \{x \mid x \text{ dominates } \beta\}$ . *Locally binds* is as in Chomsky (1981b, 184-185; 1982, 20).

12. As brought to our attention by N. Chomsky. The contrast between (30) and the sentence in the text below it (both to be taken under the "multiple interrogation" reading involving pairs-cf. Higginbotham and May (1981a)) was first noticed, to our knowledge, by Hankamer (1974, 65-66), who also appears (p. 66) to have discovered the fact of (31). (We say "appears" only because Hankamer's actual example contains no *that*, and because the absence of *that* sometimes is judged to improve even (30)-cf. Hankamer's (28) and chapter 2, note 8—suggesting the marginal possibility of (mis)taking the lower *wh*-phrase embedded subject in a *that*-less (30) to be in Comp and to be governed by *said*.) For further discussion of (30), see Chomsky (1981b, 236) and Aoun, Hornstein, and Sportiche (1980, 77).

13. The ungrammaticality of (34) under the multiple interrogation interpretation is discussed by Kuno and Robinson (1972, 474), Chomsky (1973, section 4; 1981b, 232, 255), Hankamer (1974, 67), Fiengo (1980, 121-135), and Aoun, Hornstein, and Sportiche (1980, 81). An example like (35) is given by Chomsky (1981b, 238) (along with one like (31)) and by Reinhart (1981, 542).

Although (34) is sometimes improved by replacing *who* with *which N*, we shall, unlike Fiengo (1980, 125), consider the result still to be deviant:

- (i) a. \*?I want to know what books which student took home with him  
 b. \*?We would like to know how many hours which student worked  
 c. \*?The police are trying to figure out which taxi which robber got into

We agree with Hankamer (1974, 67) vs. Fiengo (1980, 123-126) that sentences like (iia) are less deviant than (iib) or (34),

- (ii) a. ?I know who(m) I should give what to  
 b. \*I know who(m) what should be given to

and we will consider the former type to fall outside the theory developed here.

14. As first suggested to us by G. Fauconnier. An analysis of negation without LF Movement is proposed by Milner (1979, 96). Cf. in a similar vein Van Riemsdijk and Williams (1981, 192-201), Aoun (1981b, 393), and recent work by M. Brody.

15. If *non* is a clitic at S-structure, then  $\alpha$  should rather be *non + V to which is it cliticized*.

16. Raising the question of how to admit *Who left?* The simplest solution, partially different from the one suggested in Kayne (1982a, section VI), would be that government across S is possible, apart from the case in which the governor is a lexical category, only if it is accomplished via coindexing of the referential sort. Cf. Reuland (1983, section 3.2). To have the necessary subtree in *Who left?*, not only must *who* (or its index) govern the trace, but also, given (22b') the S' node must count as a projection, hence a *g*-projection, of *who* (or its index). See Chomsky (1981b, 274) and Fassi Fehri (1980; 1981) on Comp as the head of S'.

17. (43) indicates that *whom* is not an anaphor, and (ia) vs. (ib) that it is not pronominal.

- (i) a. ??J.S., whose wife's desire for you to hire whom...  
 b. \*J.S., whose desire for you to hire whom...

18. In an extended sense of binding. Note that the requirement that each  $\beta_j$  be locally bound by  $\alpha$  no longer appears, since it does not hold for the multiple interrogation or negation cases; it must now be understood as a property holding only of (referential) coindexing relations (cf. note 16).

19. Note that neither Aoun, Hornstein, and Sportiche's (1980, 80-81) S-structure indexing rule analysis nor Aoun's (1981b) binding approach distinguishes (34) from (35) or (30) from (31).

From the conclusion that the CC holds at S-structure, it does not follow that it does not also apply subsequent to LF Movement (although the existence of this operation is now less firm—cf. note 14). That it does apply at S-structure recalls Chomsky's (1981b, 196-200; 1982b, 44, 55) arguments that the binding conditions apply at S-structure, and Haik's (1982) argument that certain LF-type phenomena are best treated at S-structure, independently of Quantifier Raising. 20. The text is probably more compatible with Haik's (1982) and Reinhart's (1976) approach to weak crossover than with Koopman and Sportiche's (1982). Correspondingly, there is, to our ear, no weak crossover effect at all in (i):

- (i) ?Which guys<sub>i</sub> did you say that you didn't know whether their<sub>i</sub> friends were gonna rat on them<sub>i</sub> or not?

21. Unlike Chomsky's (1982b) analysis, which uses that distinction in a crucial way. Cf. the discussion following (23) in the text.

22. For example, if  $G_{\text{neg-phrase}} \cup G_{\text{head of } S_k}$  had to be a subtree, for the neg-phrase to have scope  $S_k$ , where for  $\beta$  nonmaximal,  $G_{\beta}$  is defined as the set of projections of  $\beta$ .

23. D. Pesetsky has raised the question whether there might not be derived nominals having a sentential interpretation and the behavior of (52); this bears on the feasibility of a syntactic formulation for the text distinction.

24. On (63) as involving such predication, cf. Chomsky (1982b). (62) agrees with Ross (1967, (4.264b)) and Nanni and Stillings (1978, note 4).

25. Note that the pied-piped *wh*-phrase itself participates in weak crossover violations, as shown by the contrast between (ia) and (ib):

- (i) a. John, whose sister is loved by her children, ...  
 b. ??John, whose sister her children love, ...

26. Recall that empty categories were not "parallel" to *wh*-phrases in § 8.2.4 either.

27. If the governor  $\gamma$  of  $\beta$  is in  $G_{\beta}$ , as we assumed in the earlier presentation, then to (68) must be added "and Z contains  $\beta$ ", so that  $\gamma$  does not become a *wh*-phrase. This suggests dropping  $\gamma$  itself from  $G_{\beta}$  (all earlier results are unaffected), e.g. by taking "is a projection of" to be an antireflexive relation.

The adoption of (68) eliminates the problem noted by Aoun (1981b, section 4.3.3) concerning pied piping.

28. Recalling Chomsky (1973, note 55).

29. We assume that *of* does not govern *who(m)*, in agreement with Reuland (1983).

The way in which *which man*, *how tall*, *how much more money* come to count as *wh*-phrases is clearly not via (68), but presumably more as in *whose N*, though much remains to be worked out. (Note that Bresnan's (1976a, section 4) approach to pied piping does not draw the distinctions we have been concerned with in this section and in § 8.3.2.)

On the other hand, *the first chapter of which* and *à la mère de laquelle* 'to the mother of whom (to whose mother)' probably are attributable to (68), and not like *whose N*. (Note that in French (68) must apply recursively here, given that *de* is not a structural governor.) Despite this difference, we expect the following contrast, parallel to (55) vs. (56):

- (i) a. We're trying to figure out who said that he knew the brother of who(m).  
 b. ??We're trying to figure out who said that the brother of who(m) knew him.

There is a similar contrast between (iia) and (iib):

- (ii) a. In all these years, he's requested that they study the works of not a single linguist.  
 b. \*In all these years, he's requested that the works of not a single linguist be studied.

As for (iii) (from Van Riemsdijk and Williams (1981, 196)),

(iii) ?Who knows which picture of whom Bill bought?

on the interpretation where *who* is paired with *whom* (which we find marginal), it could be allowed under our analysis only if *know* could be taken to govern *which picture of whom*; in which case a speaker for whom that holds true—and who accepts (11)/(12) (cf. note 3)—should also accept the marginal (iv):

(iv) ?Who can't you decide how many pictures of to buy for your kids?

The contrast between (va) and (vb)

- (v) a. ??John, whose wife's desire that you befriend whom can hardly be called a secret, ...  
 b. \*John, whose wife's desire that who befriend you can hardly be called a secret, ...

indicates that each nonspecifier *wh*-phrase must have an "extension" defined by (68) that coincides with the highest Comp of the relative clause.

30. Either *i quali* in (77) is not governed by preposed *essere* or else the NP *il...* is not a *g*-projection of *essere*.

31. This converges with recent work by M. Brody. On the relationship between empty categories and lexical anaphora, see also Aoun (1981b).

32. Put another way, the CC accounts for the absence of a nominative reflexive form. The Icelandic phenomenon was the source of our idea of making percolation projection (now *g*-projection) relevant to lexical anaphora; cf. chapter 3, note 20.

33. Cf. Chomsky (1982b, 100, bottom of note 27), apart from the choice between LF and S-structure. The status of (83) without 's is unclear—cf. § 2.2.1 and Reuland (1983).

34. There is a point of similarity here with Manzini (1983).

## Datives in French and English\*

### 9.1. ABSENCE OF DATIVE 'V NP NP' IN FRENCH

The English construction illustrated in (1) is not found in French.

- (1) John gave Mary a book  
 John has left his children a great deal of money  
 They sent John a registered letter.
- (2) \*Jean a donné Marie un livre  
 \*Jean a laissé ses enfants beaucoup d'argent  
 \*Ils ont envoyé Jean une lettre recommandée

On the other hand, the two languages are similar as far as (3) and (4) are concerned.

- (3) John gave a book to Mary  
 John has left a great deal of money to his children  
 They sent a registered letter to John
- (4) Jean a donné un livre à Marie  
 Jean a laissé beaucoup d'argent à ses enfants  
 Ils ont envoyé une lettre recommandée à Jean

There is also a contrast between (2) and (5)<sup>1</sup>:

- (5) Elle croit cet homme un grand savant  
 'she believes that man a great scholar'  
 Je croyais Hérodote d'Halicarnasse l'auteur favori de Platon  
 'I believed H the favorite author of P'  
 Le peuple a déclaré/élu Phryné la plus belle fille de la Grèce  
 'the people declared/elected P the most beautiful girl in G'

\*This chapter corresponds in its essentials to talks given at the December, 1980 "Levels of Syntactic Representation" conference in Paris and at the 1981 GLOW conference in Göttingen.

Why should 'V NP NP' sequences be allowed in (5) but not in (2)? As (1) is grammatical alongside (3), why is not (2) alongside (4)?

This kind of two-pronged question: Why should a given language lack a given construction? – Why should there be such a difference between two otherwise quite similar languages? was at the center of earlier work of ours<sup>2</sup> bearing on two areas at first glance unrelated to that of datives. The first involves sentences such as (6), which are, apart from the infinitive, similar to (5); the second, sentences in which a preposition is stranded by a movement rule:

- (6) \*Tout le monde croyait cet homme être un grand savant.  
 (7) \*Qui avez-vous acheté ce livre pour?  
 \*Qu'allez-vous réparer cela avec?

Both constructions exist in English:

- (8) Everyone believed John to be a great scientist  
 (9) Who did you buy that book for?  
 What are you going to repair that with?

We proposed that both (8) and (9) depend on English prepositions having a special property, namely that of being able to govern in the same manner as verbs. Since French prepositions lack this property, neither construction is grammatical in French.

We now put forth the following hypothesis: The absence in French of the dative 'V NP NP' construction is due to another grammatical property having to do with prepositions, one closely related to that implicated in (6) and (7). We shall argue that (1) is possible in English as a function of English prepositions having the property of assigning objective Case,<sup>3</sup> the Case normally assigned by a verb to its direct object. This property, which is sufficient, but not necessary,<sup>4</sup> for prepositions to govern in the manner of verbs, is not shared by French prepositions, so that (2) is ungrammatical.

## 9.2. AN ENGLISH EMPTY PREPOSITION THAT CAN HAVE NO COUNTERPART IN FRENCH

What representation should we attribute to the English construction reproduced in (10)?

- (10) John gave Mary a book

It was commonly thought in the 1960's that (10) should be explicitly related to (11), either through a *to*-deletion rule or through an insertion rule.

- (11) John gave a book to Mary

A *to*-deletion rule, for example, would apply to a structure resembling (11) to yield, assuming in addition movement of one NP with respect to the other, (10). Oehrle (1976) proposed a base analysis of (10), without NP-movement, and without a preposition present at any stage of the derivation. We agree with the first aspect of his analysis, but not with the second. We shall maintain the preposition in (10), though in a way more in the spirit of trace theory than would a *to*-deletion rule. More specifically, let us take as a model the analysis of sentences like (12):

- (12) Jean a essayé de chanter  
 'John has tried (for) to-sing'

The rule of Equi-NP-Deletion that derived (12) from '*...de Jean/lui chanter...*' by deleting the subject of the infinitive has given way to the idea that (12) contains an empty pronominal subject at every stage of the derivation<sup>5</sup>: *...de PRO chanter*.

We thus propose that (10) contains, at every stage of the derivation, an empty preposition [*p e*], to be abbreviated henceforth as *P<sub>e</sub>*. The representation of (10) is now: *... V [pp P<sub>e</sub> NP]NP*. (From this point of view, (10) and (11) differ in order of constituents and in (non-)emptiness of the preposition, but do not differ as far as the presence of a preposition is concerned.)

The difference between French and English with respect to (10) is now explicable in terms of Case theory. Consider the following principle:

- (13) An empty preposition cannot be the source of Case

Consequently, the NP object of *P<sub>e</sub>* in (10) must be assigned a Case whose source is other than *P<sub>e</sub>*. (Every lexical NP needs Case – cf. Chomsky (1980, 25; 1981b, 175, 334).) Now English (unlike, for example, Russian) lacks inherent Case, i.e. cannot assign oblique Case to a NP other than via a preposition. (English probably has no oblique Case at all.) It follows that the NP in question must receive (objective) Case from V.

However, this NP, being governed by *P<sub>e</sub>*, is not governed by V, so that V cannot assign it Case directly. The V in (10) does govern the PP whose head is *P<sub>e</sub>*. Assume that V assigns objective Case to this PP (much as objective Case is assigned to *cet homme* in (5)), and that this objective Case can percolate to the head *P<sub>e</sub>*. Assume further that in English an empty preposition, although it may not be the source of Case, may transmit to its object an objective Case received by percolation. Then in (10), *Mary* will get objective Case from V via *P<sub>e</sub>*.

Why should French not be able to generate (14) in the same way?:

- (14) \*Jean a donné Marie un livre.

The reason is the following: French differs from English in that French prepositions assign oblique Case rather than objective Case.

The ability of English prepositions to assign objective Case is clearly reflected in (15):

- (15) He was laughed at by the children.

As is known from languages like German and Icelandic, in which the distinction between objective and oblique Case is visible (e.g. accusative vs. dative), only the former can give way to nominative Case in passives. From which it follows, given (15), that English prepositions can assign objective Case and can fail to assign oblique Case.<sup>6</sup> French has no passives like (15) – French prepositions can therefore not assign objective Case, but only oblique.<sup>7</sup>

Consider now the structure ... V [pp P<sub>e</sub> NP]NP ... , which is that of (10). For this structure to yield a grammatical sentence in French, both NP's must receive Case. The problem concerns the first one, since it is governed by an empty preposition, which is not a legitimate source of Case. Nor does French have inherent Case, any more than English does.<sup>8</sup> Therefore, the first NP would have to get its Case indirectly from V via P<sub>e</sub>, as in English.

Assume, though, that in a given language, P<sub>e</sub> can transmit to its object an objective Case received by percolation only if in that language prepositions normally assign objective Case. Then objective Case transmission by P<sub>e</sub> is available in English, but not in French. Whence the observed difference between (10) and (14).

The difference between the actives (10) and (14) reappears in the corresponding passives:

- (16) Mary was given a book by John  
 (17) \*Marie a été donnée un livre par Jean.

Given that *Mary* in (10) is preceded by P<sub>e</sub>, and on the assumption that *Mary* in (16) is not (i.e. that the subject of the passive is a NP and not a PP), we must have for (16): '*Mary*<sub>i</sub> ... P<sub>e</sub> [NP<sub>i</sub> e] ...'. Put another way, postulating an empty preposition in the active (10) leads one to conclude that the passive (16) is an instance of preposition stranding, just like (15), except that the stranded preposition is empty in (16) and non-empty in (15).<sup>9</sup>

If (16) is an instance of preposition stranding, then the ungrammaticality of (17) follows simply from the general impossibility of preposition stranding under movement in French:

- (18) \*Ils ont été ris de par les enfants. (cf. also (7))

Both (17) and (18) are excluded as violations of the ECP–cf. § 3.1.2, 3.2.1; § 5.4; Kayne (to appear-a).

## 9.3. AN UNUSUAL PASSIVE

The passives of (19) might seem to contradict this analysis:

- (19) Jean a été obéi par les enfants  
 'John has been obeyed by the children'  
 Les ordres ont été désobéis par les soldats  
 'the orders have been disobeyed by the soldiers'

The reason is that the corresponding actives contain a preposition:

- (20) Les enfants ont obéi à Jean  
 Les soldats ont désobéi aux ordres.  
 (21) \*Les enfants ont obéi Jean  
 \*Les soldats ont désobéi les ordres.

Although the preposition *à* of (20) is absent from (19), one might consider attributing an empty preposition to the latter to maximize the similarity between them. In which case, (19) would contain a stranded preposition, contrary to the generalization of which (18) is an example.

There is, however, another approach to (19): Let us assume that *obéir* and *désobéir* are exceptional in allowing in place of their usual *à*-NP complement a direct NP complement to which they may not assign Case.

It follows that the object NP in (21) receives no Case and is therefore excluded as a Case filter violation. (In (20), the corresponding NP receives (oblique) Case from *à*.) (19) is well-formed because the relevant NP there receives nominative Case by virtue of having been moved to subject position and thereby avoids violating the Case filter. From this point of view, (19) has the structure: NP<sub>i</sub> ... (dés)obéi [NP<sub>i</sub> e] ... (with no preposition).<sup>10</sup>

Nominative Case assignment does not suffice to make (22) grammatical:

- (22) \*?Les parents, ça s'obéit facilement  
 \*?Un ordre, ça se désobéit difficilement.

The difference between (22) and (19) might be due to French middle *se* requiring objective Case<sup>11</sup>, which is lacking with (dés)obéir.

The contrast between (23) and (24) can be explained if, following Pollock (1981; 1983b), the post-verbal NP in (24) must receive its Case in situ, rather than inherit it from subject position:

- (23) \*Il a été désobéi beaucoup d'ordres  
 'there have been disobeyed many (of) orders'  
 (24) Il a été mangé beaucoup de légumes  
 'there have been eaten many vegetables'

The participle *mangé* would then be a Case-assigner, like the corresponding verb, but the participle *(dés)obéi*, like the verb *(dés)obéir*, would not be.<sup>12</sup>

The contrast between (25) and (26) suggests that in the causative construction the NP object of the infinitive cannot receive its Case directly from *faire*, but only via the infinitive itself, which must consequently be one allowed to assign objective Case:<sup>13</sup>

(25) \*Marie fera obéir Jean par ses enfants  
'Mary will-make obey John by his children'

(26) Marie fera photographier Jean par ses enfants

That between (27) and (28) makes sense only if the empty category object of the infinitive needs a Case distinct from the nominative Case assigned to the subject of *être*:

(27) \*Jean est facile à obéir  
'John is easy to obey'

(28) Jean est facile à photographier

If this empty category: ... *facile à V* [NP *e*] ... must receive objective Case, then (27) is excluded parallel to (21)-(23), (25).<sup>14</sup>

#### 9.4. WHY THE EMPTY PREPOSITION IS CALLED UPON

According to our analysis of (19), the verbs *obéir* and *désobéir*, which normally take an *à*-NP complement, may take instead a prepositionless NP complement, although they may not assign it Case. For a number of speakers, *pardonner* (forgive) displays similar behavior:

(29) Jean a été pardonné par Marie

(30) Marie a pardonné à Jean

(31) \*Marie a pardonné Jean. (\* for the speakers in question)

*Pardonner* differs from *(dés)obéir* in being compatible with 'V NP *à* NP':

(32) Marie a pardonné ses crimes à Jean.

For those who reject (31), *pardonner* can assign Case to its non-prepositional object when that object is theme, but not when it is goal/source. A non-prepositional object with the latter thematic role gives rise to a well-formed sentence only if Case can be assigned to it otherwise, as it can be in (29), in which *John* receives nominative Case.

For those who accept (31), *pardonner* can assign Case to a prepositionless NP with either thematic role. However, for *pardonner* to assign objective Case to two prepositionless NP's at the same time is impossible for all speakers:

(33) \*Marie a pardonné Jean ses crimes  
\*Marie a pardonné ses crimes Jean

This might have to do with objective Case assignment. But then why should (34) be equally impossible?:

(34) \*Jean a été pardonné ses crimes par Marie

The structure of (34) would have to be '*Jean*<sub>i</sub> a été pardonné [NP<sub>i</sub> *e*] ses crimes ...' or '... ses crimes [NP<sub>i</sub> *e*] ...'; the relation between *Jean*<sub>i</sub> and [NP<sub>i</sub> *e*] would be comparable to that holding in (29), while the presence of *ses crimes* would recall (32).

Put another way, the question is why there can be exceptional passives like (19) and (29), but none like (34). Why can the replacement of *à*-NP by NP seen in (19) and (29) not take place when the verb already has an object NP?

It should be noted that this question goes well beyond the problem of the three verbs *obéir*, *désobéir* and *pardonner*. We accounted for the ungrammaticality of (35) and (36) (= (14) and (17)) by showing that a structure with an empty preposition cannot yield a well-formed sentence in French:

(35) \*Jean a donné Marie un livre

(36) \*Marie a été donnée un livre par Jean

But we must also be certain that (35) and (36) could not be instances of 'V NP NP', with no preposition. Similarly, we analyzed the corresponding English sentences, i.e. (10) and (16), as containing an empty preposition. For our argument to hold, though, the representation of (10) and of (16) with P<sub>e</sub> must be the only one available; if these English sentences did not require the presence of P<sub>e</sub>, their French equivalents would not either and would then incorrectly be able to avoid the violation attributed to them.

'V NP NP' must therefore be excluded. There are three cases to consider: a) [V NP NP], with a flat structure; b) [[ $\bar{V}$  V NP]NP]; c) [V [NP NP]]. If chapter 7 above is correct, then the flat structure is not available for any combination of two complements 'V XP YP', as the result of a non-ambiguity type of restriction, and we may set a) aside. We can exclude b) if  $\bar{V}$ , as opposed to V, is incapable of assigning a thematic role to NP. (That would allow [[V NP] PP] without allowing b).<sup>15</sup>)

There remains c), which contains a constituent of the form [NP NP]. We would like to suggest that this type of constituent is in fact allowed, but only with a subject-predicate interpretation, as in (37) (= (5)).<sup>16</sup>

(37) Ils croyaient Jean un grand savant.

From this perspective, the 'V [XP NP]' structure allows two interpretations: 1) subject-predicate, if XP = NP and 2) possessive in the broad sense, if XP = [pp P<sub>e</sub> NP]. The first exists both in French (in (37)) and in English, but the second only in English<sup>17</sup>, for reasons already discussed.

The ungrammaticality of (35) can now be characterized as follows: (35) could be neither 'V NP NP', since that is compatible only with a subject-predicate interpretation of [NP NP], nor 'V P<sub>e</sub>-NP NP', since in French the NP object of P<sub>e</sub> could not receive any Case.

The reason for the ungrammaticality of (36) is similar. (36) could not be 'V NP NP' because that would imply the subject-predicate interpretation. Nor could (36) be 'V P<sub>e</sub>-NP NP' or 'V NP P<sub>e</sub>-NP', since in French a NP trace may not be the object of a preposition; cf. the discussion of (17) above.

#### 9.5. LACK OF EMPTY PREPOSITION IN 'V [NP *with/of* NP]'

The fact that the thematic role 'possessor' (in the broad sense) cannot be assigned in 'V [NP NP]'<sup>18</sup> to a preposition-less, inherent-Case-less NP need not imply that that  $\theta$ -role can never be assigned to such a 'bare' NP. Two cases come to mind: First, the verb *avoir/have* and related verbs seems to have the very property of assigning that  $\theta$ -role to their subject, in effect doing away with the need for a preposition or inherent Case.

The second relevant construction is that of (38):

(38) John supplied Mary with the information

In §7.3.3, we assigned to this construction the representation '...V [NP PP]'. The interpretation seems to be very close to that of (10) or of (39):

(39) John supplied Mary the information

Both (39) and (10) contain an empty preposition to the left of *Mary*. This allows relating (40) to (41):

(40) \*John supplied the information just about everyone who asked.

(41) \*John spoke to of his troubles just about everyone who asked.

It is not permissible to strand a preposition, whether empty or not, via a rightward movement rule.<sup>19</sup>

Rightward movement is permitted in (38), however:

(42) John supplied with the information just about everyone who asked.

We conclude that (38) contains no P<sub>e</sub>. It is tempting to attribute the absence of P<sub>e</sub> in (38) to the presence there of *with*, which seems to play a role similar to that of *avoir/have*.<sup>20</sup>

The fact that (38) contains no P<sub>e</sub> leads to an understanding of the grammaticality of its French counterpart:

(43) Jean a gratifié son fils d'un bonbon.  
'John has favored his son with a candy'  
Jean a privé son fils de ses bonbons  
'John has deprived his son of his candies'

Since the presence of *de* makes P<sub>e</sub> superfluous, there is no reason why (43) should not be licit in French.

Postulating an empty preposition, within the government/binding framework, accounts, then, for the contrast between (43) and (35), just as it earlier yielded answers to the questions raised by (1)-(5).

#### NOTES

1. The first example of (5) is from Gross (1968, 127), the other two from Ruwet (1982, 152, 161). Cf. also Pollock (1983a, 122).
2. Cf. chapter 5 above.
3. In the sense of Chomsky (1980, 25; 1981b, 49-50, 170).
4. Because of Icelandic - cf. Appendix 1 of chapter 5.
5. Cf. Chomsky (1981b, passim). For a use of the notion 'empty preposition' rather different from the one we develop below, cf. Emonds (1980, 26-30). Closer to ours is the proposal independently made by Czepluch (1982/83).
6. It is likely that in (15) *at* assigns no Case whatsoever to the trace of *he*; cf. Rouveret and Vergnaud (1980, 192-194). On the other hand, a preposition that assigns oblique Case (as in Icelandic) cannot fail to assign it to its object, even in a passive structure.
7. Nor do French prepositions govern like verbs - cf. chapter 5.
8. Apart from the clitic system. We analyze dative clitics as bearing inherent Case (a significant residue of the Latin Case system); hence, they need not receive Case from another lexical item.  
We assume that the second NP (*a book*) in (10), which is not governed by P<sub>e</sub>, receives objective Case from the verb, perhaps by percolation as in Chomsky (1980, note 34), if the structure is 'V [P<sub>e</sub>-NP NP]', as in note 17 and the corresponding text below.  
This objective Case will be assigned to *a book* in (16) by the passive past participle *given*; cf. the discussion of (24) and *comme il me l'a été suggéré* ('as it to-me it (objective Case) has been suggested').  
Given Cinque (1981), it seems unlikely that there is an empty preposition in *John did it this way, He's heading our way*.
9. There may be a second difference between (15) and (16): The preposition of (15) is adjacent to the verb, but that of (16) might not be, if Czepluch (1982/83, sect. 7) (cf. also Stowell (1981, chap. 5, sect. 3.3.2)) is correct: 'Mary<sub>i</sub> was given a book P<sub>e</sub> [NP<sub>i</sub> e]', notwithstanding the impossibility of \**John gave a book Mary*. This question is beyond the scope of the present article.
10. This analysis allows dispensing with the hypothesis of Kayne (1975, sect. 3.6), according to which (*dés*)*obéi* is an adjective; we agree here with Postal (1982, 356). Postulating for (19) '...obéi [e]' rather than 'obéi P<sub>e</sub> [e]' corresponds, if we abstract away from the difference in theoretical framework, to Postal's (1982, 373) preferring in his '3--2--1' to '3--1'.

11. More precisely, middle *se* must belong to a chain bearing objective Case. On the notion of 'chain' and the way in which the Case filter can be integrated into the 'θ-criterion', see Chomsky (1981b, chap. 6).

The '?' of the '\*' of (22) (cf. Ruwet (1972, 110) and Postal (1982, note 56)) recalls Italian and Gross's (1975, 102): *Il se réfléchit à de drôles de choses ici* ('there *se* reflects on funny things here').

12. One must also be certain that (23) is not generable parallel to *Il a pris forme dans ce pays un espoir sans fondement* ('there has taken form in this country...'); cf. Pollock (op. cit.) and Postal (1982).

13. In which case, the *se* of *Marie se fera obéir* must be dative *se*. Cf. also chapter 2 above, note 31, paragraph 4.

14. As for the reason why objective Case should be required in this construction (at issue is the fact that (subject-of-*be*, object-of-infinitive) is not a normal chain, as opposed to (subject-of-*be*, object-of-participle) in (19)), see Chomsky (1981b, § 5.4).

15. In Russian, b) should be available if the second NP bears inherent Case, at least with instrumental Case.

German and Dutch may have '[NP<sub>dative</sub> NP]V', despite the existence of certain problematic constructions discussed by den Besten (1980) and Thiersch (1982). (Dutch seems to have dative Case despite little dative morphology; cf. den Besten (1981)).

16. Cf. *Its croyaient Jean intelligent*: '... V [NP AP]'. This differs from Kayne (1975, § 4.6, discussion of (92)-(94)), and from Ruwet (1982, chap. 4), whose arguments were aimed primarily (and correctly) at *être* ('be')-deletion; cf. note 2 of chapter 7 above, and Stowell (to appear).

17. The possessive interpretation should also be compatible with 'V [NP<sub>dative</sub> NP]', with the first NP having inherent Case. This possibility is absent in English, which lacks inherent Case, but probably exists in Icelandic; cf. also note 15.

In French, this possibility is present only with clitics (cf. note 8), as in *Je lui croyais beaucoup d'amis* ('I to-him believed lots of friends'): '... lui<sub>i</sub>; croyais [[e]<sub>i</sub>; beaucoup d'amis]<sub>i</sub>'. Note also: 'V [[PP P NP] NP]', with a non-empty preposition, yielding, via rightward movement, *Je croyais beaucoup d'amis à ce garçon* ('I believed lots of friends to that boy'). Cf. Ruwet (1982, chap. 5) and § 7.2.3.

18. Cf. the fact that in Russian, in a simple sentence of the form 'XP NP', XP can be 'possessor' (broadly interpreted) if XP = PP (*u* + NP) or if XP = NP<sub>dative</sub> (cf. Chvany (1975, 107, 145-6, 250, 252-3, 268-9)), but not if XP = NP<sub>nominative</sub>. Relevant also is the existence in non-standard German of '[NP NP<sub>dative</sub> NP]' (*dem Mann sein Buch*), with a possessive interpretation - cf. van Riemsdijk (1983). With respect to 'possessor, broadly interpreted' for (10), we agree with Goldsmith (1980).

19. The structure of (40) is: '... P<sub>e</sub> [NP<sub>i</sub> e]<sub>i</sub> the information (just about... )<sub>i</sub>'. The ungrammaticality of (40) is noted by Ross (1967, chap. 6, note 27); that of (41) is discussed by Bresnan (1976a, 33) and also by Stowell (1981, chap. 7, § 2.6), who proposes elsewhere (ibid., chap. 5) an analysis of (39) quite different from ours (cf. also Chomsky (1981b, 171)).

Moving 'P<sub>e</sub>-NP' in (39)/(40) is prohibited if objective Case assignment to this PP can take place only in its base position.

The structure 'V [[P<sub>e</sub> NP] NP]' has the important property of accounting, in conjunction with the analysis of § 8.1, for the deviance of *\*How many people did she give a piece of her mind?*: '... give [[P<sub>e</sub> [NP e]] a piece of her mind]<sub>i</sub>' since the (offending) empty category is a proper subpart of a left branch. (For further discussion of these facts, cf. Hornstein and Weinberg (1981, sect. 8); cf. also note 9).

20. Cf. also *Avec Jean pour guide*,... ('with John for guide') (Ruwet (1982, chap. 3)) and *a woman with red hair*. *Of* must be able to play a similar role: *John robbed Bill of his money*, like *de* in French.

It should be noted that our analysis does not identify (38) and (39) to the extent that Postal's (1982) analysis does.

From our point of view, Gross's (1975, 71) example: *Paul paie Marie cent francs pour cet objet* is not parallel to *Paul paid Mary 100 francs* (a lack of parallelism supported by *\*Paul paie Marie tout son salaire* vs. *Paul paid the lawyer his entire salary*), but rather to *Paul a acheté ce livre 1000 francs*/*\*tout son salaire* - cf. the examples of the last paragraph of note 8.

## Chains, categories external to S, and French complex inversion\*

### 10.1 ARGUMENTS AND OPERATORS

The definition of chain given in Chomsky (1981b, 331-333) did not allow a chain to be headed by an element in an  $\bar{A}$ -position. In Chomsky (1982b, 64), it is proposed that a clitic, an argument requiring a  $\theta$ -role, can in fact head a chain, despite being in an  $\bar{A}$ -position. This suggests that argument status is what is crucial in determining whether a given element can head a chain, and raises the possibility that what excludes chains headed by a Wh-phrase in COMP is solely the operator status of such a Wh-phrase, and not the fact that the Wh-phrase is in an  $\bar{A}$ -position.

That a clitic, but not a Wh-phrase, can head a chain correlates with the fact that the trace of a clitic, but not the trace of a Wh-phrase, acts as an anaphor with respect to the Binding conditions. Now the trace of *tout* in the French construction exemplified in (1) does not act as an anaphor:

- (1) a. Jean a tout voulu refaire.  
'John has everything wanted to-redo'  
b. Il faut tout que je leur enlève  
'it is-necessary everything that I from-them remove'

Thus (1) contrasts minimally with the binding violations of (2), as discussed in § 4.1.1:

- (2) a. \*Jean l'a voulu refaire  
'J it-has wanted to-redo'  
b. \*Il les faut que je relise  
'it them is-necessary that I reread'

In other words, moved *tout* has operator status, and its trace acts as a variable, like the trace of a Wh-phrase. Clearly, then, the moved *tout* of (1) does not head a chain any more than a Wh-phrase moved to COMP does. Again, it is the operator status of such *tout* versus the argument status of

\*We are indebted for helpful comments to L. Burzio, G. Cinque, F. Heny, M.-R. Manzini and K. Safir. § 10.4, 10.6, 10.7, 10.8 are for the most part as in Kayne (1982a).



clitics that seems to be the determining factor in chain formation, rather than the fact of being in an  $\bar{A}$ -position (within S), as both *tout* and clitics are.

This leads us to expect that the same should hold of movement outside S (i.e. to COMP): A phrase in COMP that has operator status can never head a chain, but a phrase in COMP that does not have operator status may. We shall argue below that that is precisely the case of the French complex inversion construction illustrated in (3):

- (3) *Cela est-il faux?*  
'that is-it false'

The NP *Cela* is not in subject position, but rather outside S; nonetheless, it will be shown to head a chain that includes an empty category in subject position.

That a NP in COMP can head a chain is suggested, too, by the contrast in (4), noted in § 1.1.3:

- (4) a. John, who I assure you to be the best student we have, ...  
b. \*I assure you John to be the best student we have

Example (4b) is excluded straightforwardly, if *assure* is unable in such a context to assign Case to the embedded subject position. The grammaticality of (4a) indicates that, although not possible into subject position, Case assignment is possible into COMP. The Case filter violation of (4b) is thus avoided in (4a), with the representation: ... who<sub>i</sub> I assure you [ $\bar{S}$ [e]<sub>i</sub> [ $\bar{S}$ [e]<sub>i</sub> to ...]]. Chomsky's (1981b, 334) integration of the Case filter into the  $\theta$ -criterion has, however, the following consequence: The  $\theta$ -role to be assigned to the [e]<sub>i</sub> in subject position can be properly assigned only if that empty category is part of a chain one of whose elements is in a position directly assigned Case. Hence the empty category in subject position in (4a) must be part of a chain that includes the empty category in COMP.<sup>1</sup>

## 10.2. DETERMINING WHAT CAN BE EXTERNAL TO S

The possibility of having a lexical (non-Wh) NP in COMP, as in (3), is obviously limited. In particular, it must not be available in (4b), since if it were, the Case violation could be nullified by moving *John* into COMP and assigning it Case there. To achieve the desired effect, it is not sufficient to state merely that *John* does not have operator status, for two reasons: First, if clitics are arguments in  $\bar{A}$ -position, as above, then argumenthood evidently does not constitute automatic disqualification from  $\bar{A}$ -position. In other words, the exclusion of *John* from COMP seems to be independent of the operator/argument dimension.

This is supported by the second reason, which involves a distinction between the two types of operators, Wh-phrase and *tout*. As discussed in §

4.2.2 these differ, despite acting alike with respect to the Binding conditions, in that only Wh-phrases are compatible with the indexed complementizer *qui*:

- (5) *Qui veux-tu qui vienne?*  
'who want-you that<sub>i</sub> come'
- (6) \**Je veux tout qui leur soit enlevé*  
'I want everything that<sub>i</sub> from-them be removed'

Neutrally put, our proposal was that Wh-constructions involve COMP in a way that the *tout* construction does not, and that the complementizer *qui* could appear only as a result of such involvement (e.g. successive cyclic movement through COMP). This difference between *Wh*- and *tout* is seen in simple sentences, too:

- (7) *Où tu vas?*  
'where you go'
- (8) a. *Elle a tout compris.*  
'she has everything understood'  
b. \**Tout elle a compris*

Despite having operator status, *tout* is excluded from COMP.

The correct generalization might seem, then, to be that COMP is available only to Wh-phrases, essentially as expressed in Chomsky's (1981b, 115) principle: "Move- $\alpha$  can move  $\alpha$  to COMP only if  $\alpha$  contains the feature *wh*." This principle distinguishes (8b) from sentences with dislocation such as (9), if dislocation does not involve Move- $\alpha$ :

- (9) a. *Marie, elle a tout compris*  
b. *Mary, she understood everything*

We shall, however, prefer to differentiate (8b) from (9) without using the distinction between movement and non-movement (cf. the analysis of parasitic gaps in chapter 8, which is also independent of that distinction).

The principles that we shall adopt will attempt to relate the facts so far discussed to others, using a combination of notions from binding theory and  $\bar{X}$ -theory. In particular, we shall have in mind the question of how to determine the head of a phrase. The first principle to be adopted is the following:

- (10) Given [ $X^m + 1X^m$  [ $\text{INFL}^n$  ...]], where  $X^m$  locally binds a non-head position within  $\text{INFL}^n$ . Then  $X^m$  contains the feature *Wh*.

The second is (11):

- (11) If INFL has an A-position specifier, then it has no other specifier.

We take S to be a projection of INFL:<sup>2</sup> [<sub>S</sub>NP INFL VP] (with S an informal symbol properly replaced by INFLP), and the subject NP to be a specifier of INFL. The intended effect of (11) is that if we adjoin a phrase to S: [<sub>Y</sub>XP[<sub>S</sub>NP INFL VP]], then Y is not a projection of INFL. (If it were, then XP would be a second specifier of INFL). If XP = X<sup>m</sup>, then under a strong version of X̄-theory, Y can only be X<sup>m+1</sup>. In other words, the adjunction of a phrase to the left of the basic S structure necessarily yields a configuration falling under (10), if there is the requisite local binding.

For example, by (11), sentence (8b) is subject to (10), which rules (8b) ungrammatical, since *tout* does not contain the feature *wh*-. Example (7) is allowed, straightforwardly. The dislocations of (9) will be permitted if we adopt the position of Chomsky (1982b, 94), to the effect that dislocation does not involve coindexing at S-structure. (We take both (10) and (11) to apply at S-structure only.)

Consider now (4a). The empty category in COMP binds the one in subject position, so that the embedded  $\bar{S}$  (= N<sup>m+1</sup>) of (4a) falls under (10). On the assumption that the trace in COMP of *who* bears the same *wh*-feature as *who* itself, (4a) is permitted. In (4b), on the other hand, movement to COMP is not permitted since *John* does not contain the necessary feature.<sup>3</sup> As for (5), we shall treat it as essentially parallel to (4a), with complementizer *qui*<sub>i</sub> bearing the feature *wh*-. On the assumption that a Wh-complementizer, like a Wh empty category, must be (locally) bound by a Wh-phrase, we can account for the ungrammaticality of (6).

Free relatives are compatible with (10) and (11):

- (12) a. John ate what was put in front of him.  
b. John will eat whatever food is put in front of him

These contrast with (13) in standard English:

- (13) \*John will eat any food is put in front of him

The structure of (12b) is ... whatever food<sub>i</sub>[<sub>S</sub>e<sub>i</sub> is ...]. By (11), this structure falls under (10), with no adverse effect, and similarly for (12a). There are two possible structures for (13): NP-S and NP- $\bar{S}$ . The latter will lead to ungrammaticality under an analysis such as that of Pesetsky (1981/82, section 4), or some variant thereof. What is of interest here is that the former is excluded by (10) and (11): ... any food [<sub>S</sub>e<sub>i</sub> is ...]. By (11), this must meet (10), which it does not.<sup>4</sup>

Put more generally, (10) and (11) combine to rule out an NP-S representation for ordinary relatives, while allowing it for free relatives. The implication is that in (14) there is a phonetically unrealized complementizer:

- (14) . the boy I saw

This is plausible, since English otherwise allows such complementizers with tensed Ss (cf. chapter 3, note 23 and Stowell (1981, chapter 6)):

- (15) I thought she was there

French does not allow the equivalent of (15):

- (16) Je pensais \*(qu') elle était là

Consequently (10) and (11) complete the account of (17):

- (17) \*le garçon j'ai vu  
'the boy I-have seen'

The combination of (10) and (11) accounts also for (18):

- (18) \*These books there amuse me

For (18) not to violate the  $\theta$ -criterion, with non-argument *there* in a subject position that should normally receive a  $\theta$ -role, *there* would have to be coindexed and form a chain with *these books*. But then (18) would fall under (10) and be ruled out accordingly.

The same is true of (19), with non-argument *il*.

- (19) \*Cela il est faux.

How, then, are we to distinguish (19) from (3), repeated here as (20)?:

- (20) Cela est-il faux?

Den Besten (to appear) has argued, on the basis of certain similarities between the complex inversion construction of (20) and the verb-second phenomenon of Germanic (in particular, the root character of both and the basic incompatibility of both with an overt lexical complementizer), that (20), like the Germanic verb (auxiliary, in English)-second construction, is an instance of the leftward movement of the tensed verb. With Emonds' (1978, 165) proposal in mind, to the effect that in French [NP INFL[V . . .]], where INFL contains Tense, V always moves up to INFL, we shall consider that the inversion of (20) consists of the leftward movement of INFL (containing now V), yielding:<sup>5</sup> *cela* [INFL *est*][*il*[INFL *e*]VP]. Taking this movement to be an instance of adjunction, we have: [<sub>Z</sub> *cela* [<sub>Y</sub>INFL<sub>i</sub>[<sub>S</sub> *il* INFL<sub>i</sub> VP]]].

What is the head of Y? Assume it is the lower INFL<sub>i</sub>. Then the upper one must be some kind of derived specifier. But that violates (11). Therefore the head of Y is the upper INFL<sub>i</sub>. What is the head of Z? If it is *cela*, then there is a violation of (10). Hence the head of Z is again the upper INFL.

This is a consistent result. With the moved INFL as its head, (20) is

compatible with (11). The lower INFL has an A-position specifier, namely *il*, but no other. The upper INFL has no A-position specifier at all. The essential difference between (19) and (20), then, is that in (20) we can take (the upper) INFL to be the head of the whole, thereby bypassing (10). In (19), we cannot, by (11), and consequently are in violation of (10).

We are now free to take *cela* and *il* in (20) to belong to one chain. That chain will contain a non-clitic argument *cela* in an A-position, with no negative effects (and various positive ones), if principles (10) and (11) are correct.

### 10.3. RELATED QUESTIONS

Before going on to a closer study of French complex inversion, let us consider certain questions related to those just discussed:

- (21) No woman had he ever seen as beautiful as she

In (21), there is a preposed phrase that is not a Wh-phrase. However, (10) is irrelevant, since the inversion of *had* (INFL) allows the head of the whole in (21) to be that INFL, much as in (20). (The two differ in that the trace of *woman* in (21) is a variable, whereas (20) contains no variable.)

English topicalization is affected rather differently by the principles so far proposed:

- (22) That book I would like to buy today.

By (10) and (11), the correct structure cannot be NP-S, but must rather be [<sub>Z</sub> that book [<sub>YXS</sub>]], where *X* could be either an abstract operator as in Chomsky (1977), or a phonetically unrealized complementizer. In either case, we can ask what the head of *Z* is. (We know that the head of *Y* must be *X*, by (11).) The following principle seems plausible:

- (23) a. An operator phrase cannot have any specifier  
b. A complementizer cannot have any specifier

If so, then the head of *Z* must be *that book*, the topicalized NP.

The subject equivalent of (22) seems deviant if read with the same intonation as (22), with a slight pause after *that book*:

- (24) That book should be bought today

If this is correct, then we want to rule out [<sub>Z</sub> that book<sub>i</sub> [<sub>YX</sub> [[e]<sub>i</sub> — ]]]. If *X* were an operator, then, like an empty NP, it might be expected to be a potential proper governor for the empty category. On the other hand, complementizers are proper governors only exceptionally, which suggests (25):

- (25) A phonetically unrealized complementizer is never a proper governor. (or perhaps: . . . can never bear the feature *Wh*-; cf. note 4)

If that is what *X* is,<sup>6</sup> then the deviance of (24) *qua* topicalization follows from the ECP, as long as *that book* cannot govern [e] directly. But that is straightforwardly the case, since *Y* is a maximal projection (it must be, if *that book* is the head of *Z*), whose head *X* c-commands [e].

### 10.4. FRENCH COMPLEX INVERSION CHAINS

Let us return in more detail to French complex inversion, as in (20). We have seen that the NP *cela* can be taken to be outside *S*, i.e. not to be in subject position. This is so, since (10) and (11) combine to correctly suppress the overgeneration possibilities that might otherwise have arisen, notably (19), (18), and (4b). Since *cela* is not in subject position, yet is clearly the argument that should receive the subject  $\theta$ -role, *cela* must be coindexed with subject position, and hence with the subject pronoun *il*. *Cela* and *il* are then part of the same chain, which is permissible, if *il* is not an argument. This assumption seems unobjectionable since *il* otherwise occurs in non-argument position:

- (26) a. Il est arrivé quelqu'un  
'there has arrived someone'  
b. Il semble que Jean soit là  
'It seems that J. is there'  
c. Il sera procédé au réexamen de cette  
'there will-be proceeded to-the reexamination of that  
question  
question'

French has another subject pronoun *ce*, usually translatable as *it*, which occurs in none of (26):

- (27) a. \*C'est arrivé quelque chose  
b. \*Ce semble que Jean soit là  
c. \*Ce sera procédé au réexamen de cette question

We therefore consider *ce* to be an argument.<sup>7</sup> From which it follows that *cela* and *ce* could not belong to one chain. This seems correct, to judge by (28) vs. (29):<sup>8</sup>

- (28) Pourquoi cela est-il faux?  
'why that is-it false'  
(29) \*Pourquoi cela est-ce faux?

Without *cela*, (29) is fine, since there are no longer two arguments matched with a single  $\theta$ -role:

- (30) Pourquoi est-ce faux?

Similar considerations are at work in the following:

- (31) Quelqu'un a-t-il dit la vérité?  
'someone has-it said the truth'

- (32) \*Quelqu'un a-t-on dit la vérité?

- (33) A-t-on dit la vérité?  
has-one said the truth

In (31), *quelqu'un* and non-argument *il* are in one chain. *On* is an argument, so that (32) violates the  $\theta$ -criterion by having two arguments for the one subject  $\theta$ -role. When the first is dropped, as in (33), the inversion structure is well-formed.<sup>9</sup>

In adopting den Besten's (to appear) leftward verb-movement idea for complex inversion and combining it with movement of the subject to a COMP-like position, we agree with Evers (1981), with one essential difference: Evers considers the pronoun inserted in the empty subject position to be, as far as we can see, a resumptive pronoun of the type commonly found in many languages, i.e. a pronoun which otherwise functions as an argument.

This approach to complex inversion does not account for the absence of *ce* from that construction (e.g. *ce* functions perfectly well as a resumptive pronoun under dislocation: *Cela, c'est faux*), nor for the fact that outside of complex inversion, i.e. of (28), *il* never is possible with *cela* as its antecedent:

- (34) \**Cela<sub>i</sub> est faux parce qu'il<sub>i</sub> ne correspond pas à  
'that is false because it neg corresponds not to  
la vérité  
the truth'*

From our point of view, on the other hand, the restriction seen in (34), to the effect that argument *il* cannot have *cela* as antecedent,<sup>10</sup> is (correctly) irrelevant to (28), which contains non-argument *il*.

Evers' proposal cannot easily exclude (19) either; nor does it suggest why English has no complex inversion:

- (35) a. \*When John did he arrive?  
b. \*Why that is it true?

(We return to (35) below).

Finally, if the subject NP could be moved to a COMP like position and

replaced by a resumptive pronoun, why is there no complex inversion based on object NPs?:

- (36) A qui cela est-il destiné? (like (28))  
'to whom that is it destined'

- (37) a. A qui as-tu destiné cela?  
'to whom have you destined that'  
b. \*A qui cela l'as-tu destiné?

Moving object *cela* in (37a) to the same position as in (36) and inserting a resumptive pronoun (which we would expect to be cliticized as *le*) would yield (37b).

From our point of view, (37b) is excluded, as a non-dislocation, by the  $\theta$ -criterion: *destiner* assigns one  $\theta$ -role to an object, but there are two arguments, *cela* and *le* in effect competing for that single  $\theta$ -role. The crucial distinction between (36) and (37b) is now that, quite independently of complex inversion, *le*, unlike *il*, is never a non-argument:<sup>11</sup>

- (38) a. Il pleut  
'it rains'  
b. Il est nécessaire de chanter  
'it is necessary (for)to-sing'

- (39) a. \*Je l'entends pleuvoir  
'I it-hear rain'  
b. \*Je le crois nécessaire de chanter  
'I it-believe...'

Thus, whereas (36) can discount its pronoun for  $\theta$ -role purposes, and hence avoid a  $\theta$ -criterion violation, (37) cannot.

It is possible that the ungrammaticality of (39) is related to the general subject-object asymmetry that exists with regard to subcategorization. For example, there might be a principle somewhat similar to the first part of Chomsky's (1981b, 38) projection principle, to the effect that verbal clitics must at S-structure always be part of a chain assigned a  $\theta$ -role. This would distinguish (38) from (39) if *il* is not attached to V at S-structure.<sup>12</sup>

## 10.5. SUBJECT PRONOUN CLITICIZATION

### 10.5.1. ECP/Connectedness Extended to Chains

In transformational terms, the analysis we have proposed for French complex inversion runs as follows: A D-structure such as *cela est faux* undergoes movement of the subject NP to the left and movement of INFL to the left,

yielding: *cela<sub>i</sub> est*[*S*[*e*]<sub>*i*</sub>...]. The non-argument pronoun *il* is inserted in subject position: *cela<sub>i</sub> est*[*S**il*<sub>*i*</sub>...]. This is consistent with the discussion of (38) and (39). On the other hand, *il* and the other subject pronouns that participate in this inversion construction have clitic properties—cf. Kayne (1975, sections 2.4, 2.5). Thus it might be that at S-structure, the correct representation is as in (40):

(40) *cela<sub>i</sub>[est-il<sub>i</sub>]<sub>*S*</sub>[*e*]<sub>*i*</sub>...]*

Here, *il* has been cliticized onto the verbal element to its left, leaving subject position again empty. This is still consistent with the discussion of (38) and (39), since the element to which *il* has been cliticized is, strictly speaking, INFL rather than V.<sup>13</sup>

There is in fact some reason to think that leftward cliticization of the subject pronoun not only may, but must hold at S-structure. (Put another way, complex inversion could not involve purely phonological cliticization.) This is related to the conjecture of Kayne (1972, 89) to the effect that the existence of complex inversion in French depends on the existence in French of subject pronouns that are clitics, and amounts to the claim that the absence of complex inversion in English is not accidental:

- (41) a. \*That is there false?  
b. \*That is it false?

If *it* in (41b) is taken to be an argument, then there is a  $\theta$ -criterion violation (apart from the dislocation reading). However, if *it* and *there* in (41) are non-arguments, as they can be elsewhere, then the  $\theta$ -criterion is not violated. Hence (41) could seemingly have a legitimate derivation, starting with a D-structure *that is false*, to which leftward movement of the subject NP and of the auxiliary would apply, followed by insertion of *there* or *it*:

(42) \**that<sub>i</sub> is* [*S**there<sub>i</sub>*...]

The contrast between (41) and (20), repeated here as (43), is not accounted for by any principle so far discussed:

(43) *Cela est-il faux?*

We propose that the ungrammaticality of (41) is related to that of (44):

(44) \*What did who say?

As in § 8.2.2, (44) qua multiple interrogation is to be excluded via a certain generalization of the ECP (Empty Category Principle) that applies at S-structure, to other than just empty categories. The ECP may be thought of as requiring that empty categories be connected in specific ways to some

*c*-commanding element. To deal with (44) we proposed an extension of this. In (44), *who* must be a properly “connected” to *what*. To bring (41) under this extension of the ECP (the Connectedness condition) we must generalize it still further so that it applies to chains:

- (45) The Connectedness condition (generalized ECP) applies to every pair ( $\alpha$ ,  $\beta$ ), where ( $\alpha$ ,  $\beta$ ) is a link of some chain

In case  $\beta = [e]$ , (45) adds nothing new. But for  $\beta$  non-null, as in (41), (45) adds the requirement that *there* be properly connected to *that*, since (*that*, *there*) must constitute (a link of) a chain, for  $\theta$ -role assignment to take place properly. But (41) is essentially congruent to (44), in which the Connectedness condition is not satisfied. Hence, (41) is impossible.

As for the question of what exactly prevents (44) and (41) from satisfying the Connectedness condition, the simplest proposal would be that it is the same lack that underlies (46):

- (46) \*I want to know what who said

What is wrong with (46) is that *who* is in the subject position of a tensed S, which position is not properly governed. Consequently, it is reasonable to suppose that (44) likewise contains a not properly governed *who*, i.e. that the preposed tensed auxiliary does not properly govern the adjacent subject position. If so, then (41) is accounted for, too.

Recall that, by (11), S is a maximal projection in (44) (and (41)): *what* did [*S**who*...]. Thus the absence of proper government of *who* by *did* might be of a familiar type, where some relation is blocked by an intervening maximal projection. This may be insufficient, however, given the existence of various kinds of ‘exceptional government’. Let us, following Belletti and Rizzi (1981, section 1.5), assume INFL not to belong to the class of possible governors (so that nominative Case is not assigned under government). Then (41) and (44) are ruled out by (45), for lack of proper government, essentially as with Chomsky’s (1981b, section 4.4) original ECP, apart from the restriction to empty categories.<sup>14</sup>

This approach to (44) makes unavailable to English a structure such as the following: *who<sub>i</sub> did* [*S*[*e*]<sub>*i*</sub>...], and hence prohibits (47) from being grammatical without stress on *did*:

- (47) Who did leave?

When stressed, *did* can occur to the right of subject position: *who<sub>i</sub>[*S*[*e*]<sub>*i*</sub> did...]* If a preposed *did* could properly govern an empty category in subject position, then (47) would be possible with *did* unstressed, as in (48):

- (48) Who did John see?

We are now in a position to ask why (43), with the representation (40), is well-formed. The preposed INFL is by hypothesis unable to properly govern subject position. Thus, the representation *cela est* [<sub>S</sub>*il* . . .] is inadmissible, just like (42). Cliticization of *il* to *est*, as in (40), is, from this point of view, essential. Its effect is to create a three element chain (*cela, il, e*) in (40), whereas without cliticization there is only a two element chain. The change from two to three has an effect comparable to that of successive cyclicity in *Who do you think left?* (cf. § 1.1).

Let us propose that, while a preposed INFL (with incorporated V) is not a potential proper governor, it becomes one when the clitic *il* is adjoined to it. Thus, in French, the subject clitics have a property, that of facilitating proper government, that the element AGR (agreement) lacks, perhaps because AGR in French (and English) is not truly nominal (cf. Rizzi (1982, chapter 4)). By (45), *il* must in effect properly govern [e] in (40), which it now does: Assuming the index of *il* to be shared by the node dominating *est-il*, the configuration is congruent to that of (49), with the representation . . . *who<sub>i</sub>* [<sub>S</sub>[e]<sub>i</sub> . . .]:

(49) I know who left

Similarly, the configurational relation between *cela* and [<sub>S</sub>*est-il*]<sub>i</sub> in (40)/(43) is congruent to that of (49), so that (45) is satisfied in full.<sup>15</sup>

The proper government requirement that holds by virtue of (45) between *cela* and *V-il* can be looked upon as the source of the ungrammaticality of (50), as compared with (51) (= (28)):

(50) \**Cela pourquoi est-il faux?*

(51) *Pourquoi cela est-il faux?*

If proper government via coindexing can cross only one boundary, then *cela* [<sub>pourquoi</sub> [<sub>est-il</sub> . . .]] is excluded by (45) (the boundary between *cela* and *pourquoi* is imposed by the unambiguous path requirement of chapter 7).

If INFL is not by itself a valid proper governor, then one might wonder about the status of its trace in (48) and (51) with respect to ECP/Connectedness. In the spirit of chapter 8, note 20, let us suggest that when movement of a non-maximal category is at issue, the requirement is that its projections (from its derived position) connect with those of its trace. This requirement is met in (48) and (51), e.g. *who* [<sub>Y</sub>INFL [<sub>S</sub>John [<sub>INFL</sub> e] . . .]], with Y a projection of the derived position INFL and S of the trace.

Consider now *who* [<sub>Y</sub>INFL Adv [<sub>S</sub>John [<sub>INFL</sub> e] . . .]]. By the unambiguous path requirement, Adv cannot be immediately dominated by Y. Assume that (INFL INFL Adv) is not possible. Then Adv must be a sister to S. By (11), Adv must be the head of that constituent. In which case the projections of the two INFLs do not meet (do not form a subtree). This accounts for (52) versus (53):

(52) \**Won't probably John be angry?*

(53) a. *John probably won't be angry.*  
b. *Probably, John won't be angry.*

Example (53a) shows that contiguity between INFL and the subject NP is not necessary in English, and (53b), that Adv can sometimes be a left sister to S.<sup>16</sup>

Summing up this section so far, French complex inversion necessarily involves leftward cliticization of the subject pronoun (to the right of the verb). This, combined with the generalization of the ECP in (45), is what distinguishes French from English.

The inversion in (54) differs from complex inversion in lacking the extra lefthand NP:

(54) *Est-ce faux?*  
'Is it false'

Consequently, the subject pronoun can be an argument, here *ce*, as we saw in the discussion of (27)-(33). Furthermore, since there is no NP preceding the preposed INFL, the problem of connecting such a NP to subject position does not arise. In other words, the considerations which impelled us to cliticization in complex inversion are neutral as far as (54) is concerned. There is, nonetheless, some reason for thinking that cliticization is obligatory in (54), too:

(55) \**Est cela faux?*  
'is that false'

Similarly:

(56) *A-t-on sonné?*  
'has-one rung'

(57) \**A quelqu'un sonné?*  
'has someone rung'

The simple inversion of (54) and (56) is possible only with a small set of subject pronouns – *je, tu, il(s), elle(s), nous, vous, on, ce*, all of which have clitic properties. Thus in French, as opposed to English, the preposing of INFL seems possible only if subject position is empty at S-structure. Put another way, obligatory cliticization seems necessary in (54) and (56) as a way of vacating subject position.<sup>17</sup> (This constitutes an additional reason for obligatory cliticization with complex inversion.)

10.5.2. *Leftward Syntactic but Rightward Phonological Cliticization*

We have just concluded that when the tensed verb is moved to the left of subject position in French, a subject pronoun cannot remain in subject position at S-structure, but must cliticize to that tensed verb. A natural question is: What is the behavior of these subject pronouns in sentences in which the tensed verb remains to the right of subject position, as in (58)? Is *on* cliticized to *a*?

(58) On a sonné (cf. (56))

None of the considerations adduced in the previous section are relevant here, except for the basic fact that these subject pronouns have various clitic properties. If there were cliticization in (58), it would be onto the tensed verb (here, auxiliary verb). If that verb is in the VP, rather than in INFL, then cliticization at S-structure yields an empty category in subject position lacking any *c*-commanding antecedent, whence a violation. If the tensed verb is in INFL, and if the relevant structure is: NP[ $\overline{\text{INFL}}$  INFL VP], as we suspect,<sup>18</sup> then the same conclusion holds. Thus, while cliticization of the subject pronoun by S-structure is necessary in the inversion constructions at hand, cliticization by S-structure of the subject pronouns is impossible in French if inversion has not taken place.<sup>19</sup>

## 10.6. CHAINS AND CASE

The attribution to complex inversion sentences such as (51) of chains of the form (lexical NP, *il*, *e*) is compatible with the interaction between the  $\theta$ -criterion and Case (cf. Chomsky (1981b, 334-335)). Clearly, the chain will be assigned a  $\theta$ -role by exactly one position, that of [*e*], as desired. The assignment of the  $\theta$ -role depends here on the question of whether the chain has Case or not. It does, since its third member (or possibly its second – cf. note 17) occupies a position assigned nominative Case.

With the Case filter no longer an independent principle, the question of whether the lexical NP itself in such chains has Case is less straightforward than it used to be. Under our assumption that the lexical NP is outside the minimal S, it is presumably not in a position to which Case is assigned directly. Furthermore, there is another element *il* in the chain which is overtly marked for nominative Case. Suppose the following principle holds:

(59) Given a chain *C* with Case *K*, *K* can be realized morphologically on at most one element of *C*.

If (59) is correct, then the lexical NP in a complex inversion chain can have no morphological Case. That is, *cela* in (60) has no morphological Case:

(60) *Cela est-il faux?*  
'that is it false'

Nor does it seem necessary to say that *cela* has syntactic Case in (60) in any sense other than that it belongs to a chain which has syntactic (nominative) Case.

In allowing *cela* in (60) to have no morphological Case, we have in mind a more general fact about French, namely that the pronominal clitics are the only elements to show any overt reflex of Case. Put another way, non-clitic NPs in French never bear morphological Case. In this respect, French differs sharply from a language like German. Let us assume that in a language like German, lexical NPs always bear morphological Case, even if, as often with articular proper names, there is no phonological reflex. Then it follows that complex inversion cannot exist in such a language, even if there are clitics, since there would be a clash between (59) and the requirement that every NP bear morphological Case.

It similarly follows that those NPs in French which must bear morphological Case cannot replace *cela* in (60). Clitics in French must bear morphological Case; therefore (61) is ungrammatical:

(61) a. \**C'est-il faux?*  
'it is-it false'  
b. \**Il est-il là?*  
'he is-it there'

Since *ce* and *il* belong to the class of morphological (nominative) Case-bearing elements, the chains (*ce*, *il*, *e*) and (*il*, *il*, *e*) are ill-formed, by (59).<sup>20</sup>

Principle (59) would permit the first member of a complex inversion chain to be *il* or *ce* if the second member did not bear morphological Case. This seems to correspond to the situation in the variety of popular French that uses the invariable *-ti* (examples from Morin (1979b)):

(62) *Personne aura- ti le courage de résister?*  
'nobody will-have-ti the courage (for) to-resist'

(63) a. *Je peux-ti ajouter quelque chose?*  
'I can- ti add something'  
b. *On devrait-ti pas se méfier aussi?*  
'one should- ti not beware also'  
c. *Il est-ti stupide!*  
'he is- ti stupid'

This construction obviously resembles complex inversion, although *-ti* itself never occurs in preverbal position. The resemblance with complex inversion is strengthened by Morin's (1979b, section 3 and note 22) double observation: 1) *-ti* occurs only in root contexts (basically like complex inversion and

inversion in Germanic) 2) *-ti* is excluded when it is the subject that is questioned (the same restriction exists for standard complex inversion):

- (64) \*Qui est-ti venu?  
'who is- ti come'
- (65) \*Qui a-t- il dit cela?  
'who has-it said that'

We return to (64) and (65) below. The sensitivity of *-ti* to embedded contexts recalls our discussion, above, of den Besten (to appear); we continue to agree with his argument that a unified account of this cross-linguistic sensitivity will depend on consistently analyzing the constructions in question as involving leftward tensed verb movement.<sup>21</sup>

Consequently, (62) and (63) should involve leftward movement of the tensed verb, and a clitic *-ti*, so that the relevant chains are of the form (lexical NP, *-ti*, e). *-Ti* must be a non-argument, and must be in clitic position for the chain to be well-formed, as argued in § 10.5.1. On the assumption that *-ti* bears no morphological Case, the contrast between (63) and (61) follows.<sup>22</sup>

#### 10.7. CHAINS AND AGREEMENT

Chomsky (1981b, 323) notes that a movement rule should leave behind on the trace the grammatical features of person, number and gender. Thus if ( $\alpha$ ,  $\beta$ ) is a link of some chain, with  $\alpha$  an argument and  $\beta$  its trace, then  $\alpha$  and  $\beta$  will 'share' those grammatical features. If  $\alpha$  is an argument, then  $\beta$  is generally an empty category. Let us say, however, that French, or perhaps any language, strengthens this feature sharing at least to the following extent:

- (66) If ( $\alpha$ ,  $\beta$ ) is a link of some chain *C*,  $\alpha$  an argument, then  $\beta$  bears the same person, number and gender features as  $\alpha$ .

(66) could presumably be generalized to subchains headed by an argument, but we shall not pursue that question, considering here only the effects of (66) on complex inversion:

- (67) Pourquoi aucun garçon n'est- il venu à la  
'why no boy neg-is-it come to the  
soirée?  
party'

(67) has the chain (*aucun garçon*, *il*, e), so that by (66) non-argument *il* agrees with *aucun garçon*. Similarly by (66), if we replace *aucun garçon* by a NP that is grammatically feminine, the non-argument clitic will agree in gender:

- (68) Pourquoi aucune fille n'est-elle venue à la soirée?

That is, the *elle* of (68) is a non-argument pronoun.

Morin (1979b, section 2.4, 4) gives two strong arguments in favor of this kind of agreement.<sup>23</sup> First, although *voilà* normally occurs without any subject, as in (69), one can also have (70):

- (69) Voilà Marie prisonnière de ses mensonges  
'there's M. prisoner of her lies'
- (70) Ne voilà-t-il pas Marie prisonnière de ses mensonges?

The appearance of *il* in (70) can be described by the statement that *voilà* is compatible with an overt subject only if that subject is a non-argument and a clitic at S-structure.<sup>24</sup> What is relevant to agreement is the fact that if *Marie* in (70) is replaced by a pronominal clitic, then non-argument *il* can give way to a non-argument *elle*:

- (71) Ne la voilà-t-elle pas prisonnière de ses  
'neg her there's-it not prisoner of her  
mensonges?  
lies'

The second argument in favor of taking *elle* in (68) to be a non-argument agreeing with its predecessor in the chain is made on the basis of (72) and (73), which Morin contrasts as follows:

- (72) Pourquoi lui seul a-t- il été prévenu?  
'why him alone has-it been warned'
- (73) \*Pourquoi toi seul as-tu été prévenu?  
...you...

The fact that complex inversion must, by virtue of the  $\theta$ -criterion, involve a non-argument subject clitic, leads to an account of (73), if (74) holds:

- (74) A first or second person pronoun must necessarily be an argument

(74) is related to the conjecture that no language uses a first or second person pronoun as a non-argument. Assuming (74), we can let the agreement convention apply in both (72) and (73); (74) will then produce a  $\theta$ -criterion violation in the latter. If the *il* of (72) were really the argument *il*, then (73) should have the same status as (72), which it does not.<sup>25</sup>



## 10.8. FRENCH VS. ITALIAN

Our hypothesis that in sentences like (75) the subject clitic is not cliticized in the syntax, i.e. that it is in subject position at S-structure, establishes a sharp difference between it and the object clitic, which is never still in its D-structure position at S-structure:

- (75) a. Ils les voient  
       'they them see'  
       b. \*Ils voient les

In this sense *ils* is "less thoroughly" a clitic than *les*. This may correlate with the difference between (76) and (77), as responses to (75):<sup>26</sup>

- (76) a. ?Qui ça, ils?  
       'who that, they'

- (77) \*?Qui ça, les?

The purely phonological cliticization of *ils* in (75) has the further advantage of accounting for the relative order of subject and object clitics (cf. Kayne (1975, chapter 2, note 18)) in terms of the obvious fact that object clitics never precede subjects of any kind:

- (78) a. \*Les ils ennuiant  
       'them they bother'  
       b. \*Les tout ennuie  
       'them everything bothers'

Similarly, the relative order of subject clitic and negative *ne* reduces to the relative order of *ne* (along with other negation markers) and subjects in French in general:

- (79) a. Ils ne sont pas à Paris  
       'they neg are not at Paris'  
       b. Tout n'est pas à Paris  
       'everything...'  
       (80) a. \*N'ils sont pas à Paris  
       b. \*Ne tout est pas à Paris

Of particular interest is the fact that sentences comparable to (80a) are found in certain northern Italian dialects (cf. Rohlfs (1968, section 451; 1969, section 986a) and Benincà (to appear), Benincà and Vanelli (to appear)). By our reasoning, these dialects should have syntactic cliticization of subject clitics to a following tensed verb,<sup>27</sup> contrary to French. This would appear to

be related to Italian being a 'pro-drop' language. Rightward syntactic cliticization in French yields an improperly bound empty category (cf. the discussion of (58) above). The same rightward syntactic cliticization in northern Italian dialects does not, since in Italian (dialectal or not) such an empty category can be *pro* (cf. Chomsky (1982b, chapter 5)), although it cannot in French. If this is correct, then the link between richness of morphology and 'pro-drop' is more indirect than might be thought (cf. Rizzi (1982, 142-144) and Pesetsky (1981/82, 312-313)), since the grammatical features of the empty category in subject position would have been, subsequent to syntactic cliticization, determined in French just as well as they are in the northern Italian dialects, namely by the subject clitic itself.

## 10.9. VARIABLES

In § 10.5.2. and 10.8 we argued that in French sentences without inversion such as (81) (= (58)) the subject pronoun is in subject position at S-structure:

- (81) On a sonné

A violation would result at S-structure, if *on* were cliticized to the right of subject position onto the verb. Such a violation would not hold if the vacated subject position were properly governed by a coindexed NP: *cela* [<sub>S</sub>[e] *il-est faux*]. However, as noted above with respect to (19), *cela* is not allowed to be adjoined to S, by virtue of (10) and (11). Thus, (82) (= (19)) is actually excluded in uniform fashion whether *il* is cliticized or not:

- (82) \*Cela il est faux

A similar point can be made for (83):

- (83) a. \*Cela semble qu'il soit faux  
       b. \*That seems that there is wrong  
       c. \*That seems that it is wrong

With non-argument pronouns as embedded subject, (83) is ruled out by (45): There would have to be chains (*cela*, *il*), etc., but the second member is not properly governed. (With argument *it*, (83c) constitutes a  $\theta$ -violation.) Nothing would change in this respect if *il* in (83a) were cliticized.

Consider now (84):

- (84) \*That seems there to be wrong

If *seem* does not govern the embedded subject position, then (*that*, *there*) is an impossible chain by (45), since *there* would not be properly governed. If *seem* can govern into embedded subject position in general, and not just when that

position is empty, then (*that, there*) in (84) is a possible chain with respect to the principles so far adopted. Let us assume, however, that non-argument *there, it* and *il* are [+ pronominal], and hence subject to principle B of Binding theory ("A pronominal is free in its governing category." – Chomsky (1982b, 20); cf. also Chomsky (1981b, 220)). Then if *seems* governs *there* in (84), principle B is violated. Consequently, there is no possibility for (84) to be grammatical.<sup>28</sup>

Principle B is also relevant to (85):

- (85) \*Je sais qui il amuse Marie  
'I know who it amuses M'

If non-argument *il* is in subject position at S-structure in (85), then (85) violates the requirement that every operator (here, *qui*) must bind a variable (cf. Chomsky (1982b, 11-13)), given that non-argument *il* is not a potential variable.<sup>29</sup> If *il* is cliticized, yielding...*qui<sub>i</sub>[S[e]<sub>i</sub> il<sub>i</sub>-amuse...]*, then [*e*]<sub>*i*</sub> could be the variable. It would be properly governed by *qui<sub>i</sub>*, and *qui* is a legitimate left sister of S, since it is a Wh-phrase. However, *il* would then plausibly be in violation of principle B; thus, cliticization cannot redeem (85).

The question arises as to why complex inversion does not itself violate principle B, e.g. in (86) (= (67)):

- (86) Pourquoi aucun garçon n'est-il venu à la soirée?

The simplest answer is that *free* in principle B means *A-free* (free with respect to A-position).<sup>30</sup> We have argued all along that *aucun garçon* 'no boy' in (86) is not in an A-position. Hence *il* in (86) in A-free, unlike *there* in (84) and rightward cliticized *il* in (85).<sup>31</sup>

The non-embedded counterpart to (85) with inversion poses a somewhat different problem:

- (87) \*Qui amuse-t-il Marie?

This contrasts with (88):

- (88) Jean amuse-t-il Marie?

To exclude (87) fully, we must consider two representations in turn. First, there is: *qui amuse-t-il [e]...* Non-argument *il* not being a possible variable, the variable could only be [*e*]. Now in § 10.1 and 10.2, we argued that the distinction operator/argument was superior in certain areas to the distinction  $\bar{A}$ /A-position, in such a way as to suggest (cf. especially the discussion of (1) and (2)) that the definition of variable in Chomsky (1981b, 330) be modified to (89):

- (89)  $\alpha$  is a *variable* if and only if it is locally operator bound and in an A-position

(We have replaced ' $\bar{A}$ -bound' by 'operator bound', as in Chomsky (1981b, 102).) But (89) accounts directly for the ill-formedness of the representation under consideration, since [*e*] there is locally bound by *il* and not by *qui*, i.e. [*e*] is not locally operator bound at all.<sup>32</sup>

The second representation to consider for (87) is: *qui<sub>i</sub>[e]<sub>i</sub> amuse-t-il [S[e]<sub>i</sub>...]*. We have just seen that the second [*e*] cannot be a variable, but could the first be one? The answer is no, since (89) requires the variable to be in an A-position, which the first [*e*] is not. This completes the account of (87).

The A-position requirement of (89) is to be understood as not extending directly to pronouns functioning as variables, since in a language with a resumptive pronoun strategy and with clitics, we would expect to find resumptive pronoun clitics. In fact there are certain peripheral instances of viable clitic resumptive pronouns in interrogatives in standard French (cf. Grevisse (1964, section 186)):

- (90) Quel homme n'aurait-il pas été  
'what man neg- would-have-he not been  
séduit par un si joli argument?  
seduced by a so pretty argument'

Such 'rhetorical questions', favored by the negation, are possible, in contrast to (87). We shall consider that they involve argument *il*, and that it is that *il*, locally operator-bound by *quel homme*, which is the variable, one in an  $\bar{A}$ -position.<sup>33</sup>

The definition (89) needs to be commented on in light of (4a), repeated here as (91):

- (91) John, who I assure you to be the best student available,...

The representation is: *who...[e] [S[e]...]*, with the chain (e, e). By (89), the first [*e*] cannot be a variable. The second [*e*] can – provided 'operator bound' in (89) is interpreted to mean 'bound by an operator or by the trace of an operator, where the trace is in an  $\bar{A}$ -position of the type that the operator is in'. Thus the chain in (91) is like that of *There arose a firestorm* (cf. note 30) in having its argument (in (91), the variable) not be its head. The chain in (91) is unusual ("marked") in containing an empty category (the first of the two) that is neither a variable nor an anaphor.

#### 10.10 BEYOND COMP

In agreement with den Besten (to appear), we have adopted an analysis of French complex inversion which treats (92) as containing three phrases to the left of the basic S node:

- (92) Pourquoi cela est-il faux?

The representation is: *pourquoi cela est-il* [<sub>S</sub> . . .], which we can schematically represent as: Wh NP INFL [<sub>S</sub>. Of the six permutations of Wh, NP and INFL, only the one shown is grammatical. We proposed an account of \*NP Wh INFL [<sub>S</sub> at (50). The four remaining permutations all have INFL separated from S by either Wh or NP. But we argued at (52) that a preposed INFL could not be separated from S. Thus, the other five permutations are correctly excluded.

The significance of this is that we can now take complex inversion sentences such as (92) to be generated by three applications of Move- $\alpha$  (plus cliticization), with Move- $\alpha$  at its most general. No stipulation is required concerning the output order among the three constituents. In particular, there is no need to have a COMP node with labeled subparts ready to receive them. Put another way, it seems preferable to analyze (92) as involving three left adjunctions, rather than via a COMP node that would have to have three places in it.

This suggests in turn that we abandon, in agreement with Bresnan (1976b, 364) on interrogatives (cf. also Chomsky (1981b, 53) and Pesetsky (1981/82, Appendix I), the hypothesis that Wh-movement ever involves movement to a node labeled COMP.

If Wh-movement, NP-movement and INFL-movement in (92) are adjunctions to S or to  $\bar{S}$ , then they resemble Heavy-NP-Shift in being adjunction of one category to another that originally dominated it.<sup>34</sup>

The ungrammaticality of (93) was attributed by Chomsky (1980, 5) to c-command, under the assumption that Wh-movement was necessarily adjunction to COMP:

(93) \*I know where what you put

Having dropped that stipulation, we must look further. In successful instances of multiple interrogation, such as (94), the second Wh-phrase must be properly Connected, in the sense of §8.2.2-8.2.4, to the first:

(94) I know what you put where

That requirement is, plausibly, not met by (93), but that is not a sufficiently general account, since the requirement would be met in any event by (95):

(95) \*I know where what you sent who(m)

We assume that at an appropriate level of representation, the first Wh-position in (94) corresponds to that of a complex operator (cf. Higginbotham and May (1981a) on 'absorption'), and the second to that of one variable. In (93) and (95), however, the second Wh-position (that of *what*) is not an A-position, and so, by (89), cannot correspond to a variable. If the position of *what* in (93) and (95) does not, furthermore, correspond to that of any operator (only that of *where* does), then the trace of *what* in (93) and (95) cannot be a

variable, either, since it is locally bound by a non-operator. Thus, there is no way to have a variable in (93) or (95) corresponding to the direct object of *put*, which means that (93) and (95) cannot be viable instances of multiple interrogation.

This account of (93) and (95) in terms of the definition (89) of a variable carries over to (96) vs. (97):

(96) Who doesn't know (that) John did what?

(97) Who doesn't know what John did?

Whereas (96) is a passable instance of multiple interrogation, (97) is not – it can only have a reading in which each Wh-phrase has distinct scope. In (96) the S-structure position of *what* can count as that of one variable. If *what* in (97) is taken as an operator with independent scope, then its trace can be a variable (this is the grammatical reading of (97)).

But if *who* is taken to be a complex operator whose position determines the scope of *what*, then the position of *what* is not that of an operator; hence the trace of *what* cannot be a variable, by local binding. Nor can the S-structure position of *what* correspond to that of a variable, since it is an  $\bar{A}$ -position. Therefore, taking *who* as a complex operator in (97) yields no coherent reading.<sup>35</sup>

In much the same way that Chomsky's account of (93) required the assumption that Wh-movement had to be adjunction to COMP, den Besten's (to appear) account of (98) assumes that it is not possible to generate two consecutive COMP positions:

(98) \*Who do you think that is Mary going out with?

For den Besten, the fronting of *is* must be to the position of the lexical complementizer.<sup>36</sup> This accounts fully for (98) only if having two such positions is inadmissible. We shall take the view that the latter prohibition, or some variant thereof, is sufficient, and that one can dispense with the idea that the preposing of INFL is to a specified position.

What we have in mind for (98) is the following: We replace (11) by the wider (99):

(99) Given: (INFL<sup>n</sup> XYZ INFL *W*). Then if *Y* is an A-position or is an operator phrase, *X* must be null.

The intent of (99) is that the presence of a NP in subject position or the presence of an operator *closes* an INFL projection. (Put another way,  $\alpha$  closes a projection of  $\gamma$  iff  $\gamma^m$  immediately dominates  $\alpha$  and  $\beta$  immediately dominates  $\gamma^{m-\beta \neq \gamma^{m+1}}$ . We will say that if  $\alpha$  closes a projection of  $\gamma$  and some  $\gamma^m$  immediately dominates  $\alpha$ , then that  $\gamma^m$  is *closed*.) We are now in a position to propose the following:

(100) The sister category of a complementizer must be closed.

With the proposed INFL taken as its head, the category *is Mary going out with* in (98) is not closed, so that (98) is ruled out by (100). Correctly allowed is (101), given the presence of the operator phrase *under no circumstances*:<sup>37</sup>

(101) I personally think that under no circumstances will he be willing to go along with us.

Since *cela* in (102) is neither in an A-position nor an operator phrase, the sister category of *que* is not closed, whence a violation of (100):

(102) \*A qui crois-tu que cela est-il destiné?  
'to who think-you that that is- it destined'

## NOTES

1. We agree here with Pollock's conclusion (1983b) concerning comparable French data. Cf. Chomsky (1981b, chapter 5, note 18). It should be noted that Case assignment into the COMP of a tensed S (cf. §1.1) does not force incorporation of the [e] in COMP into a chain, if the [e] in subject position receives (nominative) Case on its own. On the status of (4a) with respect to the anaphor/variable distinction, cf. § 10.9.

2. It does not matter here whether or not INFL + VP is a constituent.

3. ~ Echo Wh-phrases must not have that feature either. In effect, for a phrase to bear the feature in question, it must be an operator and not an argument (cf. Chomsky (1981b, 115)), though operator status is not sufficient. The ungrammaticality of (i) shows that only the highest Wh-phrase of a multiple interrogation set can be an operator at S-structure:

(i) \*Who assured you who(m) to be the best student?

The ungrammaticality of (ii) shows that *who* cannot simultaneously be an operator and part of a chain:

(ii) \*I don't know who(m) to tell you the bad news.

4. *Which book \*(that) was on the table is now missing?* implies that in such relatives the Wh feature is on the whole NP only, and not on *which book*, as seems reasonable, given its scope.

*John will eat any food that is put in front of him* means that *that* can be marked Wh- when governed, modulo extraposition, by the head of the relative, and the same for *qui*, despite the absence of a Wh antecedent.

5. The VP will in general thus contain [<sub>v</sub>e]. We are also abstracting away from the cliticization of *il*, for the time being. On the ungrammaticality of (18)-(20) with a Wh-phrase in place of *those books/cela*, see § 10.9.

6. This may be supported by the ungrammaticality of (22) in French, given (16) and (17). On the other hand, Spanish has a construction somewhat like (22) that displays obligatory inversion of the type found in Wh interrogatives – cf. Torrego (to appear); conceivably,  $X^m$  in (10) can in Spanish contain a feature comparable to but distinct from Wh- (i.e.  $X^m$  could be another kind of operator – perhaps such an approach is extendable to English (22), too). Dutch and German have (21) with fewer restrictions than English – comparable remarks hold as in the text. The text account of (24) transposes to (13) with NP- $\bar{S}$ , if an empty NP is excluded from the highest COMP of a relative.

In *anyone owning a black car, tout homme possédant une voiture noire, someone to fix the sink, the only student to have understood the question*, there is presumably PRO in subject position (cf. Chomsky (1981b, 167)), implying that PRO and its antecedent are not in a binding relationship in the sense of (10), and perhaps are not coindexed at S-structure – cf. the analysis suggested in the text for (9). We leave open the question of resumptive pronoun relatives.

7. In agreement with Pollock (1981, 220-222).

8. Judgments on (29) are sharply negative for most speakers, but some find it acceptable, and similarly for \**Cela est-ce faux* 'That is it false' with flat intonation. We will claim that these speakers admit left dislocation without the pause typically associated with it – cf. note 10.

9. While (32) is uniformly rejected, (i) is accepted by many:

(i) Pourquoi Jean et moi ne devrait-on pas partir tout de suite?  
'why J. and me neg should one not leave right away'

Morin (1979b, note 19) considers (i) ungrammatical. Those who accept (i) must be treating it as pauseless dislocation (contrary to Kayne (1972, note 30)); alternatively, they might perhaps, with a NP that is first person plural, exceptionally be allowing *on* to function as a non-argument, contrary to the normal argument status of *on*.

10. This accounts for the ungrammaticality of (20) with the intonation characteristic of dislocation: \**Cela, est-il faux?* versus *Cela, est-ce faux?* With respect to argumenthood, then, *ce* is just like *ça* ((27) is \*with *ça*, too). We might take the pair *Il pleut – Ça pleut* 'it rains' to indicate that certain weather expressions optionally assign a  $\theta$ -role to their subject. The initial position of clefts in French must be a  $\theta$ -position, given *C'est à Marie que Jean pense* versus \**Il est à Marie que Jean pense*. Further relevant examples are given in Kayne and Pollock (1978, note 22), where the following is noted:

(i) C'est facile de chanter  
'it is easy (for) to-sing'

(ii) Il est facile de chanter

(iii) C'est facile, de chanter

(iv) \*Il est facile, de chanter

(v) \*Ce n'est facile que de chanter  
'it neg is easy but for to-sing'

(vi) Il n'est facile que de chanter

(ii) vs. (iv) shows that with *il*, the thematic subject is *de chanter*, i.e. (ii) can only be extraposition. (iii) shows that *ce* can be the thematic subject, and the contrast between (v) and (vi) suggests strongly that *ce* must be the thematic subject in (i), to the exclusion of *de chanter*. That is, (i) is an instance of right dislocation, despite the absence of a pause. This accounts for the ungrammaticality of (v), since true quantification seems to be incompatible with right dislocation (cf. Kayne (1975, chapter 2, note 46)), presumably as a consequence of lack of government, and the ECP. We would claim, then, that (29) can no more be an instance of complex inversion than (i) of simple extraposition; those who accept (29) admit pauseless left dislocation in much the way that (i) is an instance of pauseless right dislocation.

11. The idiomatic *le* of Morin (1981, section 1) are 'quasi-arguments' in Chomsky's (1981b, 325) sense, rather than non-arguments. Sentence (39) without *le* is grammatical, whereas (37b) without *le* is not – cf. note 6.

12. It would also exclude in a principled fashion the analysis of *il* given in Safir and Pesetsky (1981), which has *il* generated as a sister to V.

13. \**L'entends-tu pleuvoir*. 'It hear you raining' indicates either [<sub>INFL</sub> [<sub>v</sub>le V]INFL]-*tu* or else the need for 'reconstruction' – cf. Belletti and Rizzi (1981, Appendix 1).

14. The Spanish inversion construction discussed by Torrego (to appear) does not in the general case involve movement of the bare inflected verb (if there is leftward movement, then the past participle must be considered to move, too, when present, quite unlike English and French), and so plausibly does not bear on the text proposal.

15. We are assuming that in  $NP_i$ [INFL[ $\zeta$ [e] $_i$ ...],  $NP_i$  does not govern [e] $_i$ -cf. \**John's appearance to have been elected*.

If the structure suggested in note 13 is correct, then we might well not expect the index of an object clitic to be shared by the maximal preposed INFL node—this would distinguish (40)/(43) from Belletti and Rizzi's (1981, 141) \**Essendone tre usciti*... Why their (p. 124) \**Essendo tre usciti*... is ungrammatical is unclear, unless the government relation that excludes PRO is characterized more loosely than that relevant to ECP/Connectedness. Under our proposal the latter accounts for \**Non essendo niente successo*... (\* at least with neutral intonation) cited in chapter 1, note 26.

The text proposal is not compatible with the representation *Hans ist* [ $\zeta$ [e]... for *Hans ist hier* (cf. Koster (1978)), if INFL in German and Dutch (and Scandinavian) has the same properties as in English and French.

English \**Why John<sub>i</sub> has* [ $\zeta$ [e] $_i$ ...*left?* is excluded as desired.

16. Cf. French *Heureusement qu'elle est là* 'fortunately (that) she...' with the adverb plausibly the head. Why (53a) has a different status in French—cf. Kayne (1975, chapter 1, (text to) note 22)—is unclear.

If, as we have been told, the VSO structures of Arabic and Irish behave like (52), then that suggests that the V there binds an empty position between subject and object, and that there is a VP—cf. Emonds (1980).

Taking into account Torrego's (to appear) idea that the trace of V is not a sufficient proper governor, we might define, for  $\beta$  non-maximal and empty, the g-projection set of  $\beta$  to be the union of the set of projections of  $\beta$  and the set of projections of the antecedent of  $\beta$ . Then the Connectedness condition is met as desired by *What have you there?* (British) without the preposed INFL + V having to be taken to govern the Wh-phrase.

17. This cliticization is to the right, rather than to the left, of the preposed INFL, with this perhaps related to clitic positioning in positive imperatives: *Fais-le* 'do it', not \**Le fais* (cf. Kayne (1972, note 20)) and/or to the fact that AGR attaches to the right of V. As for why INFL preposing is incompatible with a lexically filled subject position in French, the question remains open. (A. Szabolcsi has suggested that the solution be in terms of Case assignment—cf. (4) above.) Safir and Pesetsky's (1981) approach to this problem does not seem compatible with Emonds (1978, section 8).

18. Cf. Belletti and Rizzi's (1981, section 1.5) argument that nominative Case is not assigned under government.

On the tensed verb in INFL, cf. Emonds (1978, section 8). Emonds (1976, section VI.2.3) proposes for English a rule comparable to his 1978 rule for French. The former allows one to relate British (i) *John has seldom enough money* and *Has John enough money?* i.e. the possibility for an adverb to intervene between V and its object is limited to that main verb which is otherwise liable to be raised to the Tense position. This suggests that in (i) the NP *enough money* is being governed and assigned Case by the trace of *have* (see note 16), which is adjacent to it. Thus, Stowell's (1981) adjacency requirement on Case assignment (or, alternatively, an explanation of the adjacency facts via the unambiguous path requirement on government of chapter 7) can be maintained in full generality for English, if not even more generally: The apparent minimal contrast between English and French seen in \**John sees often Mary* vs. *Jean voit souvent Marie* might reduce to the fact that only in French can (and must) every lexical verb be raised to Tense, although more would have to be said about non-finite forms. Cf. the Introduction.

It is of interest that something like the adjacency requirement seems to play some role even in Japanese, to judge by Hasegawa (1980, note 1). Skepticism about non-configurationality, shared by Gazdar and Pullum (1981, note 3) (vs. Chomsky (1981b, section 2.8) and Bresnan (1982)) is likewise encouraged by Lenerz (1977, especially chapter 2), who argues that the apparently parallel status of accusative-dative and dative-accusative orders in German is but apparent.

The adjacency (or unambiguous path) requirement in question appears to extend beyond Case: *John is/\*remains often unhappy for long periods*.

19. Cliticization of these subject pronouns in non-inversion constructions, then, is entirely in the phonological component of the grammar. This implies that *Il faut tous qu'ils partent* 'It is necessary that all depart' is not dependent on *ils* being a clitic (cf. chapter 4, note 13), and that the deletion in *On a mangé du pain et bu du vin* 'Bread was eaten and wine was drunk', either applies on the phonological wing of the grammar after cliticization, or else applies to any NP-V pair (a partially different conclusion from Kayne (1975, chapter 2, note 40)).

20. Note that while *ce* is, outside of a few archaic expressions, limited to nominative environments, *ça* is not: *Jean aime ça/\*ce* 'John likes that/this', *Jean a parlé de ça/\*ce* 'John spoke of that/this' (true of *ce* = bare NP, not of determiner *ce*). Morin (1979b, section 5) notes that *ça* is to varying extents compatible with complex inversion; *Quand tu rentres chez toi, ça barde-t-il toujours autant?* 'When you go home, do you still have to go through it so much?' This is straightforward if *ça* does not bear morphological Case, unlike *ce*. This correlates in turn with *Est-ce vrai?* 'Is it true?' vs. \**Est ça vrai?* 'Is that true?' (cf. (55)), i.e. *ça* cannot cliticize to the leftward-moved verb. Thus we take the class of pronominal elements that must bear morphological Case to be that which can so cliticize. Morin (1979; 1982) notes that (preverbal) subject *ça* has clitic properties nevertheless. Thus, the correct generalization may be that cliticization in the syntax (i.e. by S-structure) requires morphological Case, whereas cliticization in the phonology does not.

Note in addition that (59) does not prohibit two identically Case-marked NPs in left dislocation/topicalization in a language like German, if the two NPs are not part of one thematic chain. 21. In work in preparation (cf. Kayne (1982b)), we propose an account based in part on though different from Safir's (1982) that, although differing also from den Besten's, still depends crucially on the verb being outside S.

22. To exclude *-ti* from preverbal position, we could specify that it must be a clitic at S-structure (perhaps it assigns its index to the INFL node above it, losing the index itself). This might allow it to escape the generalization of note 20 requiring morphological Case on syntactically cliticized (indexed) clitics. Cf. Burzio (1981, section 3.1) on Italian *ci*. *-Ti* might not be acting as a binder in the construction cited by Morin (1979b) as occurring in some dialects: *En voulez-vous-ti?* 'Would you like some?'

23. However, he considers the *il/elle* of complex inversion a "variable marker" and suggests a 'morphological' analysis, which we would consider too pessimistic, and less revealing than the one we have been developing in the text. Our analysis is not compatible, either, with the 'subject clitic sister of V' approach of Safir and Pesetsky (1981) and Safir (1982) (cf. notes 12 and 17 above), or with the 'French subject clitic as INFL' approach of Jaeggli (1980)—cf. § 10.8 below.

24. Recall that cliticization of *il* in the syntax is possible only to the left—cf. notes 20 and 22, which suggest the possibility that the clitic in (70) is akin to *-ti*, that *voilà* lacks AGR and that no nominative Case is assigned. In treating the clitic of (70) as comparable to that of (26), we agree with Perlmutter and Postal (1978, section 6). On the agreement in (71), cf. Belletti (1982, note 12) on \**Le si mangiano* and past participle agreement.

25. Some speakers find (73) questionable rather than completely unacceptable; we might attribute this to a weaker (74) or to interference from dislocation; cf. notes 9 and 10. As Morin notes, it is not possible to tell whether the non-argument clitic of complex inversion can become plural, the *il/ils* and *elle/elles* distinctions being purely orthographic in enclitic position; if there were agreement in number, that would recall English *there*. The absence of gender or number agreement in (26) or in *Il prend corps dans ce pays des espoirs insensés* 'Some absurd hopes are materialising in this country' follows from (66), since (at least)  $\theta$ -assignment requirements force the NP in question to be within a projection of V and hence not to c-command *il*—cf. Pollock (1981, 231-233).

26. Similarly, Hirschbühler (n.d., note 6) notes the existence of speakers who allow what are otherwise subject clitics to be followed by a parenthetical, whereas comparable judgments on object clitics (or subject enclitics) have never been attested, to our knowledge.

27. The Paduan dialect of Italian appears to have phonological cliticization of *a*, which is

not a subject, as Benincà ultimately argues. Cf. Benincà and Vanelli (to appear, section 1.6). Both (78a) and (80a) are accidental under the 'subject clitic sister of V' approach and at least (80a) under the 'French subject clitic as INFL' approach referred to in note 23. Rather than rightward syntactic cliticization from subject position, there might perhaps be generation in Italian dialects (but not in French) of subject clitics under INFL—cf. Chomsky (1982b, 86).

28. *John seems as if he's unhappy* requires a separate  $\theta$ -role for the matrix subject; cf. *John seems as if something's wrong (with him)* and *\*Advantage seems as if it's been taken of us*. This  $\theta$ -role must be optional, given *It seems as if something's wrong* (the idiom chunk example is then excluded parallel to (83)); in that case, the non- $\theta$  subject can sometimes be *there*? *There seems as if there's something wrong*, in which the two *theres* are not coindexed. (The only perfectly natural example in this note is *It ...*).

29. Similarly for *\*I know what<sub>i</sub> there<sub>i</sub> amused them*.

30. Alternatively, principle B might check solely the position bound by *il*, rather than *it* itself, in which case (86) might fail to fall under principle B much as (42) fails to meet the ECP—cf. § 8.4 on generalizing ECP/Connectedness to lexical anaphora.

31. In (some or all) northern Italian dialects, subject clitics might not always be [+ pronominal].

32. "α is locally X-bound by β if and only if α is locally bound and X-bound by β"—Chomsky (1981b, 185). We follow Pollock (1983b) in taking *there* and [e] not to be coindexed in *What is there on the table?*. Pollock shows that local binding is what accounts for *\*What kind of firestorm did there arise?*, since with verbs other than *be*, coindexing is, with few exceptions, required.

In *I know who [e] left, who* locally binds [e] since [e] is bound by nothing else, specifically not by AGR, given the discussion of (40) through (49).

(89) should be interpreted for full generality in such a way that *whose book* is an operator—cf. § 8.3.2.

The local binding account of (87) is extended to comparable facts concerning French stylistic inversion in Kayne (1982a). An alternative that does not use local binding is proposed by Safir and Pesetsky (1981) and Safir (1982); a sustained discussion, which would need to include Safir (1982) vs. Kayne (1982b) on the root character of complex inversion, is beyond the scope of this article.

33. As a non-rhetorical question, (90) seems quite marginal, although less so than (87). More frequently accepted than (90), with a non-rhetorical interpretation, are comparable sentences with *quel homme* 'which man' replaced by *combien de ...* 'how many ...': *Combien de garçons aiment-ils les échecs?* 'How many boys like chess?' Although some speakers may accept these with an argument *ils*, their increased acceptability suggests that they can (marginally) be analyzed as *Combien [[e] de ...] V-clitic [e] ...* (with a non-argument clitic); cf. Kayne (1972, note 68), Obenauer (1976, 24, 61).

As for why the rhetorical question (90) allows a resumptive pronoun, it may be that (90) is despite appearances an instance of existential quantification (cf. *Is there a man such that he wouldn't have been seduced by ...?*) at some level (cf. Cornulier (1974, pp. 158–159) and Obenauer (1978)), so that (90) is like? *Some people, they like to make fun of you*, and (87) like *\*Who, did he say that?*.

34. The compatibility of Heavy-NP-Shift with parasitic gaps (cf. Chomsky (1982b, chapter 4) and references cited there) clearly shows it to involve rightward movement, contrary to chapter 1 above, note 22). This type of adjunction goes against van Riemsdijk's (1978, p. 284) principle, and suggests that Move-α have no further structural description.

35. It is essential that (89) come into play at S-structure, where the lower Comp is filled by *what*. If there is movement in LF, and if (89) applied only subsequent to it, then (97) would not easily be distinguished from (91).

36. Den Besten's proposal seems preferable to Goldsmith's (1981, p. 542) in that it is able to characterize non-arbitrarily the class of rules incompatible with a lexical complementizer. (We are assuming that Goldsmith's (1981, p. 543, (5)) can be reanalyzed as leftward [+ V]-movement, as suggested by his (1981, p. 544, (9b)), with α a dummy topic (cf. Koster (1978, section 3.2.8.3) and Benincà (to appear)), like certain German *es*.)

37. There are some French counterparts to (101)—cf. Kayne (1976, (text to) note 47). In *A qui*

*crois-tu qu'a parlé Jean?* 'To whom do you think J. spoke?' there is an empty category in embedded subject position, and no preposing of INFL; cf. Kayne and Pollock (1978). On Spanish, cf. note 14 above. From the discussion of (87), it follows that in (86) *aucun garçon* is not functioning as an operator in its S-structure position.

There is evidence that the *que* of *Que fait-il?* 'that does he' = 'what is he doing' is the complementizer rather than a Wh-phrase (cf. Obenauer (1976; 1977) and Koopman (1982)). The representation should be  $que_i[[+WH]e]_i$  *fait-il*, with an empty operator, eliminating Goldsmith's (1981, 555) objection.

Assuming that Aux-to-'COMP' in Italian is simply the preposing of INFL, even when AUX is infinitival, we account for the relevant data of Rizzi (1982, 95), given that *di* is a complementizer (cf. § 5.1).

Dialectal French *Où que tu vas?* 'Where that you go' now indicates that Wh-phrases can have S as sister, vs. S in standard French (this is close to Lefebvre (1982)), with some resemblance to clefts.

*\*For that you arrive late would be unfortunate* is now like *\*They were counting on that you arrive late*. *\*We would like very much that for you to arrive on time* is like the same without *for you*; the sister category of complementizer *that* must be finite.

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