

Chapter 1

C-SELECTION AND S-SELECTION

Selection for syntactic category — c-selection — formed part of Chomsky's (1965) theory of subcategorization. Chomsky proposed that non-semantic information about complementation is provided in the form of features. These features subcategorized predicates in a manner tightly linked to phrase structure. In fact, the feature names were chosen so as to mirror syntactic configuration. In this system, a predicate which allows an optional NP as its righthand sister is marked [+ ___(NP)]. A comparable predicate (for example, in Japanese) that takes an optional NP on the left is marked [(NP) ___].

The particular theory of subcategorization proposed by Chomsky lumped together a number of factors which might profitably be distinguished. For example, optional complements might be optional by virtue of the optionality of θ -role assignment to that complement, if we adopt a general convention that direct object θ -roles must be assigned. Likewise, the location of a complement with respect to its head should presumably not be a property of the subcategorization of lexical items, since the lexical items of a language do not differ in this respect. All Japanese verbs follow their object, and all English verbs precede their object. This leaves selection for syntactic category — c-selection — as the one piece of subcategorization that cannot (at first sight) be attributed to some other generalization or grammatical subsystem. In the introduction to this monograph, I proposed that c-selection, like Linking, should nonetheless be explained as a property of other systems. In this chapter, I will pursue this idea a bit further. As with Linking, I will begin with the easy cases, and then present a more difficult challenge. The ability of current theory to meet this challenge will once again give credence to the overall project, and (hopefully) advance the project somewhat. As throughout this book, zero morphemes will put in a crucial appearance.

The modern study of syntactic categorial selection — c-selection — can be traced to two important papers by Grimshaw (1979; 1981). Grimshaw (1979) argued that both c-selection (subsumed by subcategorization) and s-selection are autonomous subsystems of grammar. Her work was carried out against the backdrop of the Standard Theory (1965), including the theory of subcategorization mentioned above. Pesetsky (1981) suggested that once her theory of s-selection is supplemented with Case Theory, the argument for an autonomous theory of c-selection is seriously weakened. More important, an problem for her analysis, raised first in Grimshaw (1979) and discussed further in Grimshaw (1981), is immediately solved — but only if c-selection does not exist as an independent lexical property. Since Pesetsky (1981) remains unpublished, I incorporate the relevant discussion from that work in the next few pages.¹

The cornerstone of Grimshaw's (1979) theory is an argument that predicates must bear features which select for the "semantic type" of their complements. Following in part observations of Baker (1968, 1970), she argues that the theory of s-selection allows predicates to select complements categorized as *Q* (question), *P* (proposition), or *E* (exclamation). (I italicize semantic categories, to distinguish them from syntactic categories with similar initials.)

Crucially, these semantic types are not in one-to-one correspondence with syntactic categories. In particular, while all these types may be associated with CP, they may also be associated with NP (as a “concealed” question, proposition, or exclamation), or with nothing (“null complement anaphora”). For example, in each of the following sentences, the s-selectional requirement that *ask* takes a *Q* is satisfied:

- (1)a. John asked me [_{CP} what the time was].
- b. John asked me [_{NP} the time].
- c. Bill wanted to know what the time was, so I asked \emptyset .

In (1a), *Q* is associated with a syntactic CP. In (1b), it appears as NP. In (1c), it does not appear at all in the syntactic structure, but is “filled in” at some later level, as discussed below.

From these and similar examples, particularly those involving null complement anaphora, Grimshaw correctly concludes that the theory of s-selection must be independent of theories that analyze syntactic categories. A predicate may bear selectional features $\langle +_Q \rangle$, $\langle +_P \rangle$, or $\langle +_E \rangle$, but these features are realized independent of any other lexical features involving strictly syntactic categorization. As I noted above, Grimshaw embeds this theory of s-selection in a standard theory of lexical entries. In particular, she argues that s-selectional features are needed *in addition to* subcategorization features of the sort developed in Chomsky (1965), insofar as those features describe c-selectional properties.

Grimshaw argues for the autonomy of s-selection and subcategorization, and thus for the existence of subcategorization, by noting that all the predicates that s-select a *Q*, *P* or *E* allow their complement to range over both NP and CP. For example, predicates like *wonder*, *care*, *inquire*, and *give a damn* s-select a *Q*, but prevent that *Q* from being realized as an NP. They do not allow “concealed questions”:

- (2)a. John wondered [_{CP} what the time was].
- b. *John wondered [_{NP} the time].
- (3)a. Mary cares [_{CP} where we are going].
- b. *Mary cares [_{CP} our destination].
- (4)a. Bill inquired [_{CP} how old I was].
- b. *Bill inquired [_{NP} my age].
- (5)a. I don’t give a damn [_{CP} what your name is].
- b. *I don’t give a damn [_{NP} your name].

Similar observations can be made about predicates which s-select *P*:

- (6)a. I’ll assume [_{CP} that he is intelligent].
- b. I’ll assume [_{NP} his intelligence].
- (7)a. I’ll pretend [_{CP} that he is intelligent].
- b. *I’ll pretend [_{NP} his intelligence].

— or about predicates which s-select *E*:

- (8)a. Bill couldn’t believe [_{CP} how incredibly hot it was].
- b. Bill couldn’t believe [_{NP} the incredible heat].
- (9)a. Bill complained [_{CP} how incredibly hot it was].
- b. *Bill complained [_{NP} the incredible heat].

Grimshaw draws the relevant distinctions by appealing to the theory of subcategorization. Verbs like *care* and *ask* both s-select a *Q*; verbs like *assume* and *pretend* both s-select a *P*; verbs like *believe* and *complain* both s-select an *E*. The members of these pairs differ in their subcategorization. As far as CP and NP are concerned, four different subcategorization frames should be available (we return to null complement anaphora below):

- (10)a. $\left[+ \begin{array}{c} \infty \text{ NP } n \\ \emptyset \quad \quad \quad 2 \\ \varepsilon \text{ CP } p \end{array} \right]$ b. $[+ \text{__CP}]$ c. $[+ \text{__NP}]$ d. $[+ \text{__}\emptyset]$

Feature (10a), if we restrict our attention to verbs s-selecting *Q*, is exemplified by *ask*; (10b), by *care* or *wonder*. The assumption of two autonomous theories thus accounts elegantly for the differences and similarities among predicates.

Nonetheless, Grimshaw (1979, footnote 33) notes a problem with this theory, to which she returns in Grimshaw (1981). There are no predicates (in English at least) which s-select a *Q* or an *E* and have the subcategorization frame in (10c) or (10d). In other words, no predicates take only concealed or null questions or exclamations, and do not take clausal questions or exclamations. (Grimshaw does not discuss propositions; I return to them shortly.) Thus, we find no paradigms like the following, for imaginary verbs *åsk* ‘ask’ and *wönder* ‘wonder’:

- (11)a. *Bill åsked [_{CP} what time it was].
 b. Bill åsked [_{NP} the time].
- (12)a. *Sue wöndered [_{CP} what time the train left].
 b. Sue didn’t know what time the train left, but she wöndered \emptyset all the same.

As Grimshaw notes, this gap might be accidental, but this should not be taken as the null hypothesis. A priori, we might explain the gap in one of two ways. One approach is to allow a theory of subcategorization (c-selection) to “overpredict” the existence of the non-existent predicates, and to find another theory which will rule them out. This is the approach taken by Grimshaw (1981) and by Woolford (1981) in comments on Grimshaw’s paper. They both suggest that what rules out the non-existent predicates are certain properties of the Language Acquisition Device (LAD) of the child. I examine these proposals below.

Another approach is to abandon entirely the theory of subcategorization — specifically, c-selection — and to derive its effects from other subtheories of grammar, which will not overpredict the non-existent predicates. This is the approach I will argue for. Note that this proposal would preserve the essential elegance of Grimshaw’s (1979) account of complement selection. Grimshaw’s explanations rely on the interaction of a semantic property with a syntactic property. My suggestion simply replaces one syntactic property (c-selection) with another.

1.1 Grimshaw’s (1981) Explanation for the Gap

Grimshaw suggests that not all syntactic realizations semantic categories have equal status. Some are “canonical”, others are not. In particular, semantic categories like “thing” and “action” are associated with a *Canonical Structural Realization* (CSR), where “Structural” refers to syntactic structure. CSR(thing) might be NP (or perhaps DP, in some recent theories), and CSR(action), VP. The child learning language is held to follow the general principle that “a

word belongs to its CSR, unless there is evidence to the contrary". Grimshaw makes the following plausible assumptions, which I will question below:

- (13) a. $CSR(P) = CP$
 b. $CSR(Q) = CP$
 c. $CSR(E) = CP$

In Grimshaw's theory, LAD is capable of deducing the s-selectal properties of a predicate from the use to which that predicate is put in the world and in discourse. This is, of course, a heavy demand for a theory to place on the child, but it is a demand that child must meet a fortiori, given that quite subtle semantic distinctions without any syntactic consequences are also acquired (e.g. differences in meaning between predicates like *disappoint*, *dismay*, *shock*).

To put the notion of CSR to use, Grimshaw proposes what she calls the *Context Principle*, which I rephrase in current terminology:

- (14) *Context Principle*
 If a predicate s-selects a semantic category *C*, then it c-selects (subcategorizes) $CSR(C)$.

Given (14), Grimshaw has an immediate explanation for the gap noticed in Grimshaw (1979). She gives the following demonstration of how the Context Principle works (p. 179):

"The principle can be illustrated in the case where LAD receives evidence that a predicate takes NP questions but no evidence that it takes WH-questions: [(15)] but not [(16)] is in the data base.

[(15)] I asked John the time.

[(16)] I asked John what the time was.

"Clearly, LAD can posit [+__ NP] on the basis of (15). If *the time* is assigned the appropriate semantic representation, <+__ Q> can also be associated with *ask*, giving the lexical entry in (17). But LAD also knows that the $CSR(Q)$ is CP. Consequently, by the Context Principle, LAD adds [+__ CP] to the entry, giving (18)."

(17) *ask*: [_ NP], <+__ Q>

(18) *ask*: [_ $\begin{matrix} \infty & NP & n \\ \emptyset & & 2 \\ \varepsilon & CP & p \end{matrix}$], <+__ Q>

Grimshaw goes on to note that no principle will add an NP to the subcategorization frame of a verb which is only found with CP complements (e.g. *care*, *pretend*). Her theory therefore predicts, correctly, that no verb which s-selects a *P*, *Q* or *E* will fail to subcategorize NP.

Although Grimshaw does not discuss the matter, her Context Principle also yields correct results in certain cases for which it might appear to fail. Thus, for example, there exist predicates that s-select *P*, but never realize this complement as an CP.² This situation arises in English when a predicate requires a particular preposition in order to assign a θ -role to its complement. Compare (19)-(20) with (21)-(22):

- (19)a. We assume [_{CP} that unemployment will rise in the 80's].
b. We assume [_{NP} rising unemployment in the 80's].
- (20)a. We noted [_{CP} that we were departing on Thursday instead of Friday].
b. We noted [_{NP} our departure on Thursday instead of Friday].
- (21)a. *We approve (of) [_{CP} that unemployment will rise in the 80's].
b. We approve *(of) [_{NP} rising unemployment in the 80's].
- (22)a. *We paid attention (to) [_{CP} that we were departing on Thursday instead of Friday].
b. We paid attention *(to) [_{NP} our departure on Thursday instead of Friday].

If *approve of* and *pay attention to* both s-select a *P*, and if $CSR(P) = CP$, then (21)-(22) appear to be counterexamples to Woolford's Learnability Principle. These verbs select *P*, but never realize this *P* as a syntactic CP. Or course, the ungrammaticality of (21a) and (22a) has an immediate (partial) explanation. Non-interrogative CPs *never* function as object of a preposition in English. Exactly why this is so is not known. Perhaps something akin to Stowell's (1981) "Case Resistance Principle" is to blame. For our purposes we may assume a filter like (23):

- (23) *[__{PP} P [__{CP} [__{C-WH}]]...]

Obviously we can now argue that proposition-taking predicates which need prepositions do subcategorize a CP after all, as a consequence of the Context Principle. The realization of this subcategorization will always be blocked by filter (23), yielding the observed facts. I know of few other empirical difficulties for Grimshaw's proposal.³

Despite the empirical adequacy of Grimshaw's Context Principle, it actually raises important conceptual doubts about the theory of subcategorization — specifically, about c-selection. The Context Principle implies that in the unmarked case the mapping from s-selectional features to subcategorization is fairly trivial. Given the s-selectional features of a predicate, we may always correctly deduce a subset of the syntactic categories in the subcategorization frame of that predicate. In the present case, by adding CP to the subcategorization frame for a predicate like *ask*, we are adding *redundant information* to the lexical entry. The interaction of the s-selectional properties of *ask* with the Context Principle automatically tells us that *ask* may take a sentential complement. Given the mechanism of strict subcategorization introduced in Chomsky (1965), it is, of course, technically necessary to enter this redundant information in the subcategorization frame, but one can imagine other theories that would not require this.

For Grimshaw, the theory of subcategorization plays no decisive role in determining whether a predicate may have a sentential complement. In Grimshaw's theory, subcategorization *is* necessary in order to determine whether a predicate may take an NP complement. Suppose we were to eliminate the theory of subcategorization entirely, in favor of s-selection and the Context Principle. We would then need some other theory which could tell the child's LAD whether a predicate can take an NP complement or not. We could, of course, maintain a separate theory of subcategorization, or of c-selection, only for NPs, but this move clearly ignores the problem.

Is there a subtheory of grammar which governs the possibility of an NP complement but not of a sentential complement? Put another way, is there a switch in the system of UG that can turn an NP on or off, but is incapable of affecting an CP? There is just such a switch: Case Theory.

1.2 Eliminating c-selection

Suppose that strict subcategorization, and c-selection in general, does not exist. Instead, we have only Grimshaw's theory of s-selection, her Context Principle, and Case Theory. We immediately explain the nonexistence of verbs that take only concealed, and not clausal, questions, propositions and exclamations. CPs, but not NPs, may occur in Caseless positions at S-structure:

- (24)a. **it was proved** [_{CP} **that tomatoes are fruits**].
 b. ***it was proved** [_{NP} **a theorem**].

- (25)a. **John is curious (about)** [_{IP} **where I went**].
 b. **John is curious *(about)** [_{NP} **life**].

Now suppose that the CSR for *P*, *Q* and *E* is not just CP, but suppose instead that NP and CP are equally "canonical" realizations of these semantic categories. This assumption is at least as reasonable as Grimshaw's: since concealed propositions, questions, and exclamations exist, we know that NPs can be invested with "clausal content". It is certainly not obvious that NPs are any less canonical as bearers of clausal content than sentences are, particularly in view of the well-known parallels between the structure of IP and the structure of derived nominals.

It follows from our assumption about CSR(*P*, *Q*, *E*) that any predicate which s-selects *P*, *Q*, or *E* has, in effect, a "subcategorization frame" like (10a), including both NP and CP. I continue for now to speak of "subcategorization frames", but they have no independent status in the theory being developed: a subcategorization frame for a predicate is a list of the syntactic categories that the Context Principle allows the predicate to θ -mark, based on the predicate's s-selectional properties.

On this theory, as far as s-selection and the Context Principle are concerned, there will be no difference between (26a) and (26b) below (repeated from (2)):

- (26)a. **John wondered** [_{CP} **what the time was**].
 b. ***John wondered** [_{NP} **the time**].

Pairs like this *will* differ, however, with respect to the Case Filter. I propose that the essential difference between a verb like *ask* and a verb like *wonder* is that *ask* allows objective Case to be assigned to its complement, but *wonder* does not. Suppose for the moment that this is accomplished by means of a feature [\pm Objective Case]. The relevant portions of the lexical entries for *wonder* and *ask*, as a first approximation, would then look like (27), with no independent c-selectional information listed. The Case features do all the work done by subcategorization features in Grimshaw's analysis:

- (27)a. ***ask*: <+____ Q>, [+Objective case]**
 b. ***wonder*: <+____ Q>, [-Objective case]**

The theory of c-selection, together with the Context Principle, allows any verb that s-selects *P*, *Q*, or *E* to take an NP or CP complement. Case Theory can turn off the possibility of NP. If we assume very crucially that no other theory referring to syntactic categories intervenes, we explain why nothing can ever turn off the CP.⁴

Under this analysis, verbs like *wonder* show the same properties as the *passive* of verbs like *ask* (as far as their complementation is concerned). All forms of *ask*, like *wonder*, s-select a *Q*. Like *wonder*, but unlike the active form of *ask*, the passive form does not license objective

Case. As a result, it, like *wonder*, may take a sentential question as its surface object, but not a concealed question. (28) thus presents the same paradigm as (26):

- (28)a. It was asked [_{CP} what time it was].
b. *It was asked [_{NP} the time].

The theory we have outlined eliminates the redundancy in Grimshaw's theory. For Grimshaw, the distribution of CP is redundantly predicted by s-selection and by c-selection. What remains of c-selection if this redundancy is eliminated falls naturally under Case Theory. There is empirical evidence supporting our move.

As is well-known, English verbs that do not license Case on their objects do not passivize. Thus:

- (29)a. *John strolled NP.
b. *It was strolled by John.
- (30)a. *Mary looked NP.
b. *It was looked by Mary.

If the behavior of verbs that do not take concealed questions and exclamations is consistent with that of other verbs that do not license Case on their objects, they should not passivize. This is in fact the case. (31) contrasts with (32):⁵

- (31)a. It is not known whether John ever arrived. (Q: NP and CP)
b. It was asked when Mary would be there. (Q: NP and CP)
c. It has been guessed why you're here. (Q: NP and CP)
d. It has been determined who ate the tarts. (Q: NP and CP)
e. It was revealed what a fool he'd been. (Q: NP and CP)
f. It was discovered how incredibly old he was. (E: NP and CP)
- (32)a. *It is not cared what time it is. (Q: CP only)
b. *It was inquired who killed Caesar. (Q: CP only)
c. *It has been wondered where John went. (Q: CP only)
d. *It was exclaimed what a fool he'd been. (E: CP only)
e. *It was complained how incredibly old he was. (E: CP only)

Notice additionally that selection for *Q* and *E* may also be satisfied by the category PP, in particular, by PPs headed by *about*. PP, like CP, does not seem to require Case in object position. Thus, it is predicted, correctly, that all verbs that s-select *Q* or *E* are able to combine with the preposition *about*. This preposition, of course, itself takes an NP complement, yielding something like a concealed question possibility:⁶

- (33)a. John cares *(about) the time.
b. Mary inquired *(about) the murderer of Caesar.
c. Bill wondered *(about) John's whereabouts.
d. Lucy exclaimed *(about) the incredible fool she'd been.
e. Lear complained *(about) his incredible age.

Finally, our theory predicts, correctly, that adjectives which take a *Q* or *E* will never take an NP complement, in English, at least:

- (34)a. John is uncertain [_{CP} what time it is].
b. *John is uncertain [_{NP} the time].

English adjectives do not assign Objective Case. Once again, PP complementation is possible:⁷

(35) **John is uncertain about the time.**

Finally, let us refine our hypothesis about the Case-assigning properties of verbs like *wonder*. I suggested above that “the essential difference between a verb like *ask* and a verb like *wonder* is that *ask* allows objective Case to be assigned to its complement, but *wonder* does not”, and posited an ad hoc verbal feature [\pm Objective Case] to cover this phenomenon. This feature sits uneasily within Case theory as commonly understood. Case theory recognizes two sorts of Case. One type of Case, called *inherent* by Chomsky (1980; 1986a) functions as a precondition for θ -marking (Pesetsky (1982)). If a verb in a language like Icelandic or Russian requires some inherent case C on its complement, it can only θ -mark this complement if the complement bears C. Thus, in Icelandic examples like (36a-b) (from Andrews (1982)), the verbs require their objects to bear dative and genitive case, respectively. The fact that these cases function as preconditions for θ -marking can be seen in passive sentences, where inherent case marking is retained:

(36)a. **teir björguðu stúlkunni.**
they rescued the girl
DAT

b. **Við vitjuðum Olafs.**
we visited Olaf
GEN

(37)a. **Stúlkunni var bjargað (af Jóni).**
the girl was rescued
DAT

b. **Mín var beðið (af Jóni).**
me was awaited
GEN

Accusative case is different. It is not inherent, but behaves like a default case, assigned to any NP governed by an active V. Consequently, a verb that is content with an accusative object in the active is equally content with nominative case on that object in the passive:

(38)a. **Jón kyssti Maríu**
John kissed Mary
NOM ACC

b. **María var kysst (af Jóni)**
Mary was kissed (by John)
NOM

If English objective is analogous to Icelandic accusative, then it too is not inherent. We are thus surprised to see accusative case withheld or assigned in accordance with a lexical feature [\pm Accusative Case]. Conceivably, there might be two types of lexical properties relevant to case, inherent case (which requires dative, genitive, etc. on a complement) and [\pm Accusative case] (which allows, but does not require, accusative case on a complement). We can avoid this complexity, however, if we view the property of verbs like *wonder* slightly differently. Rather than viewing the case property of *wonder* as negative, forbidding an accusative complement, we can view this property as positive, requiring the absence of any Case on its complement. This turns *wonder* into the limiting instance of an inherent Case verb. Just as an Icelandic verb may require its complement to be dative or genitive, an English verb like *wonder* requires its complement to be non-Case-marked, which we may represent with the feature [$+\emptyset$ -case]. We

now have a uniform and fairly satisfying system in which a verb may be indifferent to the Case of its object (English *ask*, Icelandic *kyss*-) or may require a particular Case, e.g. dative, genitive, or \emptyset . The Case Filter rules out NPs marked with \emptyset (i.e. caseless NPs), but leaves other categories untouched.

1.3 I-selection and PP Complementation

In addition to the problems discussed above, there is another respect in which traditional theories with c-selection incorrectly predict the existence of certain types of predicates. Consideration of such cases will motivate a clarification of the proposal that c-selection be eliminated in the form of a residue of c-selection, that I will call *l*-selection.

Consider PPs as complements. D. Steriade (personal communication) has noticed a curiously unobserved fact about selection for such complements. It is well-known that there are verbs, adjectives and nouns that require a particular semantic class of prepositions and adverbials. A familiar example is *put*, which requires a directional expression. Any directional expression will do, but the presence of such an expression is obligatory:

- (39)a. Bill put the book on the table.
b. Bill put the book under the table.
b. Bill put the book there.
c. Bill put the book away.
d. *Bill put the book.

Throw differs from *put* in allowing, but not requiring a directional expression:

- (40)a. Bill threw the book on the table.
b. Bill threw the book under the table.
b. Bill threw the book there.
c. Bill threw the book away.
d. Bill threw the book.

The adjectival passive *located*, on the other hand, patterns with *put* in taking an obligatory argument. Unlike *put*, *located* requires a locative, not a directional expression:

- (41)a. The city is located on the banks of the Neva.
b. The city is located between the Neva and the Charles.
c. The city is located there.
d. The city is located a long distance from its nearest neighbour.
e. *The city is located.

Examples like these are clear cases of s-selection. *Put* s-selects an obligatory directional; *throw* s-selects an optional directional; and *locate* s-selects an obligatory locative. The key point to observe is the unnecessariness of c-selection here. Any syntactic category that can fill the needs of s-selection may serve as the complement of any of these predicates.

The same is not true of another well-known case of PP selection — selection for particular lexical items. Predicates frequently require particular prepositions to head their complements. Thus, *depend* and *rely* require *on*, *hope* requires *for*, *toy* requires *with*; and with particular senses, *wait* requires *for* or *on*, *look* requires *at*, *on* or *to* and *reckon* requires *on* or *with*. Among the nouns, *love* allows *for* or *of*, but *desire* requires *for*. Among adjectives, *proud* and *ashamed* require *of*, *similar* requires *to*, *different* requires *from* and *consistent* requires *with*.

These facts are arbitrary. Thus, English *depend* takes *on*, but Russian *zaviset'* 'depend' takes *ot* 'from'. Semantic considerations of the sort explored by Gruber (1965) may narrow down the options for idiosyncratic preposition selection. Thus, *on* and *from* might be options for a verb meaning 'depend', while *with* might (conceivably) be excluded. Nonetheless, these types of considerations do not zero in on exactly the prepositions that a given verb requires. Predicates simply have arbitrary selectional properties in this domain.

So far, we have been dealing with well-known facts: predicates s-select a category that can be realized as PP, and predicates may also select specific prepositions. Steriade pointed out a fact that had not been previously observed (to my knowledge): there are no verbs that simply require a PP — not a particular preposition or a semantic class, but the syntactic constituent PP. Some explanation is necessary before the force of this observation is clear.

For example, consider an imaginary verb *dryve*, with the meaning of *drive*. Now suppose *dryve* c-selects PP, so that in the theory of *Aspects* it has the subcategorization feature [+__PP]. This means that it must take a PP complement, whose head P is unspecified. This PP complement could not, of course, do violence to the semantics of *drive*, but might be expected to range over the possibilities allowed by the semantics. Thus, one can *drive with* and *dryve with*, *drive to* and *dryve to*, *drive from* and *dryve from*. Crucially, however, some PP complement must be present for the c-selectional properties of *dryve* to be satisfied. These properties would produce a paradigm like (43):

- (43)a. Bill is dryving to Paris.
b. Bill is dryving from Amsterdam.
c. Bill is dryving with Sue.
d. *Bill is dryving.

As far as I know, no such verb exists. This, in turn, suggests that any theory of complement selection that allows selection for the syntactic category PP is wrong. Baltin's (1989) suggestion that c-selection refer to X^o categories like P is also wrong, since that suggestion would also allow verbs like *dryve* to exist; they would c-select P^o.

In other words, we have here further evidence for the claim that the standard theory of c-selection is wrong. In its place, we have s-selection, which we have already examined, and another, quite limited, system of selection, which we have not yet examined. Let us call this other system *l-selection* (*l* for 'lexical'). *l-selection* does not use the vocabulary of syntactic categories like N, V, A, P, I, C or D. Instead *l-selection* makes reference to *subcategories* of syntactic categories — in the limiting case, to individual words and, additionally (perhaps) to features like [+finite]. Consequently, for example, whether an English verb allows a CP complement is a consequence of s-selection. But whether a verb allows a CP complement to be infinitival or a gerund appears to be an arbitrary fact of *l-selection*, akin to selection for individual prepositions. This fact will be of importance later. (42)-(44) display some near-minimal pairs:

- (42)a. Mary is likely [t to win]
b. *Mary is probable [t to win]
- (43)a. She liked the concerto.
b. She liked hearing the concerto.
c. She liked to hear the concerto.

d. She enjoyed the concerto.
e. She enjoyed hearing the concerto.
f. *She enjoyed to hear the concerto.
- (44)a. He succeeded in convincing her.
b. *He succeeded to convince her.

c. *He managed in convincing her.
d. He managed to convince her.

Conceivably, inherent Case, discussed above, is a matter of I-selection as well, with the feature [+dative] on a DP selected in Icelandic much the way individual prepositions or finiteness features are I-selected in English.

Let us make some sense of the restrictions on I-selection. Features like [+finite] and the distinction between *to* and *at* play no role in X-bar syntax. The XP-level of a PP has no special property by virtue of having *to* or *at* as its head, but it does behave in a particular fashion by virtue of having a P as its head. Similarly, I know of no particular difference in the external syntax of a finite or non-finite CP, while the CP/NP distinction is obviously of great importance. These considerations suggest that syntactic features like $\pm N$, $\pm V$ are segregated from other properties that individuate words. One way to express this is by regarding syntactic category membership as a reflection of structural divisions in the lexicon, so that a word found in the P division undergoes a lexical insertion rule limited to the environment “/[_P ___]”, but is not otherwise marked as a preposition. By contrast, a word identified as *to* or as [+finite] bears this information (its “identifying index” in the sense of Chapter ???, section ???) as part of its lexical entry, as traditionally supposed. The restrictions on I-selection now amount to a restriction to selection for terminal elements. Thus, in a limited way, I-selection is a residue of c-selection. C-selection allowed a lexical item to care about properties of the phrase markers that contains it. I-selection also allows this, but strictly limits the phenomenon to the terminal string. I-selection can see the word *to* and features associated with it, but cannot see the node P^o that dominates *to*.⁸

1.4 Conclusions and the Challenge

The issues should be clear. There is considerable evidence that traditional theories of c-selection are not merely redundant with much of s-selection, but are wrong. In its place, we have a mapping between syntactic and semantic categories, on the one hand, and a limited notion of I-selection, on the other. Nonetheless, the cases I have considered are all rather easy. It is not difficult to replace selection for NP with selection for categories like *thing*, nor to replace selection for CP with selection for *proposition* or *question*. The achievement with respect to PP subcategorization sketched in the previous section arises simply from the absence of a semantic category embracing all PPs. Consider, by contrast, selection for *types* of infinitives, e.g. those that do and do not allow government across the IP boundary. As we shall see, there is a variety of infinitive types found in English, which differ in ways that at first sight look like neither I-selection nor s-selection. I will show that selection for the various types of infinitives is, contrary to appearances, a matter of s-selection. This will require a reanalysis of much of the theory of complementation developed in recent work, and will use in a crucial fashion the conclusions about null complementizers reached in the previous chapter.

Chapter 2

CLASSES OF INFINITIVES

2.1 CP Deletion and the *LGB* analysis

I shall use as a starting point the account of English infinitival complementation provided by Chomsky (1981; henceforth *LGB*). This analysis has been adopted almost without change in a wide range of studies, and is the closest successful alternative to the account I will develop here. This work in turn builds on a long tradition of generative analyses, especially the pioneering work of Bresnan (1972).

The *LGB* analysis of infinitival complements falls outside of the selectional theory that I have developed above, and violates its spirit. Following Bresnan (1972), *LGB* posits S-structure representations in which the infinitival complements of certain verbs are CPs and the infinitival complements of others are IPs.⁹ In *LGB*, Case marking and trace licensing depend on government, while PRO may not be governed. CP is assumed to act as a barrier to government from a higher element, while a bare IP does not block government. Furthermore, the infinitival marker *to* is stipulated to be a non-governor. These assumptions did not follow straightforwardly from the notion of government in *LGB*, where the status of IP and CP as categories was left somewhat vague, but they follow (albeit as a stipulation) from the definition of government proposed by Chomsky (1986b, p.14; *Barriers*). An “L-marked category”, mentioned in (46) is, roughly, any direct object of a θ -marker. Thus, subjects and adjuncts are not L-marked. The status of VP as a sister to INFL is a complicated matter, much discussed in *Barriers* but need not concern us here:¹⁰

(45) Government

α governs β iff α m-commands β and there is no γ , γ a barrier for β , such that γ excludes α ; $\alpha \neq to$.¹¹

(46) Blocking Category (feeds into (47))

γ is a blocking category (BC) for β iff γ is not L-marked and γ dominates β .

(47) Barrier

- γ is a barrier for β iff (a) or (b):
- a. γ immediately dominates δ , δ a BC for β ;¹²
 - b. γ is a BC for β , $\gamma \neq IP$

Thus, in the *LGB* theory, the subject of a bare IP infinitival complement to V is governed by that V. This predicts the distribution of facts seen in (49). By contrast, the subject of a CP infinitival complement to V is not governed by that V, since CP immediately dominates the IP that contains the subject, which is a blocking category for that subject:

(48)a.

Ú~1-mark~~~¿
 V [IP subject ...]
 A~~government~~~~~U

b.

barrier,
 by (47a) BC
 Ú~1-mark~~~¿ |
 V [CP [IP subject ...]]
 A~~~~~no government~~~~~U

This system predicts the facts in (50), if the structures are the ones indicated. *ECM* stands for “Exceptional Case Marking”, a term which refers to Case Marking across a clause boundary such as IP or CP:

(49) *IP Complementation*

- a. Mary believed [Bill to have read the book]. + ECM
- b. Bill was believed [t to have read the book]. + NP-trace
- c. *Bill believed [PRO to have read the book]. - PRO

(50) *CP Complementation*

- a. *Mary demanded [Bill to commit the crime]. - ECM
- b. *Bill was demanded [t to commit the crime]. - NP-trace
- c. Bill demanded [PRO to commit the crime]. + PRO

The CP/IP distinction depends on lexical properties of the matrix verb. If the distinction is present at D-structure, then the distinction (in *LGB*) would be attributed to c-selection, something that I have argued not to exist. In point of fact, *LGB* does not posit a D-structure origin for the CP/IP distinction, but derives IP complementation from CP complementation by a lexically governed rule of *CP-deletion*. This rule is, of course, an embarrassment in a Principles and Parameters theory, but, more important, it has the same dubious character as c-selection. CP-deletion is dubious because it is an isolate in the *LGB* system. The theory does not explain why we not find verbs that delete DP, taking only an articleless NP, or verbs that delete AP, leaving only the object, if any, of the understood adjective. Clearly, CP-deletion raises all the questions we have just raised with respect to the classic theory of c-selection.

Also, even among clauses CP-deletion is strictly limited — applying only to infinitives. The verb *believe* in this theory requires IP as its complement when that complement is an infinitive. If an infinitival CP were possible, then the complement to *believe* could have PRO as its subject (contrary to fact). By contrast, *believe* and similar verbs allow a CP complement when that complement is finite, as the presence of the complementizer *that* shows:

(51) Mary believes [_{CP} that [_{IP} the world is round]].

The contrast between IP infinitival complementation and CP finite complementation is not just a fact about *believe*. There is *no* verb that behaves as if it required deletion of a finite CP. Such a verb would allow finite complementation, but prohibit the occurrence of *that*, as the imaginary verb *belyve* does in (52):¹³

(52) Mary belyves (*that) the world is round.

In fact, a finite clause probably can never be a bare IP. Kayne (1984) and Stowell (1981) argued that object/non-object asymmetries in the omissability of *that* are ECP effects involving an empty complementizer position:

- (53)a. Mary believes [_{CP} (that) [_{IP} the world is round]].
b. [_{CP} *(That) [_{IP} the world is round]] was known to the ancient Greeks.
c. The army retreated, [_{CP} *(that) [_{IP} it might fight another day]]

We will have a great deal to say about these asymmetries shortly, but the effects will continue to be attributed to properties of the empty complementizer. If this theory is correct, then the embedded clauses in (53) will display these effects only if C, and hence CP, is always present (even when phonologically null). Since I know of no environment in which the effects in (53) disappear, we must conclude that finite clauses are always CPs. This makes the proposed rule of CP-deletion for infinitives stick out like a sore thumb. CP-deletion is not even I-selection, since it requires crucial reference to syntactic category.

These objections are of no consequence, of course, if CP-deletion is the correct proposal. Sore thumbs do occur in nature, and we might simply have to conclude that our intuitions about the most likely theory of grammar are at odds with the truth. There are, however, stronger and more interesting problems with the *LGB* proposal — empirical problems. In particular, the variety and properties of infinitival complements extend beyond those accounted for in the *LGB* system. Once these other properties are taken into account, a somewhat different picture emerges, which will ultimately eliminate both the need and the desirability of CP-deletion even for infinitives.

In particular, I will show that the syntactic properties of infinitival complements correlate quite strikingly with their semantic properties. This is unexpected if the distinctions among infinitival complements are c-selectional. It is also unexpected in a theory in which semantically similar finite and infinitival complements to *believe* belong to syntactically different categories (CP and IP), while the semantically unlike finite complement of *believe* and infinitival complement of *demand* belong to the same category (CP). Mapping principles of sufficient complexity could sort this out, giving a semantic basis to *LGB*'s syntactic analysis in terms of CP and IP, but I will try to demonstrate that this complexity is unnecessary.

Much of the discussion in the next several sections will be devoted to two goals:

1. demonstrating the close connections between the semantic and syntactic properties of infinitival complementation;
2. developing an account of the syntax of infinitival complementation that explains the “bundling” of syntactic properties discovered while undertaking the demonstration in 1.

This discussion is an appropriate coda to our earlier discussion of linking in Experiencer predicates for two reasons. First, it continues to demonstrate the tight connections between lexical and syntactic properties. Since in current theories the lexicon is the central locus of what the child has to learn about his or her language, simplification of the structure of the lexicon leads to increased understanding of the ease of language acquisition. Second, in the domain of infinitives as in the discussion of double object structures, a key role will be played by null morphemes, which act for the most part exactly as we have seen them act in previous chapters. Thus, the results obtained with Experiencer predicates and the results to be obtained concerning infinitives reinforce each other.

It is important to remember, as discussed above, that selection for a non-finite clause in the first place seems to be arbitrary, and does *not* correlate with known semantic factors. It is a matter of I-selection, in our terms. Thus, the only predicates relevant to our discussion are those

that select *some* type of infinitive in the first place. Only then can we ask questions about the identity and properties of this infinitive.

2.2 Varieties of Infinitival Complements

Let us begin by demonstrating a necessary extension to the *LGB* typology, an extension which highlights the correlation between semantic properties in the analysis of infinitival complements. Certain problems raised by this correlation (and a domain in which it breaks down) will be important in developing the more general theory.

In particular, there are more classes of infinitival-taking verbs than *LGB* provides for. Let us examine four of them: ultimately there will be approximately five, once we bring factive and implicative predicates into the picture. For now, I will limit the discussion to the distribution of ECM, PRO and NP-trace in the subject position of the embedded clause. I turn to other properties later.

2.2.1 Believe-class

A reasonably-sized class of verbs pattern like *believe*. These can be seen in (54)-(55):

- (54)a. ?Mary assumed Bill to have read the book.
b. Mary believed Bill to have read the book.
c. Mary considered Bill to have read the book.
d. Mary discovered Bill to have read the book.
e. Mary fancied Bill to have read the book.
f. Mary felt Bill to have read the book.
- (55) *also: figure, find, hold, imagine, judge, know, reckon, suppose, suspect, understand [on claim and presume, see section ??? below]*

The basic paradigm observed by these verbs was given in (49), repeated in (56) below. CP-deletion predicts this paradigm: the embedded subject behaves as if governed by the higher verb for Case-marking purposes and for the distribution of PRO and NP-trace:

- (56) **PARADIGM**
- | | |
|---|------------|
| a. Mary believed [Bill to have read the book]. | + ECM |
| b. Bill was believed [t to have read the book]. | + NP-trace |
| c. *Bill believed [PRO to have read the book]. | - PRO |

2.2.2 Wager-class

In the *LGB* theory, any verb that can assign objective Case and govern across a clause boundary should be able to assign its Case across this clause boundary. Nonetheless, there is a class of verbs (first discussed by Postal (1974), under the rubric “Derived Object Condition” (DOC).) that does not behave as predicted by this observation. These verbs, of which I will use *wager* as the emblematic example, behave like *believe* with respect to PRO and NP-trace, but — although they are Case-markers (cf. *Bill wagered a fortune, John mumbled the answer*), they do not allow Exceptional Case Marking (ECM) across a clause boundary:

- (57)a. *John admitted Mary to have entered the room.
b. *John affirmed Mary to have entered the room.
c. *John announced Mary to have entered the room.
d. *John mumbled Mary to have entered the room.
e. *John muttered Mary to have entered the room.
f. *John screamed Mary to have entered the room.
g. *John wagered Mary to have entered the room.
h. *John whispered Mary to have entered the room.
- (58) also: shout, sight, yell; assert, avow, claim, conjecture, declare, decree, disclose, grant, guarantee, intimate, maintain, note, observe, posit, recollect, said, state, stipulate, verify

The examples in (59) demonstrate that NP-trace in the subject position of the complement is more acceptable than a Case-marked NP, though the degree of improvement over (57)-(58) seems to differ from speaker to speaker:

- (59)a. Mary was admitted to have won the race.
b. Mary was affirmed to have won the race.
c. Mary was announced to have won the race.
d. ?Mary was mumbled to have won the race.
e. ?Mary was muttered to have won the race.
f. ?Mary was screamed to have won the race.
g. Mary was wagered to have won the race.
h. Mary was whispered to have won the race.

The full paradigm is given in (60). The characteristic property of these verbs is that they act like CP-deleters for PRO and NP-trace, but like a non-CP-deleter for ECM:

(60) **PARADIGM**

- | | |
|---|------------|
| a. *Sue wagered [Bill to have won the race]. | - ECM |
| b. Bill was wagered [t to have won the race]. | + NP-trace |
| c. *Bill wagered [PRO to have won the race]. | - PRO |

Let us first dispose of one obvious suggestion for dealing with the absence of ECM with *wager*-class verbs — namely, that such verbs are simply not Case assigners. To show that this claim will not do, note first that they are all compatible with bare NP objects (albeit not always an object bearing the same θ -role as the corresponding clause):

- (61)a. John admitted his error.
b. John affirmed his innocence.
d. John announced the winner.
e. John mumbled some excuse or other.
f. John muttered a foul oath.
g. John screamed his opinion of the movie.
h. John wagered his fortune on the absence of c-selection.
i. John whispered his name.

Second, it might be objected that Case assigning ability under NP complementation might not extend to clausal complementation. Two observations can defuse this objection. As noted by Postal, WH-movement from the embedded subject yields examples that are clearly more acceptable than the unmoved subjects of (57) (if not always perfectly acceptable):

- (62) a. *Mary*, who Bill admitted to have won the race.
 b. *Mary*, who Bill affirmed to have won the race.
 c. *Mary*, who Bill announced to have won the race.
 d. ?*Mary*, who Bill mumbled to have won the race.
 e. ?*Mary*, who Bill muttered to have won the race.
 f. ?*Mary*, who Bill screamed to have won the race.
 g. *Mary*, who Bill wagered to have won the race.
 h. *Mary*, who Bill whispered to have won the race.

I will deal with Case and WH-movement much later, in section ??? (where I will adopt a version of the hypothesis advanced by Kayne (1984) for similar examples in French). For the moment, note simply that the higher verbs in (62) must be responsible for Case on some element of the chain formed by WH-movement, or else (62) would display otherwise impossible examples of non-Case-marked WH-headed chains.

Finally, we noted in section 1.2 that English predicates that do not license Case also fail to passivize. English thus lacks impersonal passives from unergative verbs (**it was barked by many dogs*) and does not passivize predicates like *wonder* and *care* that appear in other respects to be non-Case-assigners. We have already seen that *wager*-class predicates do display this restriction.

Hence, I conclude that verbs of the *wager*-class *do* license Case. They simply are not Exceptional Case Markers. We are left with a genuine question: why these verbs behave like non-CP-deleters for ECM and like CP-deleters for PRO and NP-trace.

2.2.3 *Want*-class

Interestingly, just the opposite problem is posed by the third class of verbs, of which I will pick *want* as the emblematic example. Verbs of the *want*-class seem to show ECM. This, on the *LGB* theory, entails that they are CP-deleters. However, as observed by Bresnan (1972, 154-160), these verbs behave like non-CP-deleters for PRO and NP-trace. PRO is possible, and NP-trace is impossible:¹⁴

(63) **PARADIGM**

- a. *Mary* wanted [Bill to to read the book] + ECM
 b. **Bill* was wanted [t to to read the book]. - NP-trace
 c. *Bill* wanted [PRO to read the book]. + PRO

- (64) **also: desire, need, wish, %can't stand, %loathe, %hate
 %like, %love, %prefer
 [verbs marked with "%" best with generic present, would,
 or other modal, as explained in section ??? below]**

In *LGB*, Chomsky proposed (following Bresnan (1972)) that these verbs are in fact not CP-deleters. Apparent ECM by *want*, on this analysis, is actually case-marking by an unseen complementizer *for*. In fact, I will argue later that there *is* an unseen complementizer with the meaning of *for* in the complement of *want*-class predicates. Nonetheless, this complementizer cannot be solely responsible for Case-marking of *Bill* in (63a). *Want*-class verbs show all the hallmarks of ECM, as noted by Freidin and Lasnik (1981) (in part) and by Pesetsky (1982). When passivized, nominalized or adjectivized, or when an adjacency violation is created, these verbs fail to license Case on the embedded subject:

- (65)a. Mary wishes very sincerely [*(for) Bill to read the book].
- b. It is wished [*(for) Bill to read the book].
- c. *Mary's wish [Bill to read the book]
- d. It was desirable [*(for) Bill to have won the race].

Active verbs differ from passive verbs, nouns and adjectives in their ability to assign structural Case — a fortiori, in their ability to assign structural Case across a clause boundary. In positing *for* deletion in place of ECM for *want*-class predicates, we would be forced to conclude that *for*-deletion is restricted to environments in which ECM *could* take place, were these cases of IP complementation. We only have to take this unpleasant step, however, if we are intent on concluding from the behavior of PRO and NP-trace with *want* that apparent ECM with *want* must have an analysis different from *believe*. But the logic of this argument has already been weakened by the dissociation of ECM from PRO and NP-trace for seen with the *wager* class.

2.2.4 Demand-class

Finally, as we have already observed, verbs like *demand* do fall under the *LGB* classification system. They behave like non-CP-deleters for ECM (which is impossible), for PRO (which is possible), and for NP-trace (which is impossible), as seen in (66)-(68):

- (66)a. Bill agreed to turn off the lights.
- b. Bill arranged to turn off the lights.
- c. Bill assented to turn off the lights.
- d. Bill attempted to turn off the lights.
- e. Bill demanded to turn off the lights.
- f. Bill tried to turn off the lights.

- (67) **also:** ask, choose, consent, contrive, decide, demand, endeavor, hope, intend, mean, need, offer, petition, plan, prepare, promise, propose, refuse, request, resolve, seek, strive, struggle, swear, undertake, vow

- (68) **PARADIGM**
- a. *Mary demanded [Bill to read the book]. - ECM
- b. *Bill was demanded [t to read the book]. - NP-trace
- c. Bill demanded [PRO to read the book]. + PRO

2.3 Agentive Subjects and ECM

The four classes we have looked at are summarized in the chart in (69):

	[-PRO, +NP-trace]		[+PRO, -NP-trace]
		‡	
[+ECM]	believe	‡	want

[-ECM]	wager	‡	demand

The important fact is that ECM is on an entirely different track from PRO and NP-trace. ECM groups together *believe* and *want*, but PRO and NP-trace group together *believe* and *wager*. Let us put aside the syntactic conditions on ECM, PRO and NP-trace for a short time and ask

whether the rows and columns of (69) correlate in any way with the semantic properties of these verbs. Our conclusions will guide us back to an explanation of the syntactic properties in (69).

2.4 ECM

A glance at the lists of *wager*-class verbs and *believe*-class verbs immediately suggests a factor correlated with ECM. Intriguingly, this factor has nothing to do with complementation. The *wager*-class verbs, but not the *believe*-class verbs, assign the θ -role of *Agent* to their subjects. Thus they differ with respect to tests like *do-so* pronominalization. The contrast in (70) may be repeated with any pair of verbs drawn, respectively, from the *believe*-class and the *wager*-class:

- (70)a. #Sue believed that Bill had left, and Mary did so too.
b. Sue wagered that Bill had entered the room, and Mary did so too.

We can state this correlation in (71), which basically links ECM to Agency:

- (71) **Agent/ECM Correlation (version 1 of 2)**
If α assigns the θ -role *Agent*, α Case-marks β
only if α θ -marks β .

2.5 Understand and Remember, Used Agentively

Evidence in favor of this correlation comes from psychological verbs like *remember* or *understand*. The more agentively these verbs are used, the worse ECM becomes, as the (a-b) examples below indicate. The (c) examples show that there is no problem using these verbs agentively with a finite complement, where no ECM is involved.¹⁵

- (72)a. Poor Bill. I remember him to have made valuable contributions to his field.
b. ??Please don't offend Bill. Remember him to have made valuable contributions to his field.
c. Please don't offend Bill. Remember that he has made valuable contributions to his field.
- (73)a. Sue ultimately understood Bill to have died only after we had explained it to her many times.
b. ??No, you can't talk to Bill. Try to understand him to have died.
c. No, you can't talk to Bill. Try to understand that he has died.
- (74)a. Sue assumed God to exist during the writing of her theology dissertation.
b. ??Sue was careful to assume God to exist during the writing of her theology dissertation.
c. Sue was careful to assume that God exists during the writing of her theology dissertation.

- (75)a. I hope you won't feel me to be unduly prying into your personal affairs when I ask these questions.
b. ??Try not to feel me to be unduly prying into your personal affairs when I ask these questions.
c. Try not to feel that I am unduly prying into your personal affairs when I ask these questions.
- (76)a. Bill surprised me. I always imagined him to have written many symphonies already.
b. ??Close your eyes and try to imagine Bill to have written many symphonies already.
b. Close your eyes and try to imagine that Bill has written many symphonies already.
- (77)a. ?My God, you must have assumed Bill to have committed these crimes while drunk.
b. *For God's sake, try to assume Bill to have committed these crimes while drunk.
c. For God's sake, try to assume that Bill committed these crimes while drunk.

To show that matrix agentivity interferes with ECM, and not with infinitival complementation in general, it is necessary also to demonstrate in an agentive environment the ameliorating effect of passivization noted with *wager* above. This is difficult, but examples like the following probably make the point:

- (78)a. Bill should always be remembered to have made valuable contributions to his field.
b. No, you can't talk to Bill. He should be clearly understood to have died.
c. Control your emotions. In particular, I should not be felt to be unduly prying into your personal affairs while I ask these questions, or the polygraph results will be unreliable.

In the next few sections, I will pause to deal with certain problems and complications in the Agent/ECM Correlation.

2.6 Causative Verbs

The Agent/ECM Correlation in (71) is not quite complete. A number of verbs allow ECM even when used agentively, as noted by Howard Lasnik (personal communication):

- (79)a. Sue deftly showed the Greenhouse Effect to be even pernicious than previously thought.
b. I will now demonstrate cold fusion to be impossible.
c. Holmes proved Moriarty to be the murderer.
d. ?Mary revealed John to be sillier than we'd thought.

As pointed out to me by Ken Wexler (personal communication), these verbs all have a common property, in which they differ from the *wager*-class predicates seen so far. Although they all have natural uses as agentive predicates, they are also used as simple causative predicates, of the sort considered in section ???:

- (80)a. The horrible weather last summer showed the Greenhouse Effect to be even pernicious than previously thought.
- b. The behavior of the diode demonstrates cold fusion to be impossible.
- c. John's fingerprints proved him to be the murderer.
- d. The evidence revealed John to be sillier than we'd thought.

These data indicate that we need to refine the Agent/ECM Correlation in (71). Agentive verbs like *wager* and *mutter* pattern with agentive uses of verbs like *remember* and *understand* in disallowing ECM. Causative verbs like *show* and *demonstrate* continue to allow ECM, even when used agentively. These two sets do differ in one respect. The agentive verbs that disallow ECM select an animate (or human) subject in all their uses:

- (81)a. #This rock wagered that the world is round.
- b. #This rock wagered ten dollars.
- (82)a. #The evidence understood/remembered that the world is round.
- b. #The evidence understood/remembered the problem.

- (83) **Agent/ECM Correlation (version 2 of 2)**
For α , β and γ in E, if α assigns Agent to γ in E and requires γ to be animate as a lexical property, then α Case-marks β only if α θ -marks β .

As with other conditions we have seen earlier in this paper, we want to know why (83) should hold.¹⁶I will not attempt to develop an explanation for (83) at this point. Instead, I shall accept it as an important placeholder in the larger account of infinitival complementation — a true and interesting generalization over the facts. In section ???, we will return to the Agent/ECM Correlation and develop it in a slightly different direction. Unfortunately, at no point in this book will we get to the bottom of the matter. The reason why agentive verbs are special will remain a unknown even at the end of our discussion.

2.7 Problems with Performative Change-of-State Verbs

In stating the Agent/ECM Correlation, I referred, not to Case marking across a clause boundary per se, but to Case marking unlinked to θ -marking.¹⁷ In a wide range of instances, these two descriptions pick out the same situation, since a verb's direct objects are θ -marked by that verb. In certain more obscure cases, there may be differences. In particular, agentive performative verbs like *declare*, *decree* and *rule* unexpectedly allow ECM.

- (84)a. Congress declared March to be National Syntax Month.
- b. The king decreed March 1992 to have 32 days.
- c. The judge ruled Bill to be competent to stand trial.

We can see that the immediately postverbal NP in (84) is an embedded subject by noting the possibilities for narrow scope in examples like (85a-b):

- (85)a. The Oyster Council declared no month to be an Oyster Month that does not have an *r* in it.
- b. The judge ruled only Sue to have cause for action.

The performative status of the verbs in (84) is crucial. If Congress decrees March to be National Syntax Month, and Congress is authorized to do so, then March is National Syntax Month by virtue of the decree. Particularly illuminating are the two senses of *declare*, and their interaction with ECM and passive:

- (86)a. *Mary declared that Bill was dead.*
- b. *Mary declared Bill to be dead.*
- c. *Bill was declared to be dead.*

Example (86a) may be a simple description of a speech act, or it may be a description of a formal declaration which is important in some system of rules. Example (86b), with ECM, can only have the latter reading. Thus, (86b) is appropriate if Mary is a judge or a coroner — someone with authority to establish Bill's status under the law. Though (86c) is more natural with the "formal" interpretation, it is not, I think, unambiguous like (86b). If this judgment is correct, it shows that performativity is crucial in allowing ECM with these agentive verbs.

One way to explain this phenomenon is to observe that verbs of this sort, when they take an infinitive, are understood as affecting the subject of the embedded clause. Thus, Congress's decree changes a property of March. We might interpret this observation as an indication that verbs like *decree* may θ -mark across a clause boundary. The formulations of the Agent/ECM Correlation above permit Case-marking across a clause boundary in precisely this case..

This, of course, requires a relaxation of the θ -criterion to permit double θ -marking of the embedded subject in these examples, as well as a relaxation of the normal locality conditions on θ -marking. In effect, *decree* is analyzed as taking two arguments, one of which contains the other. I will not develop the consequences of this suggestion here. I mention it merely as a possible guide to the proper working out of the Agent/ECM Correlation, and as a problem for future study.

Something similar may explain certain peculiar facts about ECM with the verb *estimate*, most of which were noted first by Postal (1974, 298ff.). Postal noted contrasts of the following sort:

- (87)a. *Sue estimated Bill's weight to be 150 lbs*
 - b. *Sue estimated 50 miles to be the distance to Cleveland*
 - c. *Sue estimated 150 lbs to be Bill's weight*
 - d. *Sue estimated it to be 50 miles to Cleveland*
 - e. *Sue estimated there to be 50 miles left until Cleveland.*
- (88)a. **Sue estimated Bill to weigh 150 lbs*
 - b. **Sue estimated Cleveland to be 50 mi away.*

In ECM constructions with *estimate*, the embedded subject may be a measurement, the name for the measurement, or an expletive linked to the measurement, but not any other type of NP. This restriction does not obtain when the embedded clause is finite, and the embedded subject receives Case from the embedded INFL:

- (89)a. *Sue estimated that Bill's weight was 150 lbs.*
- b. *Sue estimated that 150 lbs. was Bill's weight.*
- c. *Sue estimated that Bill weighed 150 lbs.*

The contrast in (87) and (88) immediately suggests selection of the same argument in an IP complement that may occur independently:

- (90)a. Sue estimated Bill's weight.
 b. How much did Bill weigh? Nobody estimated any more than 150lbs.¹⁸
 c. *Sue estimated Bill.

Thus, although *estimate* is not a performative predicate, it might allow ECM for the same θ -theoretic reasons that the performatives do: θ -assignment across the clause boundary to the embedded subject.¹⁹

2.8 The Quality of the Data

Above and beyond the contrasts discussed so far, there is an unfortunate degree of fuzziness in people's judgments concerning ECM.²⁰ First, stylistic factors seem to have considerable influence on speakers' judgments that distinguish these classes. Consider once more the *believe*-class verbs in (54) and (55). ECM examples with these verbs differ among themselves in naturalness (even considering the fact that some of the matrix verbs are already rather literary, e.g. *fancy* and *hold* in the relevant senses). Thus, in my judgment, ECM with *reckon*, while possible, is not as acceptable as ECM with *consider*. In general, the more literary the context, the better ECM is with these verbs. Thus, ECM with *reckon* may involve a style clash between the colloquial *reckon* and the ECM construction, and similar factors may influence other judgments. Nonetheless, all of the *believe*-class examples are, in my judgment clearly more acceptable than ECM with any of the *wager*-class predicates in (57).

In addition to stylistic factors, there are more interesting gradations, among which some clear tendencies can be observed. Among the *wager*-class predicates, there are differences in the strength of the judgments. In general, speakers seem to rank ECM according to the following hierarchy, from worst to best. The hierarchy is demonstrated in (92):

- (91) manner of speech < content of speech < change of mental state
 < other mental state

- (92)a. *Bill muttered Sue to be happy.
 b. ?*Bill admitted Sue to be happy.
 c. ??Bill confirmed Sue to be happy.
 d. ?Bill assumed Sue to be happy.

Some verbs are given in (93):

- (93) *Factors affecting ECM with Agentive Verbs:*

	Ú~~~	SPEECH ~~~¿	+	Ú~~MENTAL-STATE ~¿	+	?other
	*manner-of#?	*content-of	+	??change-of	+	
grunt	+	admit	+	assume	+	
moan	+	affirm	+	confirm	+	imagine
mumble	+	agree	+	decide	+	presuppose
mutter	+	announce	+	discover	+	recollect
say	+	assert	+	realize	+	remember
scream	+	avow	+	resolve	+	think (?)
shout	+	claim	+	see (epist)	+	
sigh	+	conjecture	+	verify	+	
whisper	+	declare	+	wager	+	
	+	wager (≈	+	≈(mental	+	
	+	verbal bet)	+	guess)	+	

The chart in (93) represents a description of the facts at a level of detail that is finer than anything captured by the various formulations of the Agent/ECM Correlation considered above. Why these finer distinctions are relevant is unknown. Conceivably, the Agent/ECM Correlation provides the baseline unacceptability seen with verbs of mental state, with some additional factor making verbs of speech less acceptable in ECM contexts. It is also possible that the Agent/ECM Correlation itself represents an incorrect conflation of various factors which, once properly separated, will put us on the road to an explanation of the phenomenon. What is crucial for the moment is simply our ability to predict the possibility of ECM with *believe*-class and *wager*-class verbs, regardless of the precise nature of the factors involved. Our observations will be important in examining ECM with *want*-class and *demand*-class verb in the next section.

2.9 The key point: want vs. demand

Let us return to the main line of discussion, and consider *want*-class verbs and *demand*-class verbs. We are now in a position to observe a striking fact. *Want* and *demand* are alike in allowing PRO and disallowing NP-trace, but they differ in the possibility of ECM. The *Want*-class allows ECM, while the *demand*-class forbids it. Crucially, these two classes differ in agentivity, just as *believe* differs from *wager*. *Want* allows ECM and is non-agentive, while *demand* forbids ECM, and is agentive.

Here too, some judgments are fuzzy, but there is an unexplained difference between ECM here and ECM with *believe*-class and *wager*-class verbs. In general, the bad examples here seem less acceptable than corresponding examples with *wager*-class predicates. Despite this, the hierarchy that ranks the judgments on *believe*- and *wager*-class predicates applies here as well. Manner of speaking verbs, used here in their jussive sense (e.g. *Bill shouted (to Mary) to leave*) are least acceptable with ECM, while verbs of content of speech like *request* marginally allow ECM. Here, there is often no real difference between verbs of content of speech and verbs of mental state, as in (94c):

- (94)a. *Bill shouted there to be more than one solution to the question.²¹
 b. ?*Bill requested there to be more than one solution to the question.
 c. ?*Sue chose there to be more than one solution to the question.

(95) *Factors affecting ECM with Want-class Agentive Verbs:*

Ú~	SPEECH	~¿	Ú~	MENTAL-STATE	~¿
manner-of	‡?	content-of	‡?/*	change-of	‡ %steady
grunt	‡	ask	‡	choose	‡
moan	‡	command	‡	decide	‡
mumble	‡	demand	‡	plan	‡
mutter	‡	order	‡	prepare	‡
say	‡	propose	‡	resolve	‡
scream	‡	refuse	‡		‡
shout	‡	request	‡		‡
whisper	‡	urge	‡		‡

Before preceding, it is worth noting that even non-agentive verbs must be structural Case-assigners before they can participate in ECM. This is particularly crucial when considering the *want* class and the *demand* class, where there are a number of verbs that do not assign

structural objective Case. Thus, consider non-agentive verbs like *hope* and *long*, which do not take objective-Case objects, but I-select the preposition *for*:²²

- (96)a. We hope/long *(for) a speedy resolution to the problem.
b. What we hope/long *(for) is a speedy resolution to the problem.
c. What we hope/long (for) is that the problem will be solved.
d. What we hope/long (for) is to win.

These verbs quite strongly reject ECM:

- (97)a. *Bill hoped there to be a riot.
b. *Bill longed it to rain.

These are not problems for the Agent/ECM Correlation, since we can attribute the unacceptability of ECM to the absence of objective Case in the first place. Thus, when testing whether a verb does or does not conform to the generalizations discussed here, it is important not only to ensure that the verb takes an infinitive, but also that it does not require a particular preposition. Additionally, it may be important to distinguish among various readings of preposition-taking verbs. Consider (98):

- (98)a. Bill planned for a long meeting.
b. Bill planned a long meeting.
c. ?*Bill planned there to be a long meeting.

ECM in (98c) is, in my judgment, basically unacceptable at a weak level. The situation with *prepare* is different:

- (99)a. Bill prepared for a long meeting.
b. Bill prepared a long speech.
c. *Bill prepared there to be a long meeting.

Here, in my judgment, ECM is quite bad. This suggests that *plan* when it takes an infinitival complement is the same verb that takes a bare NP object, but *prepare* when it takes an infinitival complement is the same verb that I-selects a PP headed by *for*. There presumably is a theory to be discovered here, but I have not explored these factors and have nothing to add about them.

Putting these complications aside, we see a general uniformity in the distribution of ECM that cross-cuts the behavior of verbs with respect to PRO and NP-trace in the subject of their complement. Agentivity is the factor that determines ECM among verbs that disallow PRO and allow NP-trace in their infinitival complements (*believe*-class and *wager*-class). Agentivity is also the crucial factor for ECM with verbs that allow PRO and disallow NP-trace (*want*-class and *demand*-class). This fact provides encouraging support for the thesis that the distribution of ECM should be guided by semantic factors. In addition, it challenges us to develop a new syntactic account of ECM that allows its distribution to crosscut the other consequences of LGB's rule of CP-deletion.

2.10 Obligatory Control interfering with ECM?

Additionally, certain verbs like *try*, which one might expect to disallow ECM in a fuzzy fashion, in fact strongly reject ECM. This may be due to some sort of obligatory control. Thus,

for many speakers *try* does not even allow *for NP to VP* structures, even though, as we shall see, *try* is semantically compatible with the complementizer *for*:

- (100)a. Bill tried very hard (%for Sue) to get elected.
 b. Bill attempted with might and main (*for Sue) to get elected.

2.11 Irrealis vs. Propositional Complements: PRO and trace

For ECM, *believe* patterns with *want*, and *wager* with *demand*. If we turn to PRO and NP-trace, we find a situation in which *believe* patterns with *wager*, and *want* with *demand*. Let us ask whether here, as with ECM, the distribution of predicates mirrors some syntactic factor.

We can immediately notice a difference in the understood mood of the complement clause. The infinitival complement to verbs like *want* and *demand* is interpreted as unrealized at the time of the matrix clause, with its truth at the time of utterance left unspecified. The various verbs in (95) all have this property. I will use the traditional term *irrealis* for such complements. By contrast, nothing is asserted or presupposed about the truth of the complement to *believe*- and *wager*-class verbs. The complements to these verbs are simple propositions, like their finite complements.

This distinction, and the correlation with PRO, was noted by Stowell (1981; 1982), who attributed the irrealis mood to a Tense morpheme in C of infinitives that allow PRO and disallow NP-trace. He posited that the presence of this Tense morpheme blocked CP-deletion, and thereby accounted for the correlation. I continue to delay the discussion of other relevant classes of predicates (the factive and implicative verbs), to keep the exposition as clear as possible. Once these classes are brought into the picture, however, Stowell's theory will become untenable. For this reason, I will not elaborate on it here. However, Stowell's goals are the same as mine, and at this stage in the discussion, his observations fit perfectly into the picture we have developed. I discuss Stowell's hypotheses in greater detail in section ???.

Omitting some details, the picture can be summarized as in (101):

(101)	PROPOSITION [-PRO, +t]		IRREALIS [+PRO, -t]
		‡	
-AGENT [+ecm]	believe	‡	want
	~~~~~	‡	~~~~~ (object)
<b>+AGENT</b> [-ecm]	<b>wager</b>	‡	<b>demand</b>
		‡	(subject)

More can be said about the irrealis complements to the verbs on the right side of the chart. As James Higginbotham (personal communication) has pointed out, the irrealis complements to verbs like *want* and *demand* do not have the same status as propositions that we find with the complements to *believe*- and *wager*-class verbs. Truth and falsity can be predicated of the complements to *believe* and *wager*, but not of the complements to *want* and *demand*. The brackets in (102) indicate the intended reading:

- (102) **Believe-class: ECM**
- a. Mary believes [Bill to read books, which is true].
  - b. Mary fancied Bill to have bought the book with John's money, which was truer than she thought.
  - c. Mary imagined [Bill to have left the room, which was false].
  - d. Bill considered [Mary to have gone to school, which is false].
  - e. John judged Mary to be a scoundrel, which is true.
- (103) **Believe- and wager-classes: NP-trace**
- a. Bill was believed [to read books, which is true].
  - b. Bill was fancied [to have bought the book with John's money, which was truer than one might think].
  - c. Bill was imagined [to have left the room, which was false].
  - d. Mary was considered [to have gone to school, which is false].
  - e. Mary was judged [to be a scoundrel, which is true].
  - f. Mary was admitted [to have won the race, which was true].
  - g. Mary was affirmed [to have bought the book, which was true].
  - h. Mary was announced [to have left the room, which was true].
  - i. ?Mary was mumbled [to be a scoundrel, which is false]
  - j. Mary was wagered [to be the best candidate, which was false].
- (104) **Want-class: ECM**
- a. *Mary wanted [Sue to read a book, which was true].
  - b. *Mary would like [Bill to buy the book with John's money, which would be truer than you might think].
  - c. *Mary hates [her students to smoke in class, which is false].
  - d. *Bill needed [there to be a riot, which would be false].
  - e. *John could wish [there to be a bit more salt in the soup, which is false].
- (105) **Want- and demand-class: PRO**
- a. *Mary wanted [to read a book, which was true].
  - b. *Mary would like [to buy the book with John's money, which would be truer than you might think].
  - c. *Mary hates [to smoke in class, which is false].
  - d. *Bill needed [to leave the room, which would be false].
  - e. *John could wish [to be a bit richer, which is false].
  - f. *Mary agreed [to read a book, which was true].
  - g. *Bill arranged [to buy the book with John's money, which would be truer than you might think].
  - h. *Bill assented [to turn off the lights, which is false].
  - i. *Bill attempted [to smoke in class, which would be false].
  - j. *Bill demanded [to leave the room, which is false].

There is no problem modifying the embedded clauses in the starred examples with other types of relative clauses:

- (106)a. Mary wanted [Sue/PRO to read a book, which would have been a shock].  
 b. Mary would like [Bill/PRO to buy the book with John's money, which is/would be illegal].  
 c. Mary agreed [to read a book, which would have been a shock, had it happened].  
 d. Bill arranged [to buy the book with John's money, which was a sensible idea].

Relevant as well are Bach's (1977) observations that nouns like *proposition* and *eventuality* themselves make this distinction. The following contrast is his:

				that proposition.
				that fact.
(107)a.	She	$\infty$ believes	$n$	the Pythagorean theorem.
		$\emptyset$ proved	$2$	*that state of affairs.
		$\varepsilon$ meant	$\beta$	*that contingency.
				*this eventuality.
				*the ten Commandments.

				that state of affairs.
				that kind of game.
b.	She	$\infty$ desires	$n$	that opportunity.
		$\emptyset$ wants	$2$	*this eventuality.
		$\varepsilon$ wishes	$\beta$	*that proposition.
				*that fact.
				*the Pythagorean theorem.

## **2.12 Claim**

It might be thought that the impossibility of the examples in (104) and (105) is somehow due to the fact that the embedded clause displays control. In this connection, the properties of a genuine counterexample to the generalization expressed in (101) are of interest. The verb *claim* allows PRO, despite displaying a propositional, non-irrealis complement. In other respects, *claim* acts like a *wager*-class agentive predicate, resisting ECM but allowing NP-trace. Truth and falsity may always be predicated of the infinitival complements to *claim* indicating that PRO per se is not the issue here. I will return shortly to the reasons for the counterexample (which is unique or nearly unique; see the next subsection).²³

- (108)a. Bill claimed [PRO to be the king of France, which was true].  
 b. Bill was claimed [*t* to be the king of France, which was true].  
 c. ??Mary claimed [Bill to be the king of France  
 (, which was true)].

## **2.13 The Verb Expect**

Of particular interest is the behavior of the verb *expect*, whose peculiar properties were first discussed by Bresnan (1972; reporting joint work with Howard Lasnik). I expand on her material.

*Expect* has several uses. On one reading, *expect* means something like *believe*, with the difference that the belief must concern something unknown to the believer. On another reading, *expect* means something like *want*, with the difference that the desirer believes that his desires will be fulfilled by some interlocutor. Sentence (109a) is fully ambiguous between the two uses. The sentence can describe the subject's beliefs or the subject's desires. By contrast, (109b) has only the *want*-like interpretation. The sentences in (110) show the same contrast:

- (109)a. I expect there to be flowers on the table.  
 b. There are expected to be flowers on the table.

- (110)a. John expects this book to be on reserve by Thursday.  
 b. This book is expected to be on reserve by Thursday.

This distinction can be straightforwardly explained if each use of *expect* places the verb in a different column of (101). When *expect* is a verb of *belief*, it takes a propositional complement:

- (111) John expected there to be flowers on the table, which was true.

But when *expect* is a verb of *desire*, it takes an irrealis complement. Since in both uses, the verb is non-agentive, ECM is possible in (109) with both readings. The irrealis use of *expect*, like *want* itself, disallows NP-trace in the embedded clause, yielding the disambiguation in (109b).

There is an interesting complication. First, as Bresnan noted, there is a third use of *expect*, in which it takes two objects — an animate NP and an infinitival clause — and means something like *require* in *require of NP CP*. The clause is an irrealis infinitive that may have a PRO subject. This has as a consequence that a string of the form seen in (112a), with an animate postverbal NP, should be ambiguous among the two interpretations discussed above, with the bracketing in (112b), and a third, attributable to the structure in (112c):

- (112)a. John expected Mary to know French.  
 b. John expected [_{clause} Mary to know French].  
 c. John expected Mary [_{CP} PRO to know French]

This is indeed the case. (112), with the structure in (112b), may mean that John, without having any facts at his disposal, believed that Mary knew French. It may mean that John wished it to be the case that Mary knew French (and has the authority to realize his wishes). Finally, with the structure in (112c), the string in (112) means that John required of Mary that she know French.

*Mary* in (112c) is expected to passivize, which it does. We have already seen that *Mary* in (112b) may passivize on the *belief* reading, but not on the *want* reading. Thus, (113a) below may mean 'John believed Mary would know French' and 'John required of Mary that she know French', but not 'John desired that Mary know French'. I think this is the case. *Want* usages of *expect* naturally have the perlocutionary force of orders (cf. *Bill wants more orange juice, please*). (113) may be understood to describe an order given to Mary (the structure in (113c)) — the *require* reading — but not an order given to some third party — the *want* reading, even though the active in (112) has both readings:²⁴

- (113)a. Mary was expected to know French.  
 b. Mary was expected [_{clause} t to know French].  
 c. Mary was expected t [_{CP} PRO to know French].

This triple analysis of *expect* as a *believe*-class verb, a *want*-class verb, and a verb like *require*, combined with the chart in (101), predicts the following facts:

- (114)a. **Active expect:**  
    (i) **Animate post-verbal NP: 3-ways ambiguous**  
        (*believe, want, require*)  
    (ii) **Inanimate post-verbal NP: 2-ways ambiguous**  
        (*believe, want*)
- b. **Passive expect:**  
    (i) **Animate subject: 2-ways ambiguous**  
        (*believe, require*)  
    (ii) **Inanimate subject: unambiguous**  
        (*believe*)

Remarkably, this description is accurate. Furthermore, this is a description of some consequence to us. The uses of *expect* are homophonous. Furthermore, the various meanings of this verb are (intuitively) rather close to each other. In most environments, sentences with this verb are at least two ways ambiguous. Nonetheless, its syntactic properties correspond perfectly with its semantic properties, following the patterns observed elsewhere in English. This provides a strong *prima facie* case for the significance of the correlation between the propositional/irrealis distinction and the possibility of embedded NP-trace. With little or no evidence (since only subtle interpretational differences are involved), speakers of English know how passive disambiguates structures with *expect*. This is a clear pointer to principles deeper than an arbitrary syntactic classification.²⁵

There is one point on which *expect* disappoints us, however. Consider infinitival complements with PRO in subject position, like (115):

- (115) **Bill expected [PRO to know French well when he finished the course].**

We predict that (115) should allow only the *want* reading of *expect*. Instead, (115) might be ambiguous between this reading and the *believe* reading. The decision hinges on the status of (116), for which judgments are murky:

- (116) **Bill expected [PRO to know French well when he finished the course, which was true].**

If (116) is possible, then we need to add that *expect* on the *believe* reading is the same type of problem as *claim*. That is, we might have to say that although *expect* mostly behaves properly (given our discussion so far), it surprisingly allows PRO. If (116) is not possible, then there is no difficulty at all. There seems to be some difficulty in interpreting (116), yet it does not seem to be entirely impossible either. I will leave the matter undecided. Despite this, the importance of *expect* as a validation of our hunt for correlations between lexical semantics and c-selectional properties remains intact.

## **2.14 Towards an Explanation**

In a logical sense, our job is almost done. The child learning English, encountering a verb from one of the four classes, can determine something about its syntax from observing its semantic properties, and can determine something about its semantics from observing its syntactic properties. For a number of reasons, however, we must regard our job as unfinished. First, there are certain infinitive-taking verbs that do not fall into the four classes described above. Second, we hope to do better than mere arbitrary correlations. Why do the semantic classes correlate with the syntactic classes as they do? Another way to ask this question is to wonder if there could be languages like English that differed in the correlation of syntax to

semantics. For example, could agentivity correlate positively or negatively with the distribution of PRO and NP-trace, instead of with ECM; or could there be a language in which irrealis complements allow NP-trace and disallow PRO, instead of the other way around?

Unfortunately, as I indicated earlier, I have little to contribute towards an explanation of the Agent/ECM Correlation. On the other hand, a good deal more can be said about other aspects of the distribution of ECM, and major steps can be taken towards an understanding of the correlations that concern PRO and NP-trace. In the following sections, I will develop these themes. I will introduce two or three distinct topics, building to the point at which these disparate observations can be brought together.

## **2.15 Factive and Implicative Verbs**

First, let us introduce the predicates that complicate the empirical picture. These predicates fall into two classes semantically, though they do not display any syntactic differences that are relevant to the discussion in this chapter. The group consists of *factive* predicates like *hate* and *love* (Kiparsky and Kiparsky (1970)), and *implicative* predicates like *manage* and *condescend* (Karttunen (1971)):

(117) *Factive predicates*

- a. John loved PRO to ride in the back seat yesterday.
- b. The Angels hated PRO to lose Sunday's game to the Red Sox.
- c. %Mary loathed to PRO hear what I had to say.
- d. %Bill disliked PRO to read this morning about the hurricane.

(118) *Implicative predicates*

- a. Bill didn't bother to leave early.
- b. Sue condescended to talk to us.
- c. John dared to be great.
- d. Harry declined to accept the award.
- e. Mary disdained to work for a living.
- f. Sue helped us to leave.
- g. John managed to get funding for the conference.
- h. Mary neglected to turn off the lights.
- i. Bill didn't care to open the car door.

Like the complements to *want* and *persuade*, the complements of these verbs are not propositional.²⁶ Predication of *true* and *false* is impossible:

- (119)a. #Bill hated [to ride in the back seat yesterday, which was true].
- b. #John managed/didn't manage [to get funding for the conference, which was false].

Implicative predicates differ from factive predicates in a number of ways. Factive predicates presuppose the truth of their complements. Implicative verbs assert the truth or falsity of their complements, depending on the content of the clause with the implicative verb. Thus (118a) asserts that Bill did not leave early, and (118b) asserts that Sue talked to us. By contrast, a sentence like (120a) presupposes that Bill *did* leave early:

- (120) Bill didn't hate to leave early.

The differences between factives and implicatives were first noticed by Karttunen (1971), and will be taken up again in section ???. Unnoticed by Karttunen is the fact that the infinitive-taking factive predicates are non-agentive, while the infinitive-taking implicative predicates are agentive:²⁷

- (121)a. #John loved PRO to ride in the back seat yesterday, and Mary did so too.  
 b. John managed to get funding for his conference, and Mary did so too.

With respect to null embedded subjects, both factive and implicative predicates behave like verbs of the *want*- and *demand*-classes, allowing PRO and disallowing NP-trace. With respect to ECM in the factive *hate*-class, the situation is more complicated. These verbs are non-agentive. Nonetheless, whenever the matrix is punctual in aspect, ECM is impossible. We already noted that ECM is possible with these verbs when the aspect is non-punctual in connection with our discussion of *want*-class predicates (example (64)). We will return to this possibility in section ??? below.

- (122)a. *Bill hated Mary to ride in the back seat yesterday.  
 b. *The Angels hated the Mets to lose Sunday's game to the Red Sox.  
 c. *Mary loathed John to hear what I had to say.  
 d. *Bill disliked Sue to read this morning about the hurricane.
- (123)a. *Bill didn't bother Mary to leave.  
 b. *Sue condescended John to talk to us.

The paradigm is given in (124):

- (124) PARADIGM  
 a. *Mary managed [Bill to read the book] - ECM  
 b. *Bill was managed [t to to read the book]. - NP-trace  
 c. Bill managed [PRO to read the book]. + PRO

Finally, the full situation is sketched in the following chart:

(125)

[+ECM]/[-ECM]

	" PROPOSITION	#FACTIVE/IMPLICATIVE #	IRREALIS
		Ø	Ø
[-AGENT]	" believe	# hate	# want
[+AGENT]	" wager	# manage	# demand
	"	#	
	" [-PRO, +NP-trace]	#	[+PRO, -NP-trace]

The path to understanding this chart will be long and somewhat tortuous (even excluding the Agent/ECM correlation, which will remain unexplained). Before we can understand the syntactic and semantic nature of embedded infinitives, we will need to understand more about their syntactic and semantic properties than has been presented so far. Understanding these



properties will require excursions into areas like the semantics of counterfactuals and the interpretation of tense. By the end of this discussion, I will conclude that the properties of infinitival complements to *want*-class and *demand*-class predicates stem from special properties of the complementizer. In essence, this complementizer is a form of *if*. The contrast among *believe*-/*wager*-class predicates, *hate*-class factive predicates and *manage*-class implicative predicates will rest on differences in the properties of the inflectional node occupied by *to*. In essence, I will propose that hiding behind the phonological form *to* are mood markers that mark factive and implicative clauses, with propositional complements remaining unmarked. This theory, to the extent it succeeds, will give us what we want. From the child's observation of a verb's semantics, much of its syntax will be deducible. From the child's observation of a verb's syntax, some of its semantics will be deducible. Furthermore, the path in each direction will make sense, which is all we can expect.

## Chapter 3

# COMPLEMENTIZER INCORPORATION AND CROSS-CLAUSAL GOVERNMENT

### 3.0.1 C-to-V movement

At the beginning of the previous chapter, I sketched the *LGB* analysis of infinitival complementation, which hinges on the rule of CP-deletion. I have noted that the *LGB* system is insufficient for dealing with the range of verb classes that we find. If the *LGB* system were supplemented by the Agent/ECM Correlation, the *wager*-class would no longer be unexpected, but the *want*-class still would be. This class, it will be recalled, behaves like a CP-deleter for *ECM* but like a non-CP-deleter with respect to PRO and NP-trace in the subject of its complement. Suppose we hold constant the idea that the possibility of PRO and the impossibility of NP-trace in the subject position of an infinitive is contingent on the presence of a CP barrier between the infinitive and the higher verb. Then we must find an account of ECM that does not require this CP barrier to be deleted.

In the previous chapter, I adopted Kayne's and Stowell's idea that finite clauses not introduced by an overt complementizer are nonetheless headed by a phonologically null complementizer. I suggested further that this null complementizer is an affix, and must raise to a governing element by S-structure. Suppose we were to adopt exactly the same assumptions for certain infinitival clauses that lack an overt complementizer — in particular for verbs of the *believe*- and *wager*-classes. Such a view would provide a new analysis of Exceptional Case Marking (ECM) constructions and Exceptional Government under NP-movement. A sentence like *Mary believed John to be happy* would involve an empty complementizer, as first suggested by Chomsky and Lasnik (1977), but this complementizer would be adjoined to *believe* at S-structure:

(126) Bill [[  $\emptyset_c$  ]_i [believed_v ]_v] [ [t_i ]_c ] Mary to be happy  
           i_____ %

This assumption has two consequences. The first consequence has already been noted by Abney (1987, 157) and by Baker (1988, 488 note 4). The fact that *believe* acts as a governor for *Mary* can now be seen as a consequence of Baker's (1988, 64) *Government Transparency Corollary* (henceforth *GTC*):

(127) *Government Transparency Corollary*  
 A category which has an item incorporated into  
 it governs everything which the incorporated item governed  
 in its original structural position.

Assuming that the complementizer in (126) governs the embedded subject from its original position, the verb to which it adjoins also governs this subject. As a consequence, NP-trace in

embedded subject position is as possible as it is in a direct object position, and PRO is as impossible. Finally, since *believe* is a Case-marker that governs the embedded subject, it will Case-mark that subject.

The NP-trace in constructions like (128) can be governed by the matrix verb in the same way, under analyses involving C-to-V movement. PRO is excluded if C-to-V movement is obligatory, as seen in (129):

- (128) a.  $Bill_j$  was  $[[\emptyset_c]_i$  [believed_v]  $v]$   $[[t_i c]$   $t_j$  to be happy.  
 b.  $Bill_j$  was  $[[\emptyset_c]_i$  [wagered_v]  $v]$   $[[t_i c]$   $t_j$  to be happy.  
 c.  $Bill_j$   $[[\emptyset_c]_i$  [appeared_v]  $v]$   $[[t_i c]$   $t_j$  to be happy.
- (129) a. * $Bill$   $[[\emptyset_c]_i$  [believed_v]  $v]$   $[[t_i c]$  PRO to be happy.  
 b. * $Bill$   $[[\emptyset_c]_i$  [wagered_v]  $v]$   $[[t_i c]$  PRO to be happy.  
 c. *it  $[[\emptyset_c]_i$  [appeared_v]  $v]$   $[[c t_i]$  PRO to be happy.²⁸

In a way, this idea is a return to pre-LGB analyses of ECM complementation, in which the embedded clause was held to be (what we would now call) a full CP with a null complementizer (Chomsky and Lasnik (1977); Chomsky (1980)). My implementation of this idea, besides following suggestions by Abney and Baker, is conceptually similar to Kayne's (1984, chapter 5; orig. 1981) earlier analysis of *believe*-class verbs. Kayne adopted Chomsky and Lasnik's null complementizer for these predicates, adding the suggestion that this complementizer is prepositional. In the second appendix to his paper, Kayne suggests that Case in ECM constructions is assigned by the higher verb through a "transmission" procedure that involves the intervening null complementizer. The availability of this transmission procedure depends on a crucial "similarity" in the way verbs and prepositions assign Case, a similarity that also allows verb-preposition reanalysis. The pieces of this analysis are put together in a manner different from mine, but the pieces are quite similar. The notion of "transmission" is here taken up by the GTC. Kayne's theory provided a mechanism for explaining the differences between languages like English, which show ECM, and languages like French and Italian, which generally do not. I will delay this theme until later.

### 3.0.2 Evidence for C-to-V Movement

Is there independent evidence for a null complementizer that raises to V? As in all our previous chapters, evidence for a zero morpheme must be indirect, but we can build on our experience in ways that will continue to play a role as we decipher the behavior of other verb classes.

Subject sentences are an obvious place where an argument can be found for a null incorporated complementizer with verbs like *believe*. Head movement is not possible from sentences in subject position, as argued by Travis (1984) and Baker (1988). The reason cited by these authors is the ECP: a trace inside subject position cannot be governed over the subject position boundary, since subjects are not L-marked and thus block government (see (45)-(47)). In the previous chapter, we noted that the null counterpart to finite *that* is impossible in subject sentences. I attributed this to the status of this null complementizer as an affix combined with the impossibility of C-to-V from subject position:

- (130) a. The Ancients believed  $[\emptyset_c]$  the world was round.  
 b. * $[\emptyset_c]$  the world is round was known to the Ancients.

Now consider subject infinitivals related to the complement position of a verb like *believe*. It is easy to see why ECM is impossible in such a position:

- (131)a. *[The earth to be round] was believed by the Ancients.  
 b. *[The earth to be round] is what the Ancients believed.

Since the subject position is not accessible to government from the matrix INFL, (131) is a Case Filter violation. It is less easy to see why (132) is impossible:

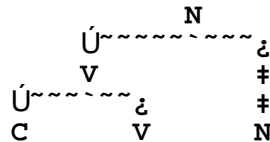
- (132)a. *[PRO to be round] was believed by Humpty Dumpty.  
 b. *[PRO to be round] is what Humpty Dumpty believes.

By hypothesis, *to* is not a governor and the subject position is inaccessible to government from outside. Thus there should be no problem with PRO. We must therefore look elsewhere for an explanation of (132). An obvious place to look is in the C position of the subject sentence. If this position, like the C position in (130b), is occupied by a null complementizer that must raise to V, then (132) will be correctly excluded. Either the empty C moves (perhaps to INFL) in violation of principles governing head movement, or it remains in situ and violates its lexical properties as an Affix:

- (133) *_{CP} [_C  $\emptyset$ ] [_{IP} PRO to be round]] was believed by Humpty Dumpty.

Another argument is provided by nominalizations of *believe*- and *wager*-class verbs. In the last chapter, I argued for C-to-V raising in finite clauses by showing how Myers' Generalization (or its explanation in terms of Fabb's discoveries) could account for the impossibility of complementizerless finite complements to nouns. The account rested on the proposal that null C in finite clauses must incorporate into the verbal base of the nominalization before that verb moves to the nominalizing morpheme:

- (134)a. Sue's confirmation (*that) the world is round.



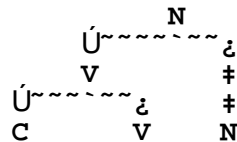
- b. *Sue's [_C  $\emptyset_i$  confirm ation ] [[_C  $t_i$ ] the world is round].

If we now extend our discussion of null complementizers to infinitives, we immediately expect that ECM constructions will not nominalize, and we also expect that passive nominals cannot be formed from ECM verbs. Both these predictions are correct, as is well-known:

- (135)a. *Bill's belief of Mary to be happy  
 b. *Mary's belief [t to be happy]

This is because nominalizations like (135a) have the structure shown in (136a), with C incorporating into *believe* before *believe* incorporates into the nominalizer. Similarly, (135b) has the structure in (136b):²⁹

- (136)



- a. Bill's [_C  $\emptyset_i$  believe f ] (of) [[_C  $t_i$ ][the world to be round]].

- b. Mary's_j [_C  $\emptyset_i$  believe f ] [ [_C  $t_i$ ][ $t_j$  to be happy]].

We thus explain the impossibility of ECM nominalizations without restricting the ability of nominals to govern across a clause boundary, as in Kayne (1984, chapter 7). For the active example in (135), we also do not need to exploit Chomsky's (1986a) suggestion that the preposition *of* in nominals realizes inherent Case (which N can assign only to  $\theta$ -marked arguments of N, by definition). Indeed, if my analysis of *Bill's gift of a book to Mary* in chapter ??? is correct, this suggestion is false, since *book* is an argument of *to*, not of *gift*, yet is presumably assigned by *gift*. The passive example in (135b), on the other hand, might be redundantly ruled out by the Affectedness Condition (as observed by Chomsky (1986a, p.218 note 128) with respect to M. Anderson's version of this condition).

### 3.0.3 Consequences and Problems

If ECM is explained in this fashion, it is natural to suppose that the following statement is true:

**(137) All clausal arguments are CPs.**

In other words, there are no "bare IP" arguments. In fact, the stronger statement in (138) is likely to be true as well. This differs from (138) in excluding bare IP adjuncts as well:

**(138) CP Hypothesis**  
**IP is always a complement of C.**

The CP Hypothesis will not be taken as an article of faith, but will be supported by the analyses presented throughout the rest of this chapter. If the CP Hypothesis is true, it is natural to ask why. One possible explanation would focus on the ability of C to supply IP with something it needs, by analogy with the Case filter for NPs. Another tactic would supply an interpretive reason for the CP Hypothesis: perhaps IP is in some fashion semantically "open" without the presence of CP. This would mirror Higginbotham's proposal that determiners (and hence, DP on Abney's (1987) hypothesis) are necessary so as to bind an open position in the argument structure of N. I will leave these deep issues open in this book.

If the suggestion made here is correct, we will have to *require* the null complementizer to raise to V, and we will have to prevent it from lowering to INFL instead. In the next section, I will provide a reason why the null complementizer must move somewhere. As for the possibility of lowering, note first that this type of movement will leave an unbound trace of C. This unbound trace will fail to be antecedent-governed (since it is not m-commanded by its antecedent). Lowering of a head might be possible, under two circumstances. First, if the category containing the trace can be deleted, then antecedent-government is not an issue. This is impossible here, if the CP Hypothesis holds. Second, as discussed by Chomsky (1989), lowering might be possible if, following lowering, the lowered category (possibly pied-piping associated material) re-raises into the original position. In the case at hand, we must exclude this possibility. In Pesetsky (forthcoming), I argue that lowering followed by re-raising should be excluded quite generally. In any case, English quite uncontroversially excludes I-to-C movement at S-structure for declarative finite complements. Extending this exclusion to infinitival complements yields the desired result. If null C were to lower to INFL in an infinitival complement to *believe*, the resultant structure could by-pass the ill-effects on subject sentences and nominalizations discussed above, but would leave an unbound trace in C, which could never get replaced or antecedent-governed.

### 3.0.4 Digression: Why do only Zero Complementizers Raise to V?

At this point, let us briefly discuss a valid and strong objection to this approach. As noted by Yafei Li (personal communication; cf. also Li (1990)) clear examples of C-to-V raising in which C is overt are either rare or non-existent. That is, we don't find languages with structures like (139):

(139) **Mary** [_C **that**]-said [_C **t_i**] **the world was round.**

The absence of any clear case of overt C-to-V might be an accidental gap, it might be a sign that we are on the wrong track, or the following might be an interesting and explainable property of grammar:

(140) **C may not raise when phonologically overt.**

(140) leaves open the possibility of C-to-V raising when C is non-overt, exactly what I have proposed here. In fact, in head-initial languages at least, something like (140) might well be part and parcel of a more familiar phenomenon — the facts grouped traditionally under the “Doubly-Filled COMP Filter”. This filter was formulated as part of the (now mostly abandoned) hypothesis that WH-movement is movement to C. If we adopt Chomsky's proposal in *Barriers* that WH-movement is movement to SPEC,CP, the descendant of the Double-Filled COMP filter might be stated as in (141). This filter correctly distinguishes among (146a-d), since only in (146a) do both SPEC,CP and C have phonological content:

(141) **Doubly-Filled COMP Filter (version 1 of 3)**  
***XP C, where XP occupies the SPEC of C**  
**and both XP and C have phonological features.**

- (142)a. ***John asked** [_{CP} **what** [_{C'} **that** [_{IP} **Bill read**]]].  
 b. **John asked** [_{CP} **what** [_{C'}  $\emptyset$  [_{IP} **Bill read**]]].  
 c. **John said** [_{CP} [_{C'} **that** [_{IP} **Bill read**]]].  
 d. **Why_i did John say** [_{CP} **t_i** [_{C'} **that** [_{IP} **Bill left t_i**]]].

Independent of (140), the formulation in (141) would need refinement. In particular, the filter incorrectly disallows *XP C* when C contains a raised verb. Examples include the Verb-Second constructions of German, matrix questions in English (on some analyses; see Pesetsky (1989; in prep.) for an alternative), and inversion in French (Kayne (1984)):

- (143)a. [_{CP} [_{NP} **Den Mann**]_i [_C **habe**]_j] [_{IP} **ich t_i gesehen t_j**]].  
 b. [_{CP} [_{NP} **Who**]_i [_C **did**]_j] [_{IP} **you t_j see t_i**]]?  
 c. [_{CP} [_{NP} **Pierre**]_i [_C **a-t-il**]] **vu ce livre?**

Consider the German case. Movement of INFL to a C with phonological features is impossible in German, as noted by den Besten (1989; orig. 1977). This can be seen in (144) and (145) below. (144a) shows a subjunctive construction allowed with certain matrix *believe*-class and *wager*-class verbs, and (145) shows a counterfactual conditional embedded under *als* ‘as’:

- (144)a. Hans sagte, [_{CP} er_i [_C, sei_j [_{IP} t_i glücklich t_j]]].  
 Hans said he is-SUBJUN happy
- b. Hans sagte, [_{CP} [_C,dass [_{IP} er glücklich ist]]].  
 Hans said that he happy is
- c. *Hans sagte, [_{CP} er_i [_C, ist/sei_j+dass [_{IP} t_i glücklich t_j]]].
- d. *Hans sagte, [_{CP} [_C, ist/sei_j+dass [_{IP} er glücklich t_j]]].

- (145)a. Er benahm sich, als habe er noch nichts gegessen.  
 he behaved himself, as had he yet nothing eaten  
 'He behaved as if he had eaten nothing yet.'
- b. Er benahm sich, als ob er noch nichts gegessen habe  
 he behaved himself, as if he yet nothing eaten had
- c. *Er benahm sich, als er habe+ob noch nichts gegessen.  
 he behaved himself, as he had if yet nothing eaten
- d. *Er benahm sich, als habe+ob er noch nichts gegessen.  
 he behaved himself, as had if he yet nothing eaten

The examples in (144) also show movement to SPEC,CP, and thus appear to violate the Doubly-Filled COMP Filter (141). In fact, when C is not occupied by a fronted inflected verb, (141) holds in German. Thus, in matrix questions, which involve INFL-to-C movement, SPEC,CP may be occupied by a WH-phrase. In embedded questions, which do not involve INFL-to-C movement, SPEC,CP may not be phonologically overt at all. Similarly, there is no movement to SPEC,CP in embedded clauses headed by the overt complementizer *dass* 'that':

- (146)a. [_{CP} Was_i [_C, hat_j [_{IP}Hans t_i gesehen t_j]]]?  
 what has Hans seen
- b. Er fragte, [_{CP} was_i [_C, ∅ [_{IP}Hans t_i gesehen hat]]].  
 he asked
- c. *Er fragte, [_{CP} was_i [_C,dass [_{IP}Hans t_i gesehen hat]]].

- (147)a. *Hans sagte, [_{CP} er_i [_C,dass [_{IP} t_i glücklich ist]]].
- b. *Hans sagte, [_{CP} den Mann_i [_C,dass [_{IP} ich t_i gesehen habe]]].  
 '*Hans said this man that I saw'

It seems that "Doubly-Filled C Phenomena" are found when C is filled by a complementizer, but not when C is filled by movement. If we ask ourselves *why* C should be filled by movement, we can begin to understand how (141) should be modified. One possibility is that the finite C in German Verb-Second constructions, like INFL, is affixal, and attracts INFL as a means of avoiding a stranded affix.³⁰ If this is so, then movement of INFL to C will produce the adjunction structures typical of affixation, as in (148):

- (148) [_C INFL [_C ∅ ]]

We can now easily accommodate Verb Second constructions if we refine (141) so that only the phonological content of the *head* of C counts. A base-generated complementizer is the head of C, but INFL in (148) is not. In (148), the head of C is phonologically null. In agreement with

the theory of *Barriers*, I will assume that movement to SPEC,CP is substitution. If the head of the phrase moved to SPEC,CP is non-null (as it seems to be the case wherever the analysis is clear), then we may revise (141) to accomodate this refinement:

- (149) ***Doubly-Filled COMP Filter (version 2 of 3)***  
***XP C, where XP occupies the SPEC of C**  
**and the heads of both XP and C have phonological features.**

Now notice that there is another possible characterization of (149). German shows us that there is no superficial prohibition against “too many phrases” dominated by projections of CP, as a casual examination of the phenomenon might suggest. Instead, the prohibition seems to care about whether SPEC is filled when C is overt. Putting it differently, (149) excludes configurations in which C is overt and not at the left periphery of CP. This suggests a revision of (149) as a *Peripherality Condition* on overt complementizers, as in (150):

- (150) ***C-Peripherality Condition***  
**A phonologically overt C must be adjacent to a boundary of CP.**

(150) does not exclude clause-final complementizers, as in Japanese, as long as such complementizers are peripheral. ~~Complementizers are peripheral~~ An overt element functioning as a clause-marker must mark a boundary of its clause, which means occurring at the absolute beginning or ending. A non-overt complementizer cannot play this role; therefore, peripherality here has no functional value. Of course, as a principle of grammar with scope greater than this functional motivation requires, (150) is as much a curiosity as (149). It represents progress, however, because it is simpler and explains more. In particular, it seems to explain Li’s observation in (140). In a Verb-Object language like English, if C were to raise to V, it would be prefixal (since it is an affix that does not change the category of V), at least as a null hypothesis. This is the configuration sketched in (139). There is no way for C to prefix itself to a higher V without leaving its CP and violating (150).

Indeed, even if we were to find apparent examples of overt C-to-V, in many language-types we would need to be very careful in interpreting the data. Clear cases of overt C-to-V could in principle be detectable only in a few language-types, among are which head-initial languages like English or Italian:

- (151) a.  $C_i+V$  [_{CP}  $t_i$ ...] : *clear case*  
 b.  $V+C_i$  [_{CP}  $t_i$ ...] : *could be phonological cliticization*  
 c.  $C_i+V$  [_{CP} ... $t_i$ ] : *clear case*  
 d.  $V+C_i$  [_{CP} ... $t_i$ ] : *need to ensure language is really C-final,*  
                                   *otherwise could be phonological cliticization*  
 e. [_{CP}  $t_i$ ...]  $C_i+V$  : *need to ensure language is really C-initial,*  
                                   *otherwise could be phonological cliticization*  
 f. [_{CP}  $t_i$ ...]  $V+C_i$  : *clear case*  
 g. [_{CP} ... $t_i$ ]  $C_i+V$  : *could be phonological cliticization*  
 h. [_{CP} ... $t_i$ ]  $V+C_i$  : *clear case*

Consider the cases that would be clear if found. Each case is “clear” precisely because C is on the opposite side of V from its CP. But every such case violates the C-Peripherality Condition in (150). Furthermore, it would be consistent with the spirit of the C-Peripherality Condition to modify it, if necessary, so that overt C must specifically be both internal to CP and peripheral. This would rule out cases like (151b) and (151g) even if they should turn out to be real instances of C-Raising. Thus, the C-Peripherality Condition — providing an account of Doubly-Filled COMP phenomena in the face of Verb-Second phenomena — can also make some sense out of the apparent prohibition on overt C-to-V raising.



The C-Peripherality Condition does not, of course, *explain* the distribution of overt C-to-V. Since it makes explicit reference to the overt/null distinction and to C, it does not explain why that distinction is relevant. Nonetheless, it constitutes progress. The Doubly-Filled COMP filter, translated into a *Barriers* setting in which CP conforms to the X-bar convention, also refers to the overt/null distinction and to C. It is interesting that these various problems seem to come together into a reasonably simple observation concerning the peripherality of C.

### **3.1 The Sign of *for***

#### ***3.1.1 Government***

Retruning to the main topic, we have seen evidence from the behavior of subject sentences and nominals for the proposal that cross-clausal government with *believe-* and *wager-*type verbs is due to C-to-V movement by an embedded null complementizer. The existence of this null complementizer is a consequence of the CP Hypothesis in (138), which requires IPs to be embedded in CP. The C-to-V account of ECM and cross-clausal government does not require CP-deletion, since CP is made irrelevant to government of the embedded subject, thanks to movement of C to V and the GTC.

This account was inspired by our observations concerning *want*, which suggested that cross-clausal government should not be related to the presence or absence of CP. However, the account so far obviously fails to solve any of the problems posed by *want*. This is because ECM continues to require government of the embedded subject by the higher verb. If *want* shows ECM because of C-to-V movement, *want* should act just like *believe*, with NP-trace possible and PRO impossible. This, of course, is false. Furthermore, if the empty C associated with factive and implicative verbs is allowed to undergo C-to-V movement, we predict properties that are the exact opposite of reality. Some new observations concerning the status of C in the complement to *want*-class and *demand*-class predicates will begin to resolve the problems posed by these complements. I will argue that these complements involve a null complementizer of a very different nature than the null complementizer found with *believe* and *wager*. By contrast, the null complementizer with factive and implicative verbs will be shown to be identical to the complementizer with *believe* and *wager*. The differences among *believe-/wager*-class complements and the *factive* and implicative complements will follow, not from any difference in the C system, but from a basic difference in the content of INFL. I begin, however, with the contrast in complementizer between *want* and *believe*.

As I have noted above, Chomsky (1981) proposed (following Bresnan) that apparent ECM by *want* is actually case-marking by an unseen complementizer *for*. The presence of *for* was assumed to block government by the higher verb. Unseen *for*, on this theory, though a governor, is not a lexical governor, and thus fails to license NP-trace under the ECP. Presumably, *for* also optionally fails to govern, allowing PRO. As we saw in connection with (65), this analysis lacks an account of the correlation of ECM with the traditional Case-marking environments. On the other hand, this analysis has a number of attractive properties, which I will now discuss.

Chomsky's proposal entails that some property of C is different with *believe*-complementation and with *want*-complementation. Of course, what is different for Chomsky is the presence or absence of C. Suppose instead that C is present in both cases, but behaves differently with *believe* and with *want*. For example, suppose we retreat slightly from the idea (introduced in the last chapter) that null X⁰'s are always S-structure affixes. Instead,

suppose C in the complement to *want* behaves as an affix for purposes of ECM, but does not behave as an affix to *want* for purposes of licensing PRO and NP-trace:

- (152) a. Bill [[wants_v] [ $\emptyset$ _C]_i] [_{CP} t_i [_{IP} Mary to leave]].³¹  
 b. Bill wants [_{CP} [ $\emptyset$ _C] [_{IP} PRO to leave]].  
 c. *Bill_j is wanted [_{CP} [ $\emptyset$ _C] [_{IP} t_j to leave]].

I will shortly clarify how government must work in this story. For now, let us assume the theory outlined in Chomsky (1986b; *Barriers*), with one addition: phonologically null words may not function as governors. If this last assumption, proposed first by Aoun et al. (1987), is correct, then the embedded subject in (152b) and (152c) is not governed by the empty, non-affixal complementizer. This is the desired result.

ECM in (152a) is more tricky. Here, Baker's GTC tells us that the verb *want* governs everything that null complementizer governs in its original position. We want this to include the embedded subject. Left in its original position, however, the null complementizer does not govern the subject, as we have just seen in (152b) and (152c). The solution to this problem will hinge on a harmless revision of Baker's GTC and on a less harmless distinction between null heads and traces. The distinction between null heads and traces is crucial so as to prevent null C in situ from counting as a governor, while allowing its trace to count. This distinction is made by (153), which should be considered an addendum to (45)-(47):

- (153) An X⁰ which is phonologically null at D-structure (i.e. a zero morpheme) is not a governor.

The reference to D-structure distinguishes between null morphemes and traces. Traces, though null, must count as governors in any case, or else such phenomena as successive cyclic head movement would be impossible. The novelty here concerns empty elements that are not traces, which are kept out of the roster of governors. To allow the trace of null C to pass on its government possibilities to the higher verb, Baker's GTC in (127) must be slightly recast. I replace the reference to "original position" with a reference to the antecedent-trace relation. I take this revision to be harmless, since, my revision of the GTC seems to have no consequences that do not derive from (153):

- (154) *Government Transparency Corollary (trace version)*  
 A category which has an item incorporated into it governs everything which the trace of the incorporated item governs.

### 3.1.1.1 Traces as Governors: Italian Aux-to-Comp

Some support for this system can be found in at least two configurations. First, this system requires that a trace not inherit the government properties of its antecedent. In the cases at hand, empty complementizers fail to govern, but their traces do govern. The same seems to be true of non-governing INFL, at least in Italian. Finite INFL behaves in Italian as a governor, while non-finite INFL behaves as a non-governor, much as in English. This can be seen in the distribution of PRO and trace, and can also be seen in the distribution of nominative subjects, which in most cases parallels their distribution in English. (155b) differs from (155a) in having an infinitival INFL in the embedded clause. *Io* is a distinct nominative form of 'I'; the objective is *me*:

- (155)a. Hanno sempre sostenuto [che io non sono in grado di affrontare una simile situazione.  
 'They have always asserted that I am not able to face such a situation'
- b. *Hanno sempre sostenuto [che io non essere in grado di affrontare una simile situazione.

The impossibility of nominative Case is commonly attributed in (155b) to one of two factors. First, if government is a precondition for Case assignment, the special non-governing status of infinitival INFL might prevent the assignment of nominative Case. Second, the assignment or licensing of nominative Case might be limited to finite INFL, excluding non-finite INFL. Clearly, the first factor alone is sufficient to explain the contrast in (155), and allows the simplest theory of nominative Case assignment — a theory that makes no Case-theoretic distinction between finite and non-finite INFL:

- (156) Nominative Case is marked on an NP only if it is governed by INFL.

For simplicity, I will ignore nominative assignment to inverted subjects in languages like Italian. We might assume that these subjects are governed by V. When V moves to I, the GTC allows these subjects to be governed by I.

V-to-I movement in languages like French or Italian does not interfere with the accusative Case-marking properties of V.³² Thus, the Case-marking or Case-licensing properties of heads are inherited by traces of these heads. As noted above, by contrast, if our account of government by the trace of null C in (152a) is correct, government properties of heads are not inherited by their traces. Thus, although by (153), a zero morpheme like the complementizer in (152b-c) is not a governor (thereby allowing PRO and disallowing NP-trace), the trace of a zero morpheme like the complementizer in (152a) is a governor (thereby allowing ECM). This leads to a prediction concerning nominative Case, if the simple proposal in (156) is correct. Although a non-governing infinitival INFL is incompatible with nominative Case, the *trace* of a non-governing infinitival INFL should allow nominative Case. This prediction is borne out in the “Aux-to-Comp” constructions studied by Rizzi (1980; 1982, chapter 3). When an infinitival auxiliary is able to move to C (a literary construction limited, it seems, to complements of certain *believe*-class and *wager*-class verbs), a nominative lexical subject is possible. The examples in (157) are from Rizzi (1980; example (16)). As Rizzi notes, accusative *me* and *te* cannot replace nominative *io* and *tu* here:

- (157)a. Hanno sempre sostenuto [non esser io  
 They-have always asserted not to-be I  
 in grado di affrontare una simile situazione.]  
 able to face such a situation
- b. Così facendo, suppongo [aver tu voluto  
 Doing this, I suppose [to-have you wanted  
 compiere un gesto di buona volontà  
 to-accomplish an act of good will

Why English lacks the possibility of infinitival I-to-C movement, and why this process is stylistically marked in Italian are factors which I will not explain. Nonetheless, the sudden appearance of nominative subjects with moved infinitival auxiliaries strongly supports the view

that traces of non-governors are themselves governors, a view absolutely crucial to our emerging account of ECM with *want*-class verbs.

### 3.1.1.2 Zero Morphemes as Non-Governors: Gapping

The idea that zero morphemes are non-governors is also crucial to our account, and finds support in certain observations concerning the construction called *Gapping* — in particular, the interaction of Gapping with clauses that lack overt complementizers. Consider clauses with the null version of *that*. I argued in chapter ??? that null *that* is licensed by affixation to a governing head. The governing head must be non-null, as Aoun et al. (1987, 544) note. Thus it may not be gapped:

- (158) a. A thought B hit C, and X ___ that Y hit Z.  
 b. *A thought B hit C, and X ___ Y hit Z.

ECM constructions behave in exactly the same way:

- (159) *A considered B to have hit C, and X ___ Y to have hit Z.  
 (160) *A wanted B to hit C, and X ___ Y to hit Z.

Assume that Gapping involves a verb which is null at D-structure, and interpreted at LF (somewhat as in Williams (1977)). On the account being developed here, the null complementizer in (158b), (159) and (160), being null at D-structure, cannot govern its own trace, and must therefore rely on the verb to do that job for it. However, the null verb is itself null at D-structure, and therefore is itself a non-governor. Thus, the trace of incorporated C is ungoverned and violates the ECP. The relevant structures are given below:

for (158b): *...and X [ [∅_i C] ∅_v] [CP [C t_i][IP Y hit Z]].

for (159): *...and X [[ ∅_i C]∅_v] [CP [C t_i][IP Y to have hit Z]].

for (160): *...and X [[ ∅_i C]∅_v] [CP [C t_i][IP Y to hit Z]].

Additionally, in (159) and (160), the embedded subject is not governed by the higher verb, making ECM impossible on independent grounds. By contrast, in structures without Gapping, the lexical verb does govern both the embedded complementizer and, by (154), the embedded subject.

These facts support both (153) and our approach in which all ECM involves CP complementation and C-to-V movement. As far as *want* is concerned, we cannot adopt Chomsky's theory of Case marking by silent *for* even if we restrict such Case marking to instances in which CP is itself in a Case marking environment. Gapping is a Case marking environment, as simple examples with NP objects show:

- (161) A considered B, and C ___ D.

### 3.1.1.3 The Feature [ $\pm$ Affix]

But what sense can we make of the representations in (152), in which “C in the complement to *want* behaves as an affix for purposes of ECM, but does not behave as an affix to *want* for purposes of licensing PRO and NP-trace”? We can clarify the phrase “for purposes of X” by using the multistratal character of the theory. If ECM is determined *after* the complementizer affixes to *want*, but PRO and NP-trace are licensed *before* affixation, we can begin to make sense of (152). More precisely, I want to suggest the following picture:

(162)

	<b>believe</b>	<b>want</b>	<b>LICENSING</b>
<b>S-structure:</b>	C-to-V	—	PRO must be ungoverned NP-t must be governed ( $\gamma$ -marked)
<b>LF:</b>	—	C-to-V	Case Checking [ECM]

More precisely, I propose that the distribution of features for structural Case is free, perhaps taking place at LF. The distribution of Case is checked at LF, by the following propositions and filters. Following the discussion in section 3.1.1.1, I will assume that licensing of nominative does not intrinsically distinguish between finite and non-finite clauses. That distinction rests on the status of infinitival INFL as a non-governor:

- (163) a. INFL is the licenser for nominative Case.  
 b. [-N] is the licenser for objective Case.

(164) **Case Checking (LF)**  
 *Case-marked NP, unless governed by the element that licenses its Case.

(165) **Case Filter (LF)**  
 *[NP, -Case], where NP heads an A-chain and  $\neq$  PRO.

I assume, with Lasnik and Saito (1984), that properly governed arguments (unlike adjuncts) are assigned an indelible mark [+ $\gamma$ ] at S-structure, and non-properly governed arguments are assigned the indelible mark [- $\gamma$ ]. The value of this mark is checked at LF by the ECP, formulated as follows:

(166) **ECP**  
 *[e, - $\gamma$ ]

LF processes like (late C-to-V movement with *want*) may feed the Case Checking Filters and the Case Filter, but cannot feed the ECP for argument traces established at S-structure. Thus, C-to-V movement at LF can never allow an S-structure NP-trace to satisfy the ECP, since this NP-trace is marked [+ $\gamma$ ] or [- $\gamma$ ] at S-structure. LF application of the ECP is necessary so that the ECP can regulate LF argument movement as well as adjunct movement, topics of only peripheral relevance to us. Finally, I assume that the distribution of PRO follows from Binding Theory at S-structure, as in LGB.

Of course, the picture in (162) is incomplete. It omits the factive *hate*- and implicative *manage*-class. These classes seem to display a null complementizer. Nonetheless, as we have seen, they leave their embedded subject ungoverned for all purposes. Obviously, if these verbs involve C-to-V movement, we achieve a result exactly the opposite of what we need. In fact, I will argue that these predicates *do* involve C-to-V movement, but block government in another way, once again rooted in independent semantic properties of these predicates and related to properties of INFL. For now, however, let us return to *want*.

Once again, we must ask what sense we can make of the differences in (162) between *believe* and *want*. This question subdivides into several subsidiary questions:

1. Is there any reason why a morpheme should undergo affixation at LF only, and not at S-structure?
2. Is there any independent evidence for differences between C in the complement to *believe* and C in the complement to *want*?
3. If so, do these differences correlate in any natural way with the semantics of these predicates?

Let us start with the first question. To answer this question, we need to know why *any element* should undergo affixation. Clearly, many morphemes in English and in other languages appear only as morphological prefixes or suffixes. We have encountered many of them in the preceding chapters. Baker (1988), following Lieber (1980) and Marantz (1984), assumes that morphemes of this sort may be identified by the presence of morphological subcategorization frames. In essence, these are morphemes that select for  $X^\circ$ , in addition to whatever other subcategorization properties they may have. This selectional property must be satisfied by S-structure, to avoid violating the *Stray Affix Filter* (p.140), due in its essentials to Lasnik (1981):

(167)        **Stray Affix Filter**  
               *X if X is a lexical item whose morphological  
               subcategorization frame is not satisfied at S-structure.

I will assume a morpheme with a morphological subcategorization frame is labelled [+Affix]. Filter (167) can then be restated as a conditional. (168) is a first approximation:

(168)    If  $\alpha$  is [+Affix] then  $\alpha$  is affixed at S-structure.

(168) is not quite adequate, however. A [-Affix] verb may affix itself to a [+Affix] inflection, for example when a [-Affix] V moves to [+Affix] INFL in languages like French. Thus, we need to replace (168) with (170) and the definition in (169):

(169) *Incorporation Configuration* =_{def} the configuration [ $X^\circ$   $Y^\circ$   $z^\circ$ ],  
               where  $X^\circ$  or  $Y^\circ$  heads  $Z^\circ$ .

(170) If  $\alpha$  or its sister is [+Affix] then  $\alpha$  is in an incorporation  
               configuration at S-structure.

Viewed in this way, it is easy to observe that the converse of (170) is also true:

(171) If  $\alpha$  is in an incorporation configuration at S-structure,  
               then  $\alpha$  or its sister is [+Affix].

It is (171) that prevents [-Affix] heads from incorporating at S-structure, yielding **John made-leave Mary* in a language like English. Together, we may call (168) and (171) the *Affix Biconditional*:

(172)        **Affix Biconditional**  
                $\alpha$  is [+Affix] iff  $\alpha$  or its sister is in an incorporation  
               configuration at S-structure.

Suppose the empty complementizer associated with *believe* complements is [+Affix]. It will have to raise at S-structure, with the results already discussed. Suppose, by contrast, that the empty complementizer associated with *want* is [-Affix]. This complementizer will be prevented from raising at S-structure by the Affix Biconditional in (172). If the distribution of PRO and

NP-trace is determined at S-structure, we will have the results outlined in connection with (152b-c).

But now notice that nothing is said about incorporation configurations at LF. Thus, even a pair of [-Affix] morpheme might enter an incorporation configuration at LF. Such is the case in (152a), if the picture in (162) is correct. The incorporation configuration  $[[\emptyset_C]_i [\mathbf{wants}_V]_V]$  cannot be established at S-structure, but may be established at LF. In fact, if it is not established at LF, the embedded subject cannot receive Case. Thus, even if one accepts Chomsky's (1986a) idea that movement is a "last resort", restricted by his (1989) notions of "Economy of Derivation", there is motivation for LF affixation of C to V. Further, even if one accepts my own (1988; 1991) "Earliness Principle" which requires S-structure movement to be preferred over LF movement, the [-Affix] status of the complementizer associated with *want* will prevent S-structure C-to-V movement, given the Affix Biconditional.

Here we must issue a promissory note, which will be redeemed in section ???. Consider a language with non-governing overt prepositional complementizers, as Italian does with certain *believe*-class and *wager*-class verbs (Rizzi 1982, p.94):

(173) **Mario suppone/dichiara di PRO aver fatto il suo dovere.**  
**Mario supposes/declares of to-have done his duty.**

The prepositional complementizer *di* is clearly not an affix. There is no sign that *di* cliticizes to the higher verb at S-structure, and AUX cannot move to *di*:

(174) ***Mario suppone/dichiara [di aver]/[aver di] io fatto il mio dovere.**  
**'Mario supposes/declares me to have done my duty'**

Furthermore, as Luigi Burzio and Diana Cresti (personal communication) inform me, nominalizations of *believe*-class and *wager*-class verbs maintain their ability to take infinitival complements, unlike their English counterparts. The English data were explained as in (136), as a consequence of the affixal character of the null complementizer. By parity of reasoning, the contrasting data in Italian can be attributed to the non-affixal character of *di*:

(175) **la supposizione/dichiarazione di aver fatto il suo dovere**  
**the supposition/declaration COMP to-have done his duty**

These data tell us only about S-structure affixation of *di*. We now have a new possibility to consider: *di* might cliticize to the higher verb at LF, licensing ECM. A sample LF is given in (176a), but the corresponding surface form in (176b) is entirely impossible:

(176)a. **Mario  $di_i$ -suppone [ $t_i$  [me aver fatto il mio dovere]]**  
b. ***Mario suppone di me aver fatto il mio dovere.**

If (176) were possible, the availability of an embedded accusative subject would depend on the Case-assigning status of the higher verb, so that a passive or adjectival form related to *suppone* would fail to license *me*, just as we saw with *want*. To the best of my knowledge, no language displays a paradigm of this sort, with ECM over an overt complementizer. Clearly, if our discussion of (152a) is correct, the possibility of licensing ECM by LF C-to-V movement of a [-Affix] morpheme must be limited to phonologically null morphemes. In section ???, I will argue at length that Case licensing depends on S-structure string adjacency as well as LF government between the licenser and the Case-marked NP. This will make exactly the distinction we wish, since null complementizers do not interfere in the adjacency relation between a higher verb and an Exceptionally Case-Marked subject, while overt complementizers

do. Since the proper motivation for this adjacency condition depends on much other discussion, I will leave (176) as a loose end for now.

### 3.1.2 Evidence for [ $\pm$ Affix]: *for*

Let us turn now to the second question asked above: is there any independent evidence for the [ $\pm$ Affix] distinction between C in the complement to *believe* and C in the complement to *want*, with its S-structure consequences? What we must do is look for environments in which C-to-V raising is blocked. In environments of this sort, we should never find an infinitive of the semantic type selected by *believe*, but infinitives of the sort selected by *want* should be acceptable. In fact, using the tools we have already developed, our Chapter ??? discussion of subject sentences and nominalizations, we can discover exactly this.

However, in order to achieve this goal, we must know how to identify an “infinitive of the sort selected by *want*” when we meet one. To do this, we need to examine in greater detail the semantic properties of the hypothesized [-Affix] null complementizer that we are positing for *want*. In fact, I will argue that the semantic properties of this null complementizer are identical to the semantic properties of the overt complementizer *for*. In this way, we will see that there is some truth in the Bresnan/Chomsky proposals concerning *want*-class verbs, despite the problems with ECM that I have already described. In order to do this, however, we will need to learn more about the semantic properties of *for*. And in order to do that, we will need to compare the behavior of *for* with *if* and *when*, which which *for* has a lot in common. Thus, justifying our proposals concerning *want*-class verbs will require an extended investigation, which we will undertake in the coming sections.

Let us begin with the similarities between the null complementizer posited with *want* and the overt complementizer *for*. We start by examining the distribution of the *want* paradigm with slightly more care than we have exercised so far. Verbs like *want* whose lexical meaning requires an irrealis complement fall naturally into this class, as we have seen. Recall how the paradigm was introduced:

“(63) **PARADIGM**

- |                                              |            |
|----------------------------------------------|------------|
| a. Mary wanted [Bill to to read the book]    | + ECM      |
| b. *Bill was wanted [t to to read the book]. | - NP-trace |
| c. Bill wanted [PRO to read the book].       | + PRO      |

(64) *also: desire, need, wish, %can't stand, %loathe, %hate  
%like, %love, %prefer  
[verbs marked with “%” best with generic present, would,  
or other modal...]”*

Consider now the verbs marked with “%”. These verbs also figured in our presentation of the factive class. The possibilities for ECM with these verbs are sketched in the following examples:

- (177)a. John would hate his students to smoke in class.  
b. ?John must hate his students to smoke in class.  
c. John always hates his students to smoke in class.  
d. *John hated his students to smoke in class yesterday.
- (178)a. John would like Mary to listen to this symphony.  
b. ?John must really like Mary to listen to symphonies.  
c. John always likes Mary to listen to symphonies.  
d. *John liked Mary to listen to that symphony yesterday.



- (179)a. Sue would prefer us to meet in the conference room.  
 b. ?Sue must prefer us to meet in the conference room.  
 c. Sue always prefers us to meet in the conference room.  
 d. *Sue preferred us to meet in the conference room.  
 [unless generic]

The (a) examples show an irrealis matrix involving modal *would* and an irrealis complement. Here the presupposition associated with [+factive] verbs like *hate* takes narrow scope with respect to the modal. The (b) examples show the epistemic modal *must*, with reduced acceptability (to be discussed later, in section ???). The (c) examples show an adverb of quantification. *Always* may be omitted in these examples, so long as the sentence is understood generically, i.e. as if *generally* or *always* were present. Also, other adverbs of quantification, such as *rarely* or *mostly* may be substituted with no loss of acceptability. By contrast, the (d) examples are understood as describing a punctual event of the sort that is possible with an embedded PRO subject: e.g. *John hated to (have to) smoke in class yesterday*. We can see that these predicates are displaying *want*-type behavior and not *believe*-type behavior by noting the impossibility of passive, even under conditions favorable to ECM:

- (180)a. *John's students would be hated to smoke in class.  
 b. *John's students must be hated to smoke in class.  
 c. *John's students are always hated to smoke in class.  
 d. *John's students were hated to smoke in class yesterday.

There is another paradigm in which irrealis mood, epistemic modals and adverbs of quantification cluster together. This paradigm involves the behavior of the overt complementizer *for*. After examining this paradigm, we will see that behavior of this sort is closely related to the behavior of *if* and *when*, which may in turn provide a key to the relationship between the null complementizer found with *want* and overt *for*.

What verbs allow overt *for*? Judgments differ on specific verbs, but one fact is crystal clear. As Bresnan (1972, 153) noted: "*believe*-type verbs never appear with *for*, but *want*-type verbs do". Some *want*-class verbs allow *for* outright:³³

**Want-class:**

- (181)a. %I need for Sue to go to the office.  
 b. %Bill can't stand for people to talk too loud.  
 c. %Bill preferred for Mary to go to a local college.

Other verbs of the *want*-class allow *for* only when the embedded clause is not in an ECM environment. I will return to this class of verbs shortly:

(182) Bill wants (%?for) Sue to leave

- (183)a. Bill wants very much *(for) Sue to leave.  
 b. *(For) Sue to leave is wanted by all of us.  
 c. John is anxious *(for) Sue to leave.  
 d. John's desire (*for) Sue to leave.

All the examples in (181)-(183) contrast sharply with the behavior of *believe*-class complements, whether or not ECM is otherwise possible:

**Believe-class:**

- (184)a. Bill believes (*for) Sue to be smart.  
b. *Bill believes very much (*for) Sue to be smart.  
c. *Bill's believe (*for) Sue to be smart.  
d. *John is sure (*for) Sue to be smart.
- (185)a. Sue considered (*for) Bill to have overstepped the bounds.  
b. *Sue considered carefully (*for) Bill to have overstepped the bounds.  
c. *Bill's consideration (*for) Sue to be smart
- (186)a. We hold (*for) these truths to be self-evident.  
b. We hold (*for) sincerely these truths to be self-evident.

*Wager*-class verbs act like *believe*-class verbs. We already saw that they do not allow ECM with an unpronounced complementizer. *For* only makes matters worse:

**Wager-class:**

- (187)a. *Bill wagered (*for) Mary to have entered the room.  
b. *Bill wagered in a loud voice (*for) Mary to have entered the room.  
c. *Bill's wager (*for) Mary to have entered the room
- (188)a. *Bill admitted (*for) Mary to have stolen the election.  
b. *Bill admitted in a sort voice (*for) Mary to have stolen the election.  
c. *Bill's admission (*for) Mary to have stolen the election

This is not surprising, since the complements to *wager* belong to the same semantic type as the complements to *believe*. The two verbs differ in the agentivity of their subjects, which affects ECM.

I have argued that the *demand*-class differs from the *want*-class in the same way that the *wager*-class differs from the *believe*-class. Both *demand*-class and *want*-class complements are irrealis and non-propositional, as we saw in connection with (104)-(105). Thus it is not surprising that many verbs of the *demand*-class, like the *want*-class, also allow overt *for*. We have already seen this with *try* in (100). Other examples include:

**Demand-class**

- (189)a. Bill agreed for us to go first.  
b. Mary arranged for Sue to turn off the lights.  
c. Harry asked for the cake to be brought in.  
d. ??Sue assented for Mary to put the motion on the table.  
e. Tom consented for John to speak on his behalf.  
f. Mary contrived for there to be a representative of the union at the meeting.  
g. ??Harry demanded for somebody to pay attention to him.  
h. ?We need for Bill to come quickly.  
i. Bill tried (very hard) for Sue to get elected.

Turning finally to implicatives and factives, we see that the implicative verbs (*manage* class) behave like *believe* and *wager*, disallowing *for*.

**Manage-class (implicatives)**

- (190)a. *Bill didn't bother (at all) for Mary to leave.  
b. *Sue condescended (a bit) for her brother to talk to us.  
c. *John dared (with all his courage) for Sue to be leave.  
d. *Harry declined (strenuously) for Bill to accept the award.  
e. *Harry disdained (haughtily) for Mary to work for a living.  
f. *Sue helped (mightily) for us to leave.  
g. *John managed (finally ) for Tom to get funding for the conference.  
h. *Mary neglected (carelessly) for Bill to turn off the lights.  
i. *Bill didn't care (at all) for Mary to open the car door.

Finally, returning to our main topic of the moment, factive verbs of the *hate*-class disallow *for* when the reading is punctual. When the reading is generic or irrealis, judgments vary, as always, but the improvement is noticeable:

**Hate-class (factives)**

- (191)a. John would hate (very much) for his students to smoke in class.  
b. John must hate (very much) for his students to smoke in class.  
c. John always hates (very much) for his students to smoke in class.  
d. *John hated (very much) for his students to smoke in class yesterday.
- (192)a. John would like (very much) for Mary to ride in the back seat today.  
b. John must like (very much) for Mary to ride in the back seat today.  
c. John always likes (very much) for Mary to ride in the back seat.  
d. *John liked (very much) for Mary to ride in the back seat yesterday.
- (193)a. Sue would prefer for us to meet in the conference room.  
b. Sue must prefer for us to meet in the conference room.  
c. Sue always prefers for us to meet in the conference room.  
d. *Sue preferred for us to meet in the conference room yesterday.  
[unless generic]

Thus, with verbs like *hate*, exactly the same aspectual conditions are imposed on *for* as are imposed on ECM. ³⁴

Furthermore, one of these aspectual conditions — irrealis mood — is also a lexical property of the *want*-class. Irrealis modality is, as it were, “built into” the semantics of *want*, an intuition which I will make more precise later. Compare, in this connection, the near synonymy of expressions like *want* and *would like* in (194):

- (194)a. John would like a glass of water.  
b. John wants a glass of water.
- (195)a. John would like PRO to leave.  
b. John wants PRO to leave.
- (196)a. John would like Mary to leave.  
b. John wants Mary to leave.

This observation is not new. Bresnan (1972, 71-74) observed (pp. 71-72) the pattern of distribution of *for* described above, giving the following examples:

- (197) a. ?It's rather odd for a man to be chairing a women's meeting.  
b. It would be odd for a man to be chairing a women's meeting.  
c. It's always rather odd for a man to be chairing a women's meeting.

Bresnan also noted that there no comparable contrast is found when *desirable* (or *imperative*, *urgent*, *necessary*, *essential*) replaces *odd*:³⁵

- (198) a. It is desirable for housework to be done by a trained professional.  
b. It is always desirable for housework to be done by a trained professional.  
c. It would be desirable for housework to be done by a trained professional.

She notes that predicates like *desirable* (an adjectivization of the *want*-class verb *desire*) are "themselves like modal operators". This is our conclusion as well.³⁶ Thus our view of the aspectual conditions that license ECM and *for* with *hate* is not contradicted by the availability of ECM and *for* with *want*. The lexical semantics of *want* (adjectives like *desirable*) supplies the modal which is one of the licensing conditions for ECM and *for*.

This result has the flavor of a paradox. The data that we have just looked at strongly tempt us to return to Chomsky's theory, under which apparent ECM by *want* (and, he might have added, *hate*) actually is Case-marking by *for*. On the other hand, the data in (65) strongly argued against this view, since apparent ECM with *want* seems to obey the conditions on normal ECM: the governing element must be a Case assigner. The resolution to this paradox will come when we change perspective slightly. The null complementizer with *want* and ECM *hate*³⁷ does not have the distribution of *for* because it *is for*. Rather, it has the distribution of *for* **because it shares the semantics of *for***. The semantics of *for*, on the theory we will now develop, is important for allowing ECM into non-propositions. Putting it differently, the null complementizer with *want* and ECM *hate* will not merely allow ECM. It will also, by virtue of its semantic properties, make ECM structures immune from a factor that prevents ECM with implicative predicates and non-ECM *hate*. The semantic properties of this *for*-like null complementizer, in turn, will provide an account for one of our open problems: why the null complementizer with *want* and ECM *hate*, alone of all the null morphemes that we have examined, is [-Affix].

Let us review. Both the embedded complementizer and the matrix verb contribute to the possibility of ECM. For *believe*, things are simple. The embedded clause is a proposition; the embedded complementizer moves to the higher verb; and the higher verb does the Case marking, by Baker's GTC. With *want* and *hate*, the embedded clause is not a proposition; movement of C to V is possible only at LF; this licenses ECM only when the semantics of the matrix clause mirrors the semantics of the complementizer *for*. However, when the embedded clause is *not* a proposition and when the semantics of *for* are *not* found, ECM is blocked. We must now discover why all this is so. In so doing, we will answer the second and third questions we asked earlier: Is there any independent evidence for differences in the value of [ $\pm$ affix] between C in the complement to *believe* and C in the complement to *want*? If so, do these differences correlate in any natural way with the semantics of these predicates?

### 3.1.3 The Meaning of *for*: Some History

For convenience, I will label the various null complementizers in ways that reflect their distribution or interpretation. Whether these labels reflect substantive distinctions is an empirical matter which will be resolved gradually, as the discussion progresses (cf. section ???).

(199) **Names for Null Complementizers**

- a. *for*-like C:  $\emptyset_{for}$
- b. C with *believe* and *wager*:  $\emptyset_{prop}$
- c. finite complementizer:  $\emptyset_{that}$

We will begin by characterizing the semantics of  $\emptyset_{for}$ . To learn more about the properties of  $\emptyset_{for}$ , we must learn more about the properties of overt *for*. As I warned earlier, the path to understanding *for* is complex, and winds through *if* and *when*. Furthermore, it is a path which has partially been explored before, though not systematically. In early generative treatments, the differences among complementizers like *for* and *that*, as well as differences between *for*-constructions with *want* and ECM constructions with *believe*, were held to be purely syntactic, of no semantic consequence. Kiparsky and Kiparsky (1971) were among the first to question this view. They argued that an analysis involving *for* (of the sort proposed by Rosenbaum (1967)) is inappropriate for *believe*-class predicates, an observation that we have seen to be correct. They proposed that predicates that select *for-to* complements are semantically distinguished by what they called *emotivity*:

Emotive complements are those to which the speaker expresses a subjective, emotional, or evaluative reaction. The class of predicates taking emotive complements includes the verbs of emotion of classical grammar, and Klima's affective predicates...,but is larger than either and includes in general all predicates which express the subjective value of a proposition rather than knowledge about it or its truth value." (p. 363)

This corresponds perhaps to our observation that the clauses whose semantics we will now identify with those of *for*-clauses are non-propositional. In fact, observations by Bresnan (1972, 83) and by Bach (1977, 638) reinforce this observation. My examples are Bach's:³⁸

- (200)a. That the earth is flat is true.
- b. *For the earth to be flat is true.
  
- (201)a. *That people love their children is common.
- b. For people to love their children is common.
  
- (202)a. That proposition is true.
- b. *That proposition is common.
- [on the reading *Events of uttering that proposition is common*]
- c. *That event is true.
- d. That event is common.

Bresnan (1972) advanced the discussion in an important way. She noted that:

“Even Kiparsky and Kiparsky [(1971)], who argued that syntactic phenomena reflect deep semantic facts and who explicitly rejected the assumption that all infinitival complements stem from the *for-to* marker, failed to inquire into the inherent meaning of *for*. Instead, they expressed their insights in terms of *semantic classes of predicates*...They thus leave unexplained the question why *for* should be limited to emotive predicates. This emphasis on predicates reflects

a...reason for the assumption that complementizers are arbitrary markers: *the tacit assumption that only 'predicates' bear meaning.*" (p.202)

Bresnan's observation is correct. Sentences that embed a *for*-clause as argument have certain semantic properties, but this is only half the story. We need to know what it is about *for*-clauses that make them compatible with some matrix sentences and not with others. This means that we need to discover the semantics of *for* itself. At this point, however, much of the discussion, including Bresnan (1972), becomes fragmentary and inconclusive. Bresnan suggests a correspondence between *for* as a complementizer and *for* as a preposition. This correspondence can be seen in pairs like the following (somewhat abridging Bresnan's presentation):

- (203)a. This book is for your amusement.  
b. This book is for you to amuse yourself with while I'm away.
- (204)a. A guy like John would be good for long talks.  
b. A guy like John would be good for you to talk to about your problems.
- (205)a. She hopes for many things.  
b. She hopes for her sisters to be liberated.

As Bresnan herself suggests (p.80, 98) the (b) examples might contain two occurrences of *for*, one of which is deleted. In fact, this is quite likely to be correct for (205), as argued by Chomsky and Lasnik (1977, 480), and as we have already discussed in section 2.9. The preposition *for* obligatorily resurfaces when the object of *hope* is in some other position:³⁹

- (206)a. What we hoped __ was for John to win.  
b. What we hoped for __ was for John to win.

The same is true of the other examples that I have cited:

- (207)a. *What this book __ is is for you to amuse yourself.  
b. (?)What this book is for __ is for you to amuse yourself.
- (208)a. *What a guy like John would be good __ is for you to talk to about your problems.  
b. What a guy like John would be good for __ is for you to talk to about your problems.

A system that captures this observation was proposed by Chomsky and Lasnik. They posited the following filter:

- (209) *[for for]

This filter applies equally to preposition *for* and to complementizer *for*. This filter makes obligatory in this context a general rule (of C-Deletion) that deletes the complementizer *for*. In our system, we might assume the same filter. Instead of forcing deletion, the filter would force insertion of the null complementizer  $\emptyset_{for}$  where the phonologically realized complementizer *for* might otherwise be possible. Movement of  $\emptyset_{for}$  to *for* would account for the possibility of a lexical subject of the infinitive. Although (209) is a stipulation, I do not see how it can be reduced to more general factors. Therefore, I will assume it also.⁴⁰ In any case, if this analysis is right, then all we learn from (203)-(205) is that "*for* as a complementizer has a meaning compatible with this range of uses of *for* as a preposition", as Bresnan acknowledges. From (203)-(205) Bresnan suggests that *for* expresses *subjective reason or cause, purpose, use or goal*. But in view of the problems with these examples, the conclusion is unwarranted.

Bresnan's approach suffered from a limitation which is the opposite of Kiparsky and Kiparsky's. While *for* cannot be defined exclusively in terms of the predicates with which it cooccurs, neither can it be defined in isolation from the predicates with which it occurs. Typical of function words, *for* is a relational term. As I noted above, I will argue that *for* has some of the uses associated with *if* and *when*. *For* clauses may express reasons and causes because *if*- and *when*-clauses may express reasons and causes. Sometimes this requires a construction that involves prepositions like *for*, but the meaning of complementizer *for* lies elsewhere.

The observation that *for* has something in common with *if* is once again not new. The possibility is raised briefly by Bresnan (p.84), but not followed up.⁴¹ The idea was next taken up in a serious fashion by Carstairs (1973), much of whose discussion anticipates the arguments in the next section.⁴² In what follows, we will see that *for* behaves like *if* and *when*. The key to this demonstration is a set of important discoveries by Kratzer (1989). I shall begin by summarizing the relevant (second) section of her paper.

### 3.1.4 *For, If and When: Kratzer (1989)*

Kratzer is concerned with the distinction between *stage-level* predicates and *individual-level* predicates, in the sense of Carlson (1977). Roughly, stage-level predicates express transitory properties; these include actions (*John spoke French*) and temporary states (*be available*). Individual-level predicates express permanent properties; these include stative predicates (*John knows French*) and other permanent properties (*be intelligent*). Kratzer proposes that "stage level predicates are 'Davidsonian' in that they have an extra argument for events or spatiotemporal location. Individual-level predicates lack this position."⁴³ This argument position, which Kratzer identifies as the "*l*-place", may serve as the subject of spatiotemporal modification. By way of illustration, Kratzer gives the following examples (her (12)-(14)). Examples (210) and (211) display stage-level predicates, and (212) displays (in the intended reading) an individual-level predicate:⁴⁴

(210) Manon is dancing on the lawn.  
[dancing (Manon, l) & on the lawn (l) ]

(211) Manon is dancing this morning.  
[dancing (Manon, l) & this morning (l) ]

(212) Manon is a dancer.  
dancer (Manon)

One of Kratzer's arguments for this view hinges on properties of *when* and *if*. This argument is the important one for our purposes. Kratzer (1989) is interested in *when* and *if* as ways of discovering properties of the stage/individual-level contrast. We are interested in the stage/individual-level contrast as a way of discovering properties of *when* and *if*, and thence *for*. The central paradigm is seen in (213), where *speaks* is stage-level, and *knows* is individual-level:

- (213)a. *When Mary knows French, she knows it well.  
b. When a Moroccan knows French, she knows it well.  
c. When Mary knows a foreign language, she knows it well.  
d. When Mary speaks French, she speaks it well.  
e. *When Mary speaks French, she knows it well.  
f. *When Mary knows French, she speaks it well.

Kratzer assumes that “quite generally, the antecedents of conditionals have no other function apart from restricting the domain of some operator.” Kratzer posits a tripartite LF structure for such sentences (cf. Heim (1982)), consisting of a restricting term, quantificational term, and nuclear scope. In (213), *when* restricts an implicit adverb of quantification whose meaning is similar to that of *generally* or *always*, e.g:

(214) **When a Moroccan knows French, she always knows it well.**

The quantificational term is *always*; the restricting term is the *when*-clause; and the nuclear scope is the matrix clause *she always knows it well*.

In (213), the good examples involve either an indefinite NP matched with a pronoun in both the antecedent and the consequent (examples (213b-c)) or else a stage-level predicate in both antecedent and consequent (example (213d)). The contrasts in (213) are accounted for by a generalization of Chomsky’s (1982) prohibition on vacuous quantification (itself a special case of Koopman and Sportiche’s (1983) Bijection Principle):

(215) **Prohibition Against Vacuous Quantification**  
For every quantifier  $Q$ , there must be a variable  $x$  such that  $Q$  binds an occurrence of  $x$  in both its restrictive clause and its nuclear scope.

The restrictive clause is here the *when*-clause. The nuclear scope is the main clause. What are the variables in the good examples, and how are they missing in the bad examples? Consider first (213b-c). Here, Kratzer assumes, following Lewis (1975) and Heim (1982), that “indefinite noun phrases like *a Moroccan* or *a foreign language* are not analyzed as existential quantifiers. They are treated as predicates introducing a variable into the logical representation. This variable may then be bound by [a quantifier like implicit or explicit] *always*”. These adverbs of quantification act as *unselective binders* in the sense of Lewis (1975) and Heim (1982), binding any and all free variables in their scope.

As for how indefinites come to “introduce a variable into the logical representation”, we have two choices. First, we may assume syntactic movement (QR) of the indefinites at LF to a restriction position (perhaps IP adjunction), leaving traces that function as variables. Alternatively, we may assume that indefinites remain in situ at LF, A-bar bound by an adverb of quantification, and get interpreted as variables in the process of semantic interpretation. Little will hinge on this choice for us, though Heim (1987) and Pesetsky (1987c) give some reasons for preferring the latter approach.

Thus, the chain of reasoning is as follows. In (213b-c), the *when*-clause must be restricting an implicit adverb of quantification like *generally* or *always*. This adverb, by (215), must bind variables in both the *when*-clause and the matrix. The indefinite NP-pronoun pairs provide the necessary variables. (I skirt the precise analysis of the ‘donkey’-like pronouns seen here.)

Now turn to the contrast between (213d), with no indefinite NPs and with *speaks* in both clauses, and the starred examples. If Kratzer is correct, (213d) involves a free *l*-place in the *when*-clause as well as the matrix. This *l*-place may be unselectively bound by the implicit adverb of quantification found in all the examples of (213), satisfying (215). By contrast, if either clause contains an individual-level predicate, that clause will contain no *l*-place, and (215) will be violated. Thus, the two clauses must each contain an indefinite or an associated pronoun, or else a stage-level predicate which supplies an open *l*-place. Nothing else will do. The relevant logical forms are displayed in (216):



- (216)a. *Always [knows (Mary French)]  
           [knows-well (Mary French)]
- b. Always_x [Moroccan(x) & knows (x, French)]  
           [knows well (x, French)]
- c. Always_x [foreign-language (x) & knows (Mary, x)]  
           [knows-well (Mary, x)]
- d. Always_l [speaks (Mary, French, l)]  
           [speaks-well (Mary, French, l)]
- e. Always_l [speaks (Mary, French, l)]  
           [knows-well (Mary, French)]
- f. Always [knows (Mary, French)]  
           \$ [speaks-well (Mary, French, l)]

Of course, there are readings for the starred examples in which *when* is given a purely temporal interpretation, so that, for example, *when Mary speaks French, she knows it well* is interpreted as describing the times when Mary possesses knowledge that is somehow fleeting. These readings are irrelevant to Kratzer's discussion. Additionally, the adverb of quantification may bind an open *l*-place in one clause and an indefinite in another, a possibility not discussed by Kratzer, though correctly allowed by her system. The examples in (217) are constructed so as to avoid temporal readings of *when*. This is much harder to avoid in (218), where only the *l*-place contains a stage-level predicate, but I have provided the examples in any case.

- (217)a. When a student knows French, the teacher curses in German.  
       a. When a number is prime, John uses his slide rule.

- (218)a. When the teacher curses in German, a student always knows French.  
       b. When John uses his slide rule, a number is prime.

Similar examples with *if* instead of *when* show a slightly different behavior. *If* may be used as a synonym for *when* in the contexts just examined. The reader should hold to the reading in which the *if*-clause modifies an implicit *generally* or *always*:

- (219)a. *If Mary knows French, she knows it well.  
       b. If a Moroccan knows French, she knows it well.  
       c. If Mary knows a foreign language, she knows it well.  
       d. If Mary speaks French, she speaks it well.  
       e. *If Mary speaks French, she knows it well.  
       f. *If Mary knows French, she speaks it well.

An *if*-clause may also restrict an epistemic modal, as Kratzer notes — a possibility not available to *when*.

- (220)a. *When the library has this book, it must be on the  
           second floor.  
       b. If the library has this book, it must be on the  
           second floor.

- (221)a. *When Mary knows French, she knows it very badly.  
       b. If Mary knows French, she must know it very badly.

In fact, the starred examples in (219) have acceptable readings, in my judgment, in which there is an implicit epistemic *must*, e.g. (222a) meaning (222b):⁴⁵

- (222)a. If Mary knows French, she knows it very well. She's speaking so fast I can't understand a word.  
b. If Mary knows French, she must know it very well. She's speaking so fast I can't understand a word.

Notice that there is no stage/individual-level contrast when *if* restricts an epistemic modal, and no concomitant need for indefinite NPs in any of the cases. Kratzer explains this by arguing that epistemic modals like *must*, unlike adverbs of quantification, are not obligatorily quantification. Thus, for example, they do not have bind the indefinite in *A car must be in the garage*, allowing an existential reading for *a car*. Similarly, they do not invoke (215) in (220b), and therefore trigger none of the effects seen in (213).

*Must* is not the only epistemic modal that *if* may restrict. Thus, epistemic *should* and *might* are also possible:

- (223)a. *When Ken knows Udmurt, he should know it well.  
b. If Ken knows Udmurt, he should know it well.  
(224)a. *When John knows French, he might know it well enough to translate this article.  
b. If John knows French, he might know it well enough to translate this article.

Finally, so is irrealis *would*, which requires a past tense form in the *if*-clause (see Pesetsky (1989; in prep) for discussion). What we find is, of course, otherwise known as a counterfactual conditional:

- (225)a. If the library had this book, it would be on the second floor.  
b. If the library had this book, it would be on the second floor.  
(226)a. *When Ken knew Nivkh, he would know it well.  
b. If Ken knew Nivkh, he would know it well.

Kratzer's explanation for these facts is compelling, and I will assume that it is correct. Furthermore, it fits naturally with a view of tense in infinitivals, based on Enç (1991), which I will introduce shortly as a means of resolving most of the questions that have so far been left hanging. For now, let us use Kratzer's discoveries as a set of diagnostics for the presence of words that mean *when* and *if*. We expect an *if*- or *when*-word to be usable in connection with adverbs of quantification when both clauses contain stage-level predicates or when the two clauses contain an indefinite and a matching pronoun. By contrast, an *if*-word will be usable in connection with an epistemic modal without such restrictions.

## **3.2 "Non-Logical" If Clauses and Complements**

### ***3.2.1 Kratzer effects***

The distribution of complementizer *for* and the distribution of ECM with non-propositional infinitives mirrors the distribution of *when* and *if*. This suggests strongly that the semantics of *for* and  $\emptyset_{for}$  are close or identical to the semantics of *when* and *if*. This is a puzzling proposal, but it is a proposal that seems to be correct. The puzzle comes when we try to determine how a conditional clause can occupy an argument position. We can begin exploring

and solving the puzzle by examining cases in which a *when* or *if* clause is semantically linked to a direct object position occupied by a pronoun:

- (227) a. John would like it if Mary knew French.  
b. John might like it if Mary knew French.  
c. ??John must like it if Mary knows French  
c. *John always likes it when Mary knows French.  
d. John always likes it when a student knows French.  
e. John always likes it when Mary knows a minority language.

In fact, the analysis of such constructions will provide the key to the semantic analysis of *for*-clauses, and thereby provide the missing demonstration of the existence of [-Affix]  $\emptyset_{for}$ . Though the S-structures and LFs of the two cases are quite different, they are interpreted in very much the same way, and have many properties in common. In this section, we will examine these constructions in detail. I will argue that a specific interpretive rule is responsible for the link between the *if*-clause and *it* in the cases in (227). In the next section, I will argue that the same rule applies to *for*-clauses and  $\emptyset_{for}$ -clauses in argument positions.

Except for the peculiarity that *must* is somewhat reduced in status, to which we return, the distribution of definite and indefinite NPs with individual-level predicates in (227) is exactly what we expect from *if*- and *when*-clauses of the normal sort. In fact, our first task will be to demonstrate that there is something special about the *if*- and *when*-clauses of (227).

Carstairs (1973, 149) has observed contrasts very similar to those in (227). He characterizes what Kratzer calls a “stage-level” requirement as an *iterability requirement*.

- (228) a. I hate it if John is more popular than me.  
b. *I hate it if John is older than me.

- (229) a. John hates it if Mary has long hair.  
b. *John hates it if Mary has a long nose.

Carstairs goes on to note that there is “a prima facie counterexample to the iterability requirement:

- (230) a. I hate it if my friends are older than me.  
b. ?I hate it when my friends are older than me.

He comments: “As we have seen, (228) breaks the requirement and is unacceptable...But if we substitute a definite description for the proper name *John*, the sentence becomes good, even when the predicate *older than me* is retained...”. Clearly, what Carstairs identified is exactly what I am calling attention to here, although the reference to ‘definite description’ misses the point. The NP *My friends* here introduces a variable much as an indefinite does, since *my friends* in (230) means something like *those who are my friends at some given time*, where *some given time* provides the variable. Compare **I hate it when my parents are older than me*, in which *my parents* lacks an interpretation of this sort. Carstairs goes on to note the same effect in complement *for* clauses, as well as ECM, to which we return shortly.

In what follows, I will focus on *if*-clauses, but most of what I have to say will apply equally well to *when*-clauses. The interpretation of these *if*-clauses has been discussed by Steriade (1981), Williams (1974), Pullum (1987) and Rothstein (1991), among others. Their analyses differ in a number of respects, particularly with respect to the status of the object *it*. The debate has focused on two issues: the status of *it* and the status of the *if*-clause. The *it* has been characterized as a normal pronoun (Steriade), a bound variable (Rothstein) and an expletive

(Pullum). The *if*-clause has been argued to be special in some fashion by Williams and Pullum, and to be a normal conditional by Rothstein and Steriade.

Let us consider first the status of the *if* clauses in (227a-c). Williams (p.95) suggests that they differ in their relation to the matrix sentence from the *if* clauses we have examined so far. He considers adjectival examples like (231), and notes that the example is ambiguous.

(231) I would be happy if Bill were here.⁴⁶

He writes, “on one reading, the ‘logical’ reading, my happiness is not necessarily related to my knowledge that Bill is here; it is simply a consequence of his presence. The other sense of this sentence is, *I would be happy that Bill was here, if he were.*” I will adopt the term **logical** from Williams, along with its converse **non-logical**, for the two readings in question, as a convenience. (Nothing in particular should be read into these terms.) On the non-logical reading, the *if*-clause in (231) is related in some fashion to the *Subject Matter of Emotion* role assigned by *happy* (and discussed in chapter ???; cf. section ??? below). Williams’ paraphrase will prove crucial to our understanding of this construction, and the complement infinitives to which I am relating them.

Non-logical *if*-clauses often occur in irrealis environments, but are also characteristic of certain other modalized environments, as well as generic sentences. Most of my examples will be irrealis, but this is for convenience only. Our first task is to find a way in which our fuzzy intuitions concerning the specialness of “non-logical *if*” can be sharpened. Otherwise, we may doubt, with Rothstein (1991), that there is anything special about this construction at all.

### 3.2.2 Negative Polarity

There is at least one way in which non-logical *if*-clauses show special behavior, as observed by Pullum (1987), who credits Karina Wilkinson (personal communication). This involves negative polarity items. Negative polarity items such as *any* or expressions like *at all* must be licensed by an appropriate c-commanding element. Among the appropriate elements is *if*:

(232)a. If anyone calls me, say I’m in the shower.  
b. Bill must have left early, if he left at all.

(233)a. *Anyone called me.  
b. *Bill left at all.

I will not explore the reasons why *if* licenses negative polarity items, but will simply treat it as a fact. Wilkinson observed that *if* in non-logical *if*-clauses does not license negative polarity items, unlike *if* in other clauses. Example (234) involves subject *it*, and is Pullum’s:⁴⁷

(234)a. That panel drops down if anyone pulls this lever.[conditional]  
b. *It would be preferable if anyone pulled this lever.[irrealis]

Similar contrasts can be detected with the object *it* of (227a-e) and similar examples. Let us begin by focusing on examples with object *it*, rather than on examples with subject *it* and or on the *it*-less examples of (231). In its most natural interpretation, in which there is some link between object *it* and the *if*-clause (indicated by coindexation below), *if* in the (a) examples below does not license polarity items. If an *if*-clause with identical content is placed sentence-initially, with the *it* continuing to be linked to the *if*-clause in some fashion, then the *if*

clause does license a negative polarity item. The following examples are to be read with *it* associated with the *if*-clause:⁴⁸

- (235)a. *I would like it if anyone were to ask me about the painting.  
b. If anyone were to ask me about the painting, I would like it.
- (236)a. *I would like it if he played the violin any more.  
b. If he played the violin any more, I would like it.
- (237)a. *I would prefer it if John were to earn any money at all.  
b. If John were to earn any money at all, I would prefer it
- (238)a. *Mary might enjoy it if anyone made a mess.  
b. If anyone made a mess, Mary might enjoy it.
- (239)a. *I would appreciate it if Sue were to budge an inch.  
b. If Sue were to budge an inch, I would appreciate it.
- (240)a. *I will love it if John ever looks at his books again.  
b. If John ever looks at his books again, I will love it.

The (a) examples are acceptable if *it* is coreferent with some other phrase, or is replaced by different NP:

- (241) Q: How do you like the response_i to your painting?  
A: I would like it_i better if anyone were to ask me about the painting.
- (242) I would like John better if he played the violin any more.

Thus, negative polarity items may be licensed by *if* in sentence-initial or postverbal position, but not in postverbal position, when the direct object is an occurrence of *it* referentially linked to the *if*-clause.⁴⁹

Reference to “licensing by *if*” is crucial. Other elements, inside or outside the *if*-clause, can license polarity items perfectly well. For example, negation in (243a-b) licenses negative polarity items in sentences patterned on (235) and (236):

- (243)a. I would not like it if anyone were to ask me about the painting.  
b. I would like it better if he didn't play the violin any more.

Interestingly, *hate*, like *not like*, licenses a negative polarity item — even in a postverbal non-logical *if*-clause:

- (244) I would hate it if anyone were to ask me about the painting.

The phenomenon is familiar from other words that have “negative content”, as well as from other uses of *hate*:

- (245)a. John failed to do anything about the matter.  
 b. Mary refused to do anything about the matter.  
 c. Sue rejected the idea of doing anything about the matter.
- (246)a. John hated/*liked the idea that anyone had read his diary.  
 b. Mary hated/*liked finding anyone's footprints on her lawn.

Since *hate* may function as a licenser for the negative polarity item in (244), this example does not belie Wilkinson's observation. Laka (1990) argues that the "negative content" of verbs like those in (245) does not directly license the negative polarity item, but instead selects a negative complementizer, which in turn licenses the polarity item. I will return to this suggestion in section ??? below.

### 3.2.3 The *If Copying Rule*

Why should non-logical postverbal *if*-clauses not license polarity items? In this section, I take up that question. I will argue that this odd gap in the distribution of negative polarity arises from the action of a special post-LF rule (the *If Copying Rule*) that contributes to the interpretation of non-logical *if*-clauses. This rule will interact with a Local Binding Requirement on chains and with Binding Theory to make the right distinctions. The point of the exercise is as follows: this same rule which explains the negative polarity gap and the interpretation of non-logical *if* can also explain the ways in which  $\emptyset_{for}$  and *for*-clauses behave like *if*-clauses. This, in turn, will provide us with the tools we need to test if our hypotheses concerning  $\emptyset_{for}$ , its existence and properties, are correct. In turn, this will provide us with one of the key props in the analysis of English infinitival complementation.

To explain the behavior of negative polarity and non-logical *if*, let us look at the meaning of (227a). Consider the Williams-style paraphrase for this example, as sketched in (247):

- (247)a. John would like it if Mary knew French. —>  
 b. John would like it that Mary knows French if Mary knew French.

I propose that the paraphrase in (247b) is more than a mere paraphrase. Instead, something like (247b) (with its associated structure) is an actual representation associated with (247a).⁵⁰ This representation is derived by a special interpretive rule that copies in altered form an *if*-clause. This rule in effect supplies a factive complement not explicitly present at other levels of representation. I state this rule informally in (248) as the ***If Copying Rule***:

- (248)      ***If Copying Rule (IC; Version 1 of 2)***  
 1. Take a clause *k* of the form [*if* IP] or [*when* IP] where *k* modifies a sentence  $\Sigma$ .  
 2. Copy *k* as *k'* substituting *that* for *if*, making appropriate changes in mood so as to replace irrealis with realis mood marking.⁵¹  
 3. Place *k'* in an argument position of  $\Sigma$ . Leave *k* as an adjunct modifier. (It gets interpreted as a restricting term, with  $\Sigma$  the nuclear scope; for these notions, cf. section 3.1.4.)

In a fully developed theory of *if*-clauses, Step 2 will follow from the fact that *if* marks the status of a clause as a restrictive term, given what is said about interpretation in step 3. In particular, I make the following assumptions, following Kratzer's theory:

- (249)a. *If* is identical in meaning to *that*, but is an instruction to treat its CP as a restriction on a modal or adverb of quantification.
- b. To function as a restricting term, a clause must occupy an A-bar position external to IP (the nuclear scope).

The “imperfect copying” indicated in step 2 simply amounts to copying all information except the “instruction” in (249). We might call the non-copied information “quantificational”. Then we would specify that all non-quantificational information about the clause is copied. In any case, I will leave the rule as is during our discussion, for the sake of clarity. The assumptions in (249) will nonetheless be important and should be borne in mind. The “non-logical” aspect of these constructions can now be seen as the consequence of the dual role played by the *if*-clause: both a restriction and an argument inside the nuclear term. In a nice term from Williams (1974), the *if*-clause in these constructions is “complement fulfilling”.

IC explains the behavior of negative polarity items with non-logical *if*. If *if* is the only available licenser for a negative polarity item in [*if* IP], then substitution of *that* for *if* in one of the copies of the *if*-clause will leave that negative polarity item without its licenser:

- (250)
- *I would like it if anyone were to ask me about the painting.—>  
 I would like (it) that *anyone asked me about the painting, if anyone were to ask me about the painting.

IC will overgenerate, unless other properties of the grammar intervene. Recoverability is one such factor. Recoverability must prevent IC from overgenerating in (251) so as to replace a copy of the *if*-clause from replacing *her*:

- (251)
- I would like her if Bill were to ask me about the painting.—X->  
 I would like (it) that Bill asked me about the painting, if anyone were to ask me about the painting.

On the other hand, Recoverability should not prevent IC from substituting into the position of object *it*, e.g. in (247). I assume that *it*, unlike *her*, contains no features that conflict with the features associated with CP. Certainly, *it*, and not *her*, is used to corefer with clauses:

- (252)a. Mary said [that the world is round]_i, and I believe it_i.  
 b. If Mary considers [the world to be round]_i, I can believe it_i too.

Thus, only categorial features (NP vs. CP) are lost when CP substitutes into the position of *it*. I will assume that this information is not relevant to recoverability.⁵² Notice that recoverability will prevent the application of IC in (251) only if IC is optional, as indicated in (248). This leads us to expect alternative derivations for examples like (247), an important issue to which I turn shortly.

### 3.2.4 IC and the Projection Principle

Additionally, IC raises questions about the  $\theta$ -criterion and the Projection Principle. The *that*-clause created by IC, *k'*, receives a  $\theta$ -role in all the examples considered so far. Substitution into a non- $\theta$ -marked position yields semantic gibberish:

(253)

It would seem that the world was ending, if Fredonia were to become independent. —  
**That Fredonia became independent would seem that the world was ending, if Fredonia were to become independent.*

Since substitution applies into a  $\theta$ -position, we must ask how IC relates to the Projection Principle. This question is related to another question: the level at which IC applies. If the Projection Principle is correct, IC must apply after LF, since it is a procedure forbidden by the Projection Principle at any of the familiar syntactic levels. The Projection Principle is formulated by Chomsky (1981, 36-38) with reference to the structures in (254), as given in (255):

- (254) a. [ $\gamma$  ... $\alpha$ ... $\beta$ ...]  
 b. [ $\gamma$  ... $\beta$ ... $\alpha$ ...]

(255) **Projection Principle**

Where the variables  $L_i$ ,  $L_j$  range over LF, D-structure and S-structure:

- (i) If  $\beta$  is an immediate constituent of  $\gamma$  in (254) at  $L_i$ , and  $\gamma = \alpha$ , then  $\alpha$   $\theta$ -marks  $\beta$  in  $\gamma$ .
- (ii) If  $\alpha$  selects  $\beta$  in  $\gamma$  as a lexical property, then  $\alpha$  selects  $\beta$  in  $\gamma$  at  $L_i$ .
- (iii) If  $\alpha$  selects  $\beta$  in  $\gamma$  at  $L_i$ , then  $\alpha$  selects  $\beta$  in  $\gamma$  at  $L_j$ .

IC raises questions for all three clauses of this Principle. Clause (i) excludes non- $\theta$ -marked object positions, and is therefore particularly relevant to object *it*; let us continue to delay discussing this topic. Clauses (ii) and (iii) are directly relevant to IC. Chomsky sharpens the statement in (ii) by noting that  $\beta$  here is “a position, not a specific category such that it or its trace occupies the selected position: the lexicon states, for example, that *kill* takes an NP object in a VP, but does not specify that this object is, say, *Bill*.” Consider in this light the categorial status of *it* that gets replaced by a *that*-clause under IC. This *it* is clearly non-sentential. Thus, it needs case as any NP (or DP) does. IC replaces this NP by a CP. Now consider clause (iii). If selection for the NP *it* is the lexical property of a verb such as *like* satisfied at some level  $L_i$ , then by clause (iii), this same lexical property should be satisfied at all the other levels. Conversely, if selection for CP is satisfied at one level, then it should be satisfied at all the other levels. Thus, clause (iii) of the Projection Principle is either wrong, or else IC applies at a level later than LF. I will assume the latter of these two conclusions.

There is a semantic wrinkle here, which will be important in understanding the non-propositional nature of *for* and  $\emptyset$ *for*-clauses, discussed in 2.11 A pronominal “referentially linked” to a proposition may refer in some general fashion to the state of affairs in which the proposition is true.⁵³ Thus, in example (256a-b) (based on data from Pullum (1987), used to different effect here), although *it* denotes roughly what a *that*-clause version of the *if*-clause denotes, the most natural interpretation of *it* (or of the relevant *that*-clause) is not *the proposition that unicorns exist* but rather *the state of affairs that obtains given that unicorns exist*:⁵⁴

- (256) a. If unicorns existed, it would be wonderful.  
 b. If unicorns exists, it would be wonderful.

State of affairs readings are also found with anaphoric expressions other than *it*:



- (257)a. If unicorns existed_i, that_i would be wonderful.  
b. If unicorns exist_i, this_i is wonderful.
- (258)a. If unicorns existed_i, I would love that_i.  
b. If unicorns exist_i, we can enjoy this_i without shame.  
c. If Kim were not informed_i, I would prefer this_i.

— and in non-conditional environments:

- (259) John told me [that unicorns exist]_i. I think that this_i is wonderful.

This is not a property of anaphoric expressions entirely, but a more general property of clauses and elements coreferent with clauses. The “state of affairs” reading can be found with clauses:

- (260) That unicorns exist is wonderful.

Example (260) does not mean *The proposition that unicorns exist is wonderful*, but means something like *the (actually existing) state of affairs in which unicorns exist is wonderful*. “State of affairs” clauses are “non-propositional” by our tests:

- (261) #That unicorns exist, which has been true since 1985, is wonderful.

This should be borne in mind throughout what follows, since these factors color the interpretation of many of our examples, and in fact ultimately account for the “non-propositional” nature of  $\emptyset_{for}$ - and *for*-complements.

### 3.2.5 Sentence-initial vs. Sentence-final *if*-clauses

Now let us turn to the contrasts in (235)-(240). Why should a sentence-initial *if*-clause⁵⁵ allow licensing of negative polarity items by *if*, while a sentence-final *if*-clause does not? ⁵⁶ Consider the meanings of pairs like those in (235)-(240), with the negative polarity items removed. On a reading in which the *it* is associated with the *if*-clause, the (a) sentences and the (b) sentences mean the same thing, as far as I can tell:

- (262)a. I would like it if John were to ask me about the painting.  
b. If John were to ask me about the painting, I would like it.
- (263)a. I would like it better if he played the violin right now.  
b. If he played the violin right now, I would like it.
- (264)a. I would prefer it if John were to earn some money .  
b. If John were to earn some money, I would prefer it
- (265)a. Mary might enjoy it if Sue made a mess.  
b. If Sue made a mess, Mary might enjoy it.
- (266)a. I will love it if John never looks at his books again.  
b. If John never looks at his books again, I will love it.

In each case, there is a reading which may be paraphrased in the manner expected if IC applies. Intriguingly, speakers quite commonly report the feeling that the (a) and (b) examples differ in meaning, even when the semantic relation between *it* and the *if*-clause is held constant.⁵⁷

Yet this difference defies clear description. I think that there is a reason for these difficulties. In fact, there is no real meaning difference between the (a) and (b) examples (on the relevant readings). Yet the intuitions are tapping something real: the derivations that lead to the semantics of the (a) and (b) sentences. The remainder of this section will examine how this works.

Consider the sentence-initial examples first. In a sentence like (262), there is no reason not to assume a fairly unremarkable analysis, in which the *if*-clause is a normal conditional, and *it* a normal neuter pronoun. Recall from (249) that an *if*-clause is identical in meaning to a *that*-clause, except for an instruction concerning the role the clause plays in the semantics. If an *if*-clause denotes what a *that*-clause denotes, then we expect that the sort of pronoun that may be referentially linked to a *that*-clause may also be referentially linked to an *if*-clause, with no noticeable difference in meaning or use. An uncontroversial example would be (267):

(267)        **If Bill ever resigns_i, it's_i effect on the stock market should not be overestimated.**

Since IC is optional, it need not apply here. The *if*-clause does not have to be copied as a *that*-clause and placed inside the subject position. Hence, the negative polarity item *ever* may be licensed by *if*, just as we saw in the (b) examples of (235)-(240).

Now let us look at sentence-final *if*-clauses related to *it*. In this environment, and in this environment only, IC is obligatory. Thus, negative polarity items may not be licensed by *if*, since the replacement of *if* by *that* removes the licenser in the copy. Why should this be the case? In our account so far, there are two ways the “non-quantificational content” of an *if*-clause can be associated with an argument position. First, as we have just seen, the argument position may be occupied by a pronoun referentially linked to the *if*-clause. Second, IC may apply to that argument position. Clearly, when an *if*-clause is postverbal, something is excluding the first possibility. In other words, there is something wrong with the configuration:

(268)    [V *it*_i *if*-IP_i]

***The Structure of Sentence Final if-clauses:*** Let us examine this configuration in greater detail. The most recent study of the syntax of conditional clauses is Iatridou (1991). She suggests that sentence-final *if*-clauses are generated adjoined to VP, while sentence-initial *if*-clauses are adjoined to IP:⁵⁸ I will start by assuming the structure in (269), though I will adopt a somewhat altered proposal below.

(269)a.    [_{VP} [_{VP} V object ] *if*-IP ]  
           b.    [_{IP} *if*-IP [_{IP} subject I VP]]

In (269), the direct object and the *if*-clause are both contained within the outer VP, but the direct object does not c-command the *if*-clause:

(270)    ***C-command***  
           α *c-commands* β iff α does not dominate β and every γ that dominates α dominates β.

The direct object does bear a particular relationship to this *if*-clause, which falls in the family of relations called *m-command*. I adopt May's (1986) ideas concerning adjunction and domination with the terminology proposed in *Barriers*:

(271)a.  $\alpha$  is dominated by  $\beta$  only if it is dominated by every segment of  $\beta$ .

b.  $\alpha$  excludes  $\beta$  if no segment of  $\alpha$  dominates  $\beta$ .

In (272), only  $\beta$  is dominated by every segment of XP. Thus XP dominates  $\beta$ , but does not dominate  $\alpha$ . On the other hand,  $\alpha$  is not excluded by XP either.

(272) [_{XP} ... $\alpha$ ...[_{XP} ... $\beta$ ...]]

The following define two types of *m-command*, which differ only in whether positions adjoined to XP are commanded by constituents of XP. I will continue to use the term “m-command” (with subscripts) when the particular flavor of m-command is not crucial.⁵⁹:

(273)a. *M_e-command*

$\alpha$  *m_e-commands*  $\beta$  iff  $\alpha$  does not dominate  $\beta$  and no maximal projection  $\gamma$  that dominates  $\alpha$  excludes  $\beta$ .

b. *M_d-command*

$\alpha$  *m_d-commands*  $\beta$  iff  $\alpha$  does not dominate  $\beta$  and every maximal projection  $\gamma$  that dominates  $\alpha$  dominates  $\beta$ .

The direct object in (269a) *m_e-commands* the *if*-clause but does not c-command it or *m_d-command* it. The subject in (269b) *m_e-commands* the *if*-clause, but once again does not c-command it or *m_d-command* it.

Consider an alternative structure for (269), in which sentence-final *if*-clauses are not adjoined to VP, but are contained within (the smallest) VP, by analogy with the position of modifiers in NP. Somewhat later, I will argue that this structure is correct:

(274) [_{VP} [_{V'} V object ] *if*-IP ]

Notice that the object *m_d-commands* the sentence-final *if*-clause in this structure, while the subject does not *m_d-command* the sentence-initial *if*-clause in (269). For now, I will entertain both hypotheses about sentence-final *if*-clauses, calling them the *VP-adjunction hypothesis* and the *VP-modifier hypothesis*, respectively.

Chomsky (1986b) suggests that the requirements of Binding Theory — in particular Principles B and C — make reference to c-command and not to either of the m-command relations. If this is right, then on both VP-adjunction and VP-modifier hypotheses a direct object should be able to corefer with an r-expression inside the *if*-clause, while a subject in (269a) should not be able to corefer in this fashion. This is largely correct, where the r-expression is definite and non-quantificational. Certainly, as Reinhart (1981, 34) notes for similar cases, there is a stark contrast between coreference from matrix subject position and coreference from object position into the *if*-clause:

(275)a. John burned it_i if he received the manuscript_i at all.

b. ?I always compliment him_i if John_i says something nice.

c. ?Bill would invite her_i if he knew Mary's_i number.

(276)a. *It_i was burned if John received the manuscript_i at all.

b. *He_i gets a complement if John_i says something nice.

c. *She_i would get an invitation if John knew Mary's_i number.

Nonetheless, Principle C of the Binding Theory might have two effects. Clearly, it strongly excludes r-expressions  $m_d$ -commanded by coreferent expressions, but it might also weakly exclude r-expressions  $m_e$ -commanded by coreferent expressions.⁶⁰ Though the object cases are far better than the subject cases, they remain better than Cases in which no kind of m-command or c-command obtains, such as (277). Note that (277) preserves the “backwards pronominalization” of (275) (to which Reinhart attributes deviance in examples like (275)):

- (277)a. If he received  $it_i$  at all, John burned the manuscript $_i$ .  
 b. If he $_i$  says something nice, I always compliment John $_i$ .  
 c. If he knew her $_i$  number, Bill would invite Mary $_i$ .

Now let us consider other types of interactions between matrix arguments and elements of *if*-clauses.

### 3.2.5.1 An S-structure m-command Condition

The purpose of this section is to establish that a linguistically relevant command relation holds between the direct object and sentence-final “non-logical” *if*-clause. It is well-known (and much-lamented) that different phenomena appear to depend on slightly different command relations. Thus, certain might treat the object in (269a) as commanding the *if*-clause; others might not; depending on whether they care about some variety of m-command, c-command, or some other relation. We have just seen that Principle C primarily involves c-command. A different picture is painted by the relation between a quantifier and a pronoun functioning as a bound variable, like that between *each child* and *his* in (278):

- (278) Each child $_i$  said that his $_i$  mother was coming.

Obviously, a pronoun like *his* in (278) must lie within the scope of the quantifier in order for the structure containing the two to be sensible. In addition, however, it has often been proposed that some S-structure command relation must obtain between the quantifier and pronoun (Lasnik (1989, 102-107, orig. (1976); Reinhart (1976; 1983))⁶¹. On certain judgments, structures with *if*-clauses appear to support this suggestion. The following examples are based on examples by Iatridou (1991), with certain disagreements and complications concerning the judgments, which I shall discuss presently:⁶²

- (279)a. John scolds every woman $_i$  if her $_i$  son is late.  
 b. [*]If her $_i$  son is late, John scolds every woman $_i$ .  
 (280)a. Mary invited no linguist $_i$  to the party if he $_i$  disagreed with her judgments.  
 b. [*]If he $_i$  disagreed with her judgments, Mary invited no linguist $_i$  to the party.⁶³

If the judgments are correct as indicated, with the brackets removed from the star, then there is an S-structure condition on bound anaphora. Since the object does not c-command the *if*-clause, the condition must be at least as weak as some version of m-command. If the VP-internal hypothesis is correct for the *if*-clause, we could assume  $m_d$ -command, though the data are not inconsistent with a (weaker)  $m_e$ -command. If the VP-adjunction hypothesis, we would have to assume  $m_e$ -command.

Examples involving a subject quantifier and a pre-sentential, IP-adjoined *if*-clause seem at this point in the argument to support an  $m_e$ -command condition over a  $m_d$ -command condition, since the subject  $m_e$ -commands an IP-adjoined phrase, but does not  $m_d$ -command it.

- (281)a. If her_i son is late, every woman gets scolded.  
 b. If he_i disagreed with her judgments, no linguist_i got invited to the party.

This conclusion will be revised shortly, when we see that there is another possible analysis for these structures.

In any case, Iatridou (1991), reporting the judgments of a number of speakers, counts (279b) as acceptable, which puts the issue in abeyance until we understand why there is variation on this point. My judgment differs from this on a normal reading of (279b), with a fairly level intonation pattern. Nonetheless, (279b) is more acceptable with special intonation, in particular if high pitch or stress is placed on *scolds*. This type of intonation often seems to reflect syntactic movement (an issue related to difficult questions involving association with focus). Thus, we might posit a source for the *if*-clause inside the VP in these cases, with syntactic movement to pre-IP position. In fact, this is a real possibility. Iatridou shows that pre-IP *if*-clauses may be base-generated in the pre-IP position, but shows equally clearly that movement into pre-IP position is also an option in certain cases. Exploring these options will help us clarify the status of (279b), which is important as a precondition for explaining the status of object *it* linked to an *if*-clause (our current goal in this section).

Iatridou takes as her starting point the observation that phrases moved to an A-bar position behave for Principle C of the Binding Theory (henceforth simply “Principle C”) as if they were in their original location (cf. Riemsdijk and Williams (1981) and references cited therein). Example (282a) shows this. The coreference relation between *John* and *he* is impossible exactly when reconstructing the WH-phrase into the position of its trace would violate Principle C:

- (282)a. *Which friends of John_i does he_i think you like t_i.  
 b. Which friends of John_i t_i think you like him_i.

As Iatridou shows, sentence-initial *if*-clauses that restrict the clause to which they are attached do not behave like instances of A-bar movement. This suggests that the sentence-initial location is a possible base position for *if*-clauses:

- (283)a. *He_i gets sick if Bill_i eats spoiled oysters.  
 b. If Bill_i eats spoiled oysters, he_i gets sick.

On the other hand, (283b) tells us only that *if*-clauses *may* be base-generated in sentence-initial position. It does not tell us that movement to sentence-initial position is out of the question. In fact, Iatridou argues, such movement is possible. When a sentence-initial *if*-clause in a multi-clause structure does not restrict the clause to which it is attached, but restricts some lower clause, it acts as if it moved from that lower clause. In particular, Principle C effects stemming from obligatory reconstruction are found. The relevant reading in (284a) is the natural one in which the *if*-clause restricts the embedded clause:⁶⁴

- (284)a. *[If Bill_i eats spoiled oysters]_j, he_i thinks [we applaud t_j].  
 b. *[If Mary_i knew French]_j, she_i thinks [we would leave the room t_j].

Thus, a sentence-initial IP may have two types of sources: it may be base-generated in sentence-initial position, or it may be moved there. When the sentence-initial IP modifies some lower clause, only the movement analysis is available, as we’ve seen. When the sentence-initial IP modifies the clause it is attached to, the base-generation analysis is available — but there is no reason why a movement analysis should be excluded. It should be an option. If we return now to (279b), we can see why under certain conditions this example might be adjudged acceptable.

Quite independently of *if*-clauses, the  $m_e$ -command requirement on bound variables can be satisfied under reconstruction from an A-bar position, as discussed at length by Engdahl (1980):

(285) Which picture of her_i son did each woman_i say I should hang on the mantlepiece?

Given examples like (285), and the possibility of moving a sentence-final *if*-clause to sentence-initial position, we have an analysis that can explain the possibility of binding in (279b):

(286) [If her_i son is late]_j, [John [_{VP}[_{VP} scolds every woman_i] t_j]]

*Every woman*  $m_e$ -commands the trace of the *if*-clause, and therefore can bind *her* under reconstruction. If this sort of binding involves extra computation, and if the analysis in (286) is for some reason not the first analysis attempted by the parser, we can begin to understand the differing and uncertain judgments on (279b).

To support this analysis, suppose we now construct an example just like (286) except that reconstruction would produce a Principle C effect. This should lead to a conflict in which either Principle C is violated or the  $m_e$ -command condition on pronouns as bound variables is violated. This seems to be correct. Example (287a) has a judgment comparable to (279b), but (287b) is completely impossible, even with this intonation pattern:

(287)a. [*]If he dislikes her son, John scolds every woman  
 b. *If John dislikes her son, he scolds every woman.

This demonstration suggests that there is an S-structure  $m_e$ -command condition on pronouns as bound variables, over and above the (tautological) semantic requirement that bound variables be in the scope of their quantifiers. Furthermore, a postverbal *if*-clause is  $m_e$ -commanded by the direct object.

Note now that these conclusions provide us with another possible derivation for the examples of (281). If the sentence-initial *if*-clauses are derived by syntactic movement from post-sentential position, the pronouns are bound under reconstruction, just as in the cases we have been considering:

(288)a. [If her_i son is late]_j, every woman worries t_j.  
 b. [If he_i disagreed with her judgments]_j, no linguist_i got invited to the party t_i.

We noted at the time that (281) seemed to support an  $m_e$ -command condition over a  $m_d$ -command condition, since the subject  $m_e$ -commands into the *if*-clause, but does not  $m_d$ -command there. If (288) were the *only* possible analysis for (281), then we might maintain the  $m_d$ -command condition after all (adopting the VP-internal hypothesis for sentence-final *if*-clauses). Unfortunately, we cannot construct clever tests like (287) to see whether (288) is the only explanation of the binding possibilities of (281). This is because of the absence of argument positions lower than the subject that c-command into a post-verbal *if*-clause. However, there are some reasons to think that this conclusion must be right, since there are considerations favoring  $m_d$ -command and the VP-internal hypothesis over  $m_e$ -command and the VP-adjuunction hypothesis. These involve locality conditions on binding, to which I turn next.

**Locality of Quantifier-Variable binding:** In addition to the S-structure command requirement just discussed, there is another command requirement that seems to involve some

sort of m-command rather than c-command. This is the requirement that produces *strong crossover* effects. We can see the difference between the m-command condition on strong crossover and the c-command condition on Principle C by comparing (289a) and (289b):

- (289)a. *Who_i will Mary invite him_i [if Sue likes t_i]?  
 b. Mary will invite him_i [if Sue likes Bill_i].

(289a) is an island violation, and thus is judged as marginal or unacceptable no matter how we interpret *him*. Nonetheless, it is also clear that *him* may not function as a pronoun bound by *who*, interpreted in covariance with the trace. If *him* takes some other antecedent, e.g. from the discourse, the island violation remains, but there is no difficulty according *him* the desired interpretation. By contrast, in (289b), as we have already seen, there is no problem interpreting *him* and the object pronoun *Bill* as coreferent. It is likely that the m-command condition on strong crossover is related to the S-structure m-command condition we have just examined, but I will not explore this question here. For related ideas, see Stowell (1991).

(289) shows that Strong Crossover may not be reduced to Principle C, as was suggested in *LGB*, since the structural conditions on the two phenomena are distinct.⁶⁵ This means that we must account for Strong Crossover with a separate condition on A-bar relations. This condition could be expressed in a number of ways. I will express it in terms of chains, assuming that movement from A to B places A and B in adjacent positions in a chain. (290) is a special case of the locality condition on chains introduced in *LGB* (Chapter 6; cf. also Rizzi (1986a)), but I will not place (290) in a more general setting here. The condition holds at least at LF, and possibly at S-structure as well:

- (290) *Local Binding Requirement on A-bar Chains*  
 For C a chain and  $\alpha$  an A-bar position,  
 *C=(... $\alpha$ ,  $\beta$ ...),  
 unless  $\alpha$  locally m-binds  $\beta$ .

- (291)  $\alpha$  locally m-binds  $\beta$  iff  $\alpha$  m-binds  $\beta$  and there is no  $\gamma$  such that  $\alpha$  m-binds  $\gamma$  and  $\gamma$  m-binds  $\beta$ .

- (292)  $\alpha$  m-binds  $\beta$  iff  $\alpha$  is coindexed with  $\beta$  and  $\alpha$  m-commands  $\beta$ .

I leave open for the moment which sort of m-binding is relevant in (290)-(292).

Recall from section 3.1.4 that indefinite NPs are variables unselectively bound by an adverb of quantification or modal. This variable, as we noted, might be introduced by LF movement or might be a matter of interpretation. In either case, I will assume that indefinite NPs enter an A-bar chain whose next link is an IP-peripheral A-bar position. If indefinites undergo LF-movement, then the peripheral A-bar position is occupied by the indefinite itself. If not, then the adverb or modal that unselectively binds an indefinite may be taken as the relevant A-bar position (in which case, a relation not established by movement forms chains). The following data are then explained by (290)-(292), where “m-command” could be either  $m_c$ -command and  $m_d$ -command, depending on the structure assumed. I assume, for simplicity, that indefinite NPs do not undergo LF movement, and that the relevant A-bar relation is that between the indefinite in situ and a modal or adverb in an A-bar position after QR:

(293)a. Generally_i [if he owns a donkey_i] John [beats it_i ]  
 $\bar{A} \sim \sim \text{no} \sim \text{m-command} \sim \sim \sim \sim \bar{U}$

b. ?*Generally_i John [beats it_i [if he owns a donkey_i]]  
 $\bar{A} \sim \sim \sim \sim \text{m-command} \sim \sim \sim \sim \bar{U}$

(294)a. If Bill knew a foreign language_i, he would know it_i well.  
 Would_i [if Bill knew a foreign language_i] he [know it_i well]  
 $\bar{A} \sim \sim \text{no} \sim \text{m-command} \sim \sim \sim \sim \bar{U}$

b. ?*Bill would know it_i well, if he knew a foreign language_i.  
 Would_i Bill [know it_i well [if he knew a foreign language_i]]  
 $\bar{A} \sim \sim \sim \sim \sim \sim \text{m-command} \sim \sim \sim \sim \sim \sim \bar{U}$

Examples get worse if a non-pronominal variable is also not locally *c-bound* (coindexed and c-commanded) by its quantifier. This may be an effect of Principle C, if variables count as r-expressions:

(295)a. *He_i beats it_j if a man_i owns a donkey_j.  
 b. *It_i must be ergative if a foreign language_i has an antipassive.

At this point, we must choose the VP-internal hypothesis over the VP-adjunction hypothesis for sentence-final *if*-clauses, and we must choose the m_d-command over m_e-command for (290)-(292). Consider examples just like (293a) and (294a), except with the bound pronoun in subject position:

(296)a. Generally_i [_{IP}[if John owns a donkey_i] [_{IP} it_i has a red collar]]  
 b. If Bill knew a foreign language_i, it_i would be Evenki.  
 Would_i [_{IP}[if Bill knew a foreign language_i] [_{IP}it_i would be Evenki.]]

I continue to assume that sentence-initial *if*-clauses are adjoined to IP. *It* m_e-commands the pre-sentential *if*-clause in each case, but does not m_d-command it. If the Local Binding Requirement in (290) is stated in terms of m_e-command, then both these examples incorrectly violate this requirement, since the IP-initial quantifier or modal m_e-commands *it*, which m_e-commands and is coindexed with the indefinite in the *if*-clause. On the other hand, if the Local Binding Requirement is stated in terms of m_d-command, there is no violation, since *it* does not m_d-command out of IP. Notice that this requires us to assume the analysis in (288) for the sentences of (281), as discussed above.

*LF Treatment of if-clauses:* Now let us see what all this means to the relationship between object *it* coindexed with an *if*-clause. I have been assuming that conditionals display at LF the tripartite structure associated with them by Heim (1982) and Kratzer (1989), consisting of a quantifier, a restricting term, and a nuclear scope. In particular, I assumed in (249) that *if* is an instruction to LF that its CP restrict a modal or adverb of quantification. In (249b) I proposed that to function as a restricting term, a clause must occupy an A-bar position external to IP (the nuclear scope). One could imagine a theory in which this requirement does not hold at LF, but the one would be hard-pressed to imagine a different structural requirement consistent with the semantics of a restricting clause. Thus, the hypothesis comes close to being minimal.

Consider now pre-sentential *if*-clauses. If these are adjoined to IP at S-structure, (249b) requires no adjustment of this structure. On the other hand, a post-sentential *if*-clause will need



to undergo LF movement to satisfy (249b), given our hypothesis that post-sentential *if*-clauses are VP-internal. Suppose an instance of pronominal *it* is referentially linked to an *if*-clause, as described above. There are two major cases to consider: the *if*-clause pre-sentential and post-sentential. In this light, let us reexamine (235), eliminating the negative polarity items as we did in (262). Assume *it* and *if* are referentially linked, which I indicate by coindexing:

- (297)a. I would like  $it_i$  [if John were to ask me about the painting] $_i$ .  
 b. [If John were to ask me about the painting] $_i$ , I would like  $it_i$ .

In (297b), the *if*-clause already occupies the IP-external position required by (249b). In (297a), however, (249b) requires the *if*-clause to move to an IP-external position at LF. (298) shows an approximation of the LF for (297a), where  $t_i$  occupies the S-structure position of the *if*-clause:

- (298)  
 would [If John were to ask me about the painting] $_i$ , I would like  $it_i t_i$ .

This structure violates the Local Binding Requirement in (290). The *if*-clause and its trace form adjacent links in a chain, the *if*-clause occupies an A-bar position, but does not locally  $m_d$ -bind its trace. *It*  $m_d$ -binds the trace of the *if*-clause and the *if*-clause binds *it*. Thus, referential linking between *it* and the *if*-clause is impossible. This is, of course, exactly the environment in which IC must apply, ruling out negative polarity items in the process (as we saw in (235)-(240)). I thus propose that the problems created by the Local Binding Requirement trigger the application of IC with postverbal *if*-clauses.

Why can IC provide the type of interpretation that simple referential linking cannot? The answer is quite simple: IC allows substitution of a clause for *it* because the two do not conflict in features. IC does not require coindexation or any special referential property accorded to *it*. In fact, the *it* which gets replaced under IC is quite literally non-referential, since it is effaced on the path to semantic interpretation. Thus, the LF for (297a) on the good derivation in which IC takes place does not need to involve an occurrence of *it* that has any link to the *if*-clause at all:

- (299)  
**S-structure:**  
 I would like  $it_j$  [if John were to ask me about the painting] $_i$ .  
 ---QR-->

- LF:**  
 would [If John were to ask me about the painting] $_i$ , I would like  $it_j t_i$ .  
 ---IC-->

- Post-LF:**  
 would [If John were to ask me about the painting] $_i$ , I would like [that John asked m

The Post-LF structure does not violate the Local Binding Requirement on chains because the Local Binding Requirement does not hold after LF.

Let us summarize. By examining the S-structure m-command requirement on pronouns as bound variables, we have seen that direct object position m-commands the position of post-sentential *if*-clauses (although it does not c-command it). We then showed that Strong Crossover depends on m-command of the same sort. Finally, we noted that LF raising of a post-sentential *if*-clause to a restriction position should produce a Strong Crossover violation when the object is referentially linked to the *if*-clause. Thus, any relation between direct object position and a post-verbal *if*-clause must be of a different sort. Our theory provides one and only one different sort of relation: the action of IC. Thus, post-sentential *if*-clauses that are interpreted

as “complement fulfilling” must be complement-fulfilling as a consequence of IC. This explains why *if* in a post-sentential *if*-clause fails to license a negative polarity item.

We can see this in another way. If we place in object position an NP which, like pronouns, is “cross-referencing”, but which contains features incompatible with CP, IC should fail to apply to the position occupied by this item. Demonstratives are such an item. Indeed, no sort of “complement-fulfilling” interpretation can link an object with a post-verbal *if*-clause when the object is a demonstrative. This phenomenon was first observed by Pullum (1987), who provided example (300b) (his (32b)). (301) provides contrasting examples with pre-sentential *if*-clauses:

- (300) a. *I would love that_i if unicorns existed_i.  
 b. *We can enjoy this_i without shame, if unicorns exist_i.  
 c. *I would prefer this_i, if Kim were not informed.
- (301) a. If unicorns existed_i, I would love that_i.  
 b. If unicorns exist_i, we can enjoy this_i without shame.  
 c. ?If Kim were not informed, I would prefer this_i.

### 3.2.5.2 Expletive or Argument?

Our conclusions cut right through the debate concerning the existence or non-existence of expletives in object position. Thus, for example, Pullum (1987) (also Postal and Pullum (1987)) has argued at length that object *it* is an “expletive” in examples like (297a), while Rothstein (1991) argues that *it* is a pronoun. If IC is correct, there is nothing to debate, since the free and easy use of the term “expletive” is founded on an error. In traditional work, “expletive” is used for elements that simultaneously have two distinct properties. On the one hand, an expletive is a non-referring NP, immune from cross-referencing devices like control:

- (302) *After PRO_i seeming that the world was about to end, it_i started seeming that there was hope after all.

On the other hand, an expletive is an NP which is not associated with a  $\theta$ -position, neither at D-structure (by occupying a  $\theta$ -position) nor at S-structure or LF (by association with a chain that includes a  $\theta$ -position). For the most part, these two notions coincide, since in the semantics a  $\theta$ -role can only be associated with an appropriately meaningful expression; meaningful expressions in the semantics are usually already in place by LF. Nonetheless, the idea that there is an object called an “expletive” is a *hypothesis*, not a given. The “expletive hypothesis” proposes that lack of reference coincides with lack of  $\theta$ -marking. Before we can ask if one or another position can be occupied by an expletive, we must ask if the expletive hypothesis is correct.

If IC is correct, the expletive hypothesis is not correct. The two notions of expletivity fail to coincide in precisely one situation: where a potentially meaningful (referring) NP is replaced by some other expression as a consequence of a post-LF rule like IC. Consider an occurrence of *it* that is replaced with a clause by IC. From the vantage point of D-structure, S-structure and LF, the occurrence of *it* is fully capable of being assigned a  $\theta$ -role, since these levels cannot see what goes on in the semantics. However, since it is replaced by a clause, it does not in fact end up bearing any meaning. The semantics never gets a chance to interpret *it*. This makes it impossible to ask whether this object *it* is or is not an expletive. It is an expletive in that it does not receive semantic interpretation. It is a non-expletive in that it receives a  $\theta$ -role at all levels before IC applies.⁶⁶

### 3.2.5.3 Subject *it*

Finally, for the sake of completeness, we need to consider one more case. We have seen that referential linking between object *it* and a sentence-final *if*-clause should interact with Binding Theory weakly or not at all, since the direct object does not c-command the sentence-final *if*-clause. Thus, we focused our attention on the Local Binding Requirement, which does produce interactions. Subject position, however, clearly does c-command a sentence-final *if*-clause, and thus may produce interactions with Binding Theory. This is clear in examples involving a subject pronoun and an r-expression inside an *if*-clause (again modeled on data from Iatridou (1991)), as well as in examples involving a subject demonstrative coreferent with the *if*-clause:

- (303)a. *He_i would be handsome, if John_i shaved his beard.  
b. *She_i would be smarter, if Mary_i didn't take that course.
- (304)a. *That_i would be wonderful, if unicorns existed_i.  
b. *This_i is wonderful, if unicorns exist_i.

Despite this, postverbal *if*-clauses may be “subject fulfilling” just as they can be “object fulfilling”:

- (305)a. It might be nice if Bill asked me about the painting.  
b. If Bill asked me about the painting, it might be nice.
- (306)a. It would be delightful if John were to play the violin again.  
b. If John were to play the violin again, it would be delightful.

IC seems to be at stake, since negative polarity items are once again excluded. (234b) was one example of this phenomenon. Others are presented below. As before, preverbal *if*-clauses allow negative polarity items. Since this position is not c-commanded or m-commanded by the subject, nothing forces an analysis in terms of IC:

- (307)a. *It might be nice if anyone asked me about the painting.  
b. If anyone asked me about the painting, it might be nice.
- (308)a. *It would be delightful if he were to play the violin any better.  
b. If he were to play the violin any better, it would be delightful.
- (309)a. *It will be fine if John ever looks at his books ever again.  
b. If John looks at his books ever again, it will be fine.

The same analysis can be given here as we gave when considering only the effects of the Local Binding Requirement. Nothing requires *it* to bear any sign that it is referentially linked to the *if*-clause. Therefore, Binding Theory will not treat it as referentially linked in any fashion.

### 3.2.5.4 The Grammar

This system crucially requires an ordering of rules and procedures:

(310)

- S-structure/LF:** 1. Local Binding Requirement, Binding Theory
- Post-LF:** [Clause (iii) of the Projection Principle does not hold.]
2. IC
3. Negative Polarity Licensing
- $\theta$ -criterion holds

The hypotheses advanced here, if correct, are only the beginning of a characterization of the syntax that lies past LF. Other proposals have explored other procedures that might apply to LF representations (in particular, the proposals concerning Weak Crossover in Chomsky (1982) and Safir (1986)). It is probably premature to try to characterize the world beyond LF in terms of levels of representation and general properties. Perhaps steps 2 and 3 arise in the mapping to two distinct post-LF levels, perhaps one. In any case, if the various proposals are correct, LF is not interpreted directly, but through a filter of processes and procedures whose nature is only now being discovered.

We might add one more procedure to this list. The interpretation accorded coreferential pronouns must involve associating them with the semantic content of their antecedent. It is possible that this involves replacing pronouns with copies of their antecedents in a manner quite like that posited in our formulation of IC. If so, then this instance of copying (unlike IC) must follow Negative Polarity Licensing. Otherwise, even examples where sentence-initial *if* is associated with *it* will block negative polarity items. Nonetheless, if there is such a copying procedure, then we can immediately understand why the (a) and (b) examples of (262)-(266) are interpreted in identical fashion. In the (b) examples, *it* is replaced by the content of its antecedent as a result of IC.⁶⁷ In the (a) examples, *it* is replaced by the content of its antecedent as a result of the late procedure that applies to all coreferent pronouns.

This is relevant to an observation made above. I noted the intuition of many speakers that the (a) and (b) examples of (262)-(266) mean different things. This difference defied characterization. I have now suggested that there is no difference in meaning. Instead, I speculate that the widespread perception of a difference might instead be an intuition concerning the existence of two derivational pathways that lead to the same interpretation. This would be an interesting phenomenon from the perspective of psycholinguistics: a case where normally tacit mental processes reveal themselves through a judgment which hinges on neither acceptability nor interpretation, but involves some other mode of linguistic awareness, whose nature I will not guess at.

### 3.2.6 IC and Adjectival Complementation

Speakers' intuitions are rather different for *if*-clauses associated with transitive adjectives. Here there seems to be a difference in meaning between sentence-initial and sentence-final *if*-clauses. Our theory can account for this difference, in conjunction with the model in (310). Adjectives participate in constructions similar to those we have been examining, with some sort of object *it* — though to my ears they are often somewhat marginal. Pullum (1987) provides the following examples (his (33d,e,g)). I would probably rate them somewhat unacceptable, but not impossible:

- (311)a. Lee would be quite happy about it if you borrowed the car.  
b. Would you be comfortable with it if we stayed an extra day.  
c. The Dean would be appreciative of it if his desk were returned.

In addition, the object position may be empty. Consider once again Williams' (231), repeated below, which may be compared to (311a):

- (312) I would be happy if Bill were here.

The *if*-clause here, despite the absence of an overt direct object, is presumably not an *if*-clause filling direct object position at S-structure. We have seen no examples of this so far, and what examples exist (cf. (323) below) are marginal, as we shall see. Instead, it probably functions syntactically as an adjunct of the usual sort.⁶⁸ Thus, postverbal *if*-clauses may cooccur with direct objects, but may not cooccur with other postverbal *if*-clauses:

- (313)a. John is happy that he has a bed if he is tired.  
a. *John is happy if he has a bed if he is tired.

This extends to the constructions under discussion:

- (314)a. John would be happy that he had a bed if he is tired.  
a. *John would be happy if he had a bed if he were tired.

In any case, IC applies straightforwardly to (312). The copy of the *if*-clause in which *if* is replaced by *that* is inserted in the object position of *happy*. This yields something close to Williams' paraphrase *I would be happy that Bill was here, if he were here*. Here, however, the object position into which *k'* is inserted is not occupied by *it*. It is either null and present or structurally absent. If it is null and present, we will need to worry about an otherwise unprecedented occurrence of object *pro* in English.

If it is structurally absent, we will simply conclude once again that clause (iii) of the Projection Principle does not regulate the output of IC. On the other hand, the  $\theta$ -criterion does regulate IC, as we have seen in connection with (253). When IC places a *that*-clause in object position, that object position must be  $\theta$ -marked. This is no surprise, since otherwise the *that*-clause would be an element with semantic content bearing no relation to its environment, something not possible.⁶⁹

In this light, consider the contrast between adjectives like *happy*, which allows a *that*-complement, and *cheerful*, which does not:

- (315)a. I was happy that Bill won the prize.  
b. Mary is glad that that the war is over.  
c. Sue is upset that her fish died.
- (316)a. *I was cheerful that Bill won the prize.  
b. *Bill was joyous that the war was over.  
c. *Sue is somber that her fish died.

The *that*-complements in (315) bear the  $\theta$ -role Subject Matter of Emotion (see section ???). Such a  $\theta$ -role is not assigned by the adjectives in (316). This can also be seen in the following examples:

- (317)a. I was happy about Bill's winning prize.  
b. Mary is glad about the end of the war.  
c. Sue is upset about the death of her fish.
- (318)a. ??I was cheerful about Bill's winning the prize.⁷⁰  
b. ??Bill was joyous about the end of the war.  
c. ??Sue is somber about the death of her fish.

If we now examine *if*-clauses with these adjectives, we expect that IC cannot apply to the adjectives in (316), while it can apply in to the adjectives in (315). Only in (315) can a *that*-clause copy of the *if*-clause be placed in direct object position. This in turn leads us to expect that only the adjectives in (315) allow a true "non-logical" reading for the *if*-clause. This seems correct. Consider the range of interpretations available to (319) and (320):

- (319)a. I would be happy if Bill won the prize.  
b. Mary would be glad if the war were over.  
c. Sue would be upset if her fish died.
- (320)a. I would be cheerful if Bill won the prize.  
b. Bill would be joyous if the war were over.  
c. Sue would be somber if her fish died.

The distinction is subtle, but real. In (319a), as discussed in connection with (231), the state of affairs associated with the clause *that Bill won the prize* is the Subject Matter of Bill's happiness. This observation once again shows that an *if*-clause may be, if not a syntactic complement, "complement fulfilling". In (320a), the Subject Matter of Bill's cheerfulness, if any, is unknown. This difference has as a consequence the fact that the string *would be happy if* can mean something like *want*, since after IC *happy* describes an attitude towards Bill winning the prize. No such reading is available to *would be cheerful if* in (320a).

There should be an interaction between these factors and the licensing of negative polarity items. In (319), unlike (320), IC may apply. On the other hand, if I was correct in surmising that (319) contains no null version of object *it*, then there is no reason why IC should have to apply. If there is no object pronoun, there is no problem with the Local Binding Requirement which the construction needs to escape by application of IC. This result seems correct. (319a) also has a "logical" reading in which it is nearly synonymous with (320). On this "logical" reading, *if* should be able to license a negative polarity item. Certainly, negative polarity items are fine, even with post-verbal *if*:⁷¹

- (321)a. I would be happy if Bill won anything.  
b. Mary would be glad if anyone came.  
c. Sue would be proud if her team could compete at all.⁷²

On the other hand, it is not entirely clear that the presence of the negative polarity item in (321a-c) excludes a reading of the sort that IC should derive. One sign that it does is the increasing badness of sentences like (321b) as *be glad if* approaches the meaning of *want*:

- (322)a. #I'd be happy if you turned any lights off. Thank you.  
b. #It's so hot! I'd be very glad if you brought me anything cold.

The facts here seem to point in the right direction, but are unclear enough to leave some room for doubt. If they are as predicted, they provide good evidence for the IC approach, as well as the specific assumption that there is no null version of object *it* in the adjectival examples that we have been considering.

If adjectives may be objectless at S-structure and acquire an object via IC, we must ask why verbs like *like* and *hate* may not do the same. In fact, they may do so, somewhat substandardly, as noted by Irene Heim (personal communication). She notes that certain verbs, marginally allow post-verbal *if*-clauses without object *it*. For some reason, in my judgment, these examples are best with first-person subjects, perhaps because of the conversational tone:

- (323)a. ??I'd prefer if you turned the light off.  
b. ??I'd hate if Bill didn't show up.  
c. ??I'd love if someone discovered the answer.  
d. ??I'd appreciate if you called me tomorrow.

These verbs are otherwise strongly transitive:

- (324)a. *I'd prefer.  
b. *I'd hate.  
c. *I'd love.  
d. *I'd appreciate.

Examples (323a-c) do not violate the  $\theta$ -criterion after IC applies, since IC supplies the missing object. Thus, the "cognitive content" of the  $\theta$ -criterion is met. There is a way to supply an argument for each  $\theta$ -role, even if the argument is not present at all the early levels of representation where the syntax requires it. The verbs of (324), by contrast, lack their object at all levels, and are thus quite impossible. The difference in acceptability between the adjectival constructions without *it* and (323) remains a mystery, however. This is probably a special case of a more general phenomenon. Overwhelmingly, adjectives are intransitive or only optionally transitive (with exceptions like *aware*). Far fewer verbs have this property. Perhaps Case is important. The accusative Case assignable by verbs differs from the oblique Cases assigned by adjectives in optionality. Even in the verb phrase, arguments marked with oblique case are often optional. I will leave this as a problem.

It is now interesting to note that the *if*-clauses in (323) may not be sentence-initial. The examples of (325) are as bad, if not worse than (324):

- (325)a. *If you turned the light off, I'd prefer.  
b. *If Bill didn't show up, I'd hate.  
c. *If someone discovered the answer, I'd love.  
d. *If you called me tomorrow, I'd appreciate.

On a derivation in which IC fails to apply, it is easy to see why the examples of (325) are impossible. They are once again cases in which an obligatory  $\theta$ -role is unassigned at all levels of representation. Their status is the same as (324). However, there is in fact no reason why IC should not apply here. In fact, it seems that IC simply cannot apply here. Any reason I propose can only be viewed as speculation. This is natural, since we do not have a family of processes like IC about which we can make generalizations. One possibility is that IC has the properties of a movement rule. When, in step 3 of (248), *k'* is placed in an argument position of S, it must move to an argument position that m-commands the position of *k*. We have already seen that the direct object position m-commands the position of a post-verbal *if*-clause. Therefore, copying of a post-verbal *if*-clause into a direct object position does not constitute downward movement. By contrast, copying of a pre-verbal *if*-clause into a direct object position is downward movement. If this is impossible, then we can prevent IC from applying in (325), and rule out these examples, as desired.

Some support for this general picture can be found in a reinterpretation of an observation by Pullum (1987). As part of an argument that *it* is an "expletive" in non-logical *if*-constructions, he claims, following Postal and Pullum (1987), that expletive *it* does not

coordinate with other constructions, while non-expletive *it* does. He observes that *it* in non-logical *if*-constructions behaves like an expletive. Example (327a) is modeled after one of his:

(326) Bill would like it or something similar.

(327)a. *It and its consequences would be acceptable if he were told to resign.

b. *Sue would like it and what would happen next if Bill came at 3:00.

We may view the judgments in (327) as a consequence of the interaction of the Local Binding Requirement and Principle C with IC. If *it* is a normal pronoun in (327), it will violate Principle C, just as in (326):

(328)a. He_i or someone similar would be acceptable if John_i were told to resign.

b. Sue would prefer him and what he stood for if Bill came at 3:00.

On the other hand, if *it* is replaced by IC, there will be no Binding Theory or Local Binding Requirement violation. If IC observes the conditions on movement, however, it will obey the Coordinate Structure Constraint — in particular, the ironclad part of it that prohibits movement from affecting a conjunct. In the examples below, (329b) is the most relevant, since it demonstrates the impossibility of moving *into* a conjunct. The relevant reading is one in which *it* is the same type of expletive as in *it seemed that Bill is happy*. As far as I can determine, nothing is violated in (329b) except a constraint involving coordinate structures:

(329)a. *Who_i did Bill meet [Mary and t_i].

b. *[Bill_i and it_{t_i-θ₁}] seemed t_i to be happy.

As predicted, when the *if*-clauses in (327) are sentence-initial, *it* may be a normal pronoun, with no Binding Theoretic difficulties. *It* in (330a) may mean *the state of affairs associated with him being told to resign*, and *it* in (330b) may mean *the state of affairs associated with Bill coming at 3:00*:

(330)a. If he were told to resign, it and its consequences would be acceptable.

b. If Bill came at 3:00, Sue would like it and what would happen next.

### 3.2.7 The Link to Factive Predicates

The impossibility of (325) is perhaps connected to the impossibility of topicalization with factive *that*-clauses related to *it*:

(331)a. Bill hates it that the world is round.

b. Sue resents it that she'll have to miss the movie.

c. Harry likes it that Mary will be there.

(332)a. *That the world is round Bill hates it.

b. *That she'll have to miss the movie Sue resents it.

c. *That Mary will be there Harry likes it



Conceivably, these examples have an analysis similar to that provided to *if*-clauses by the IC. Imagine, for example, that the *that*-clause in these constructions is an adjunct, copied onto direct object position by a rule similar to IC. If this suggestion were correct, the function of the overt *that*-clause would be to express the presupposition, with the *that* interpreted like the adverb *given* in *Given that...* The impossibility of fronting in (332) would follow from the same “upward” property of copying that applies in (323).

I do not propose to expand on this speculation here. Nonetheless, factivity is not irrelevant to the picture. The class of predicates that allow non-logical *if* is limited to the set that tolerate factive clauses as arguments. This prevents examples like (333), discussed by Williams (1974), since *think* has no factive use.

(333) *It_i would be likely if Bill left_i.

Thus, (334) appears to be true:

(334) Addendum to IC (248)  
4. k' is factive.

The addendum in (334) quite notably requires a view in which s-selection is satisfied, not as part of D-structure subcategorization, but as a condition on a late part of the grammar. Most probably, s-selection is simply a coherence condition on semantic interpretation. If a predicate is only sensible with a non-factive object, then its object is not interpreted as a factive, and that predicate may consequently not participate in IC.

It is not surprising that the presupposition introduced by a factive clause in this analysis takes narrow scope with respect to irrealis modals. This situation is found in uncontroversial cases of factive *that*-clauses like those found in our paraphrases, e.g. *If it were raining, Sue would like it that it is raining*. Note as well:

(335)a. *I would like it if anyone were to ask me about the painting.  
[=(235a)]

b. I would like it that someone asked me about the painting, if anyone were to ask me about the painting.

(336)a. *I would like it if he played the violin any more.  
[=(236a)]

b. I would like it that he still played the violin, if he played the violin any more.

Presumably, there could be a Local Binding Requirement violation between *it* and the *that*-clause or *if*-clause. If, however, the *that*-clause replaces *it* by the factive analogue to IC, the violation will be eliminated as it was for IC. Crucially, no copy is made of the *if*-clause, since there is no place to copy it to. As a consequence, there is no problem with a negative polarity item licensed by *if*.

### 3.2.8 *If*-Clauses and *For*-Clauses

In fact, IC is insufficiently general — in a significant and interesting way. For some speakers, the *if*- and *when*- clauses can be replaced by infinitives headed by *for*, and then only the “non-logical” reading is available:

- (337)a. ?John would like it for Mary to know French.  
b. ?John might like it for Mary to know French.  
c. ??John must like it for Mary to know French  
c. *John always likes it for Mary to know French.  
d. ?John always likes it for a student to know French.  
e. ?John always likes it for Mary to know a minority language.

Preposing is impossible:

*For Mary to know French, John would like it.

This suggests that these *for*-clauses may undergo IC, though some other factor is impeding full acceptability. We must alter (248) to include clauses headed by any word with the semantics of *if* — including *for*. I use the capitalized term *IF* to cover any word with the semantics of *if*:

- (338) **If Copying Rule (IC; version 2 of 2)**  
1. Take a clause *k* of the form [*IF* IP] where *k* modifies a sentence  $\Sigma$ .  
2. Copy *k* as *k'* substituting *that* for *IF*, making appropriate changes in mood so as to replace irrealis with realis mood marking.  
3. Place *k'* in an argument position of  $\Sigma$ . Leave *k* as an adjunct modifier. (It gets interpreted as a restrictive clause, with  $\Sigma$  the nuclear scope.)  
4. *k'* is factive.

The factor impairing full acceptability is an S-structure factor. Except for one environment considered below (in connection with (350)), *for*-clauses are S-structure arguments, just as *if*-clauses are S-structure adjuncts. These are syntactic requirements on these clauses, but the requirement on *for* is apparently slightly weaker than the one on *if*.

Let us return now to the complement infinitives with which we began this discussion. I posit a semantics similar to that posited for the adjunct infinitives in (337). Recall that ECM and *for* with verbs like *like* and *hate* were found in exactly the two environments of *if* and *when*: generic sentences and sentences with epistemic modals. The now-familiar hallmarks of *when*- and *if*- can be seen in paradigms like those in (339)-(344) below. Note the recurrence of reduced acceptability for *must*:⁷³

**ECM**

- (339)a. John would like Mary to know French.  
b. ?John might like Mary to know French.  
c. *John always likes Mary to know French.  
d. John always likes a student to know French.  
e. John always likes Mary to know a minority language.
- (340)a. John would just love Mary to be French.  
b. ?*John must just love Mary to be French.  
c. *John just loves Mary to be French.  
d. ?John just loves someone to be French in his classes.
- (341)a. Sue would prefer Mary to know French.  
b. ?Sue might prefer Mary to know French.  
c. *Sue always prefers Bill to know French.  
d. Sue always prefers Mary to know an inflected language.  
e. Sue always prefers students to know French.

**Overt *for***⁷⁴

- (342) a. John would like very much for Mary to know French.
- b. John might like very much for Mary to know French.
- c. *John always likes very much for Mary to know French.
- d. John always likes very much for a student to know French.
- e. John always likes very much for Mary to know a minority language.
  
- (343) a. John would just love for Mary to be French.
- b. ?John must just love for Mary to be French.
- c. *John just loves for Mary to be French.
- d. ?John just loves for someone to be French in his classes.
  
- (344) a. Sue would prefer for us to know French.
- b. Sue must prefer for us to know French.
- c. *Sue always prefers for Bill to know French.
- d. Sue always prefers for us to know an inflected language.
- e. Sue always prefers students to know French.

To these, I add examples patterned after (228)-(230) from Carstairs (1973):⁷⁵

- (345) a. *I hate for John to be older than me.
- b. I would hate for John to be older than me.
- c. I hate for my friends to be older than me.

I do not think the semantics of these examples differs significantly from the semantics of examples like (227) and (337).⁷⁶ The “non-propositional” reading of *for*-clauses (and  $\emptyset_{for}$ -clauses), which I noted several times in this chapter, is a consequence of the fact that the understood object is a “state of affairs” and not a proposition.

How can we make this observation into a hypothesis? I have quite deliberately not specified the original position of the constituent in my statement of IC. All we know is that copying must apply to an m-commanding position. In the examples considered above, the *IF*-clause may have begun in an adjunct position; the rule placed one copy in an argument position, the other in an adjunct position. In (339)-(344), the *IF*-clauses headed by  $\emptyset_{for}$  and *for* start in argument positions. The rule will once again place one copy in an argument position, the other in an adjunct position:

- (346) a. John would like [ $\emptyset_{for}$  Mary to know French] —>  
       *John would like (it) that Mary knows French, IF Mary knew French.*
  
- b. John would just love [for Mary to be French] —>  
       *John would just love (it) that Mary is French, IF Mary were French*

Just as *if*-clauses that undergo IC may be “complement fulfilling”, *for*-clauses that undergo IC may be “adjunct fulfilling”. In irrealis clauses, *would* must be restricted by an appropriate restrictor. It actually needs to be “fulfilled” by an adjunct. Thus, example (347a) is not understandable unless the context provides some sort of *if*-clause. Example (347b) is only understandable in context, or if a condition like *if she read it* is supplied, as it is by convention. Likewise for (347c), where we must supply an *if*-clause like *if she took it*.⁷⁷

- (347) a. John would read the book.
- b. Mary would hate this book.
- c. Sue would regret this action.

By comparison, *for* complements like those we have been examining seem to satisfy *would*'s need for an *if*-clause all by themselves.

This observation works hand-in-hand with clause 4 of the revised IC in (338), which requiring a factive interpretation for the *that*-clause supplied by the rule. Thus, for example, implicatives differ sharply from factives. Example (348) requires some understood *if*-clause, just like (347a-c). The infinitival complement is not “adjunct fulfilling”. Thus, if IC cannot apply to an infinitival complement to an irrealis verb, we will always find the “non-adjunct fulfilling” interpretations associated with (347):

**(348) Bill would manage to solve the problem.**

Note that (348) may not involve a  $\emptyset_{for}$ -clause. Complementizer  $\emptyset_{for}$  has the semantics of *if*, and thus will yield to semantic gibberish in a complement position unless it undergoes IC, which is restricted to environments where a factive complement is semantically sensible.

### 3.2.9 Speculations concerning *Must*

Why do counterfactual *would* and *might* (and sometimes *will*) license ECM and overt *for*, while *must* reduces the level of acceptability? A few speculations may be possible. Recall that a comparable effect was observed with overt *if* in (227). Note as well that *would* and *might* (which do license ECM, *for* and *if* in (227)) are counterfactual modals.⁷⁸ Independent of the issues under consideration, counterfactual *if*-clauses in English are special in allowing *if* to be null, with the conditional AUX moving to C (den Besten (1989); Pesetsky (1989; in prep)):

- (349)a. Had John learned French, we would be better off.**
- b. *Has John learned French, we are better off.**

At the very least, this phenomenon provides support for the existence of a form of *if* that restricts only the modal *would*. We could then claim that the semantics of  $\emptyset_{for}$ , *for* and the *if* of (227) is the union of the meanings of *when* (which restricts only adverbs of quantification) and the null *if* that is found in counterfactuals with inversion. The semantics of *for* would either be the same, or more liberal, depending on where we decide to draw the line in the judgments at hand. Additionally, the phenomenon in (349) raises the intriguing possibility that there is some reason why the null *if* in (349) and its cogener  $\emptyset_{for}$  with the *hate*-class are both limited to restricting counterfactual modals like *would*. Perhaps clauses headed by null versions of *if* can only restrict counterfactual modals.⁷⁹ Why this should be, I leave open.⁸⁰ Finally, I should note, before leaving the topic, that there is one environment in which *for* and  $\emptyset_{for}$  are licensed by *must*. In fact, only *must* can be used to license this type of adjunct infinitival. These are adjunct clauses that describe preconditions:

- (350)a. For this document to be acceptable to the committee, it must have at least 200 pages and start with a literature survey.**
- b.  $\emptyset_{for}$  to be a dissertation, this document must have at least 200 pages and start with a literature survey.**

Other modals are insufficient, though there is nothing wrong with irrealis mood per se:

- (351)a. *For this document to be acceptable to the committee,  
it would have at least 200 pages and start with a  
literature survey.
- b. *For this document to be acceptable to the committee,  
it would have to have at least 200 pages and start  
with a literature survey.

Perhaps there is something to be made of the existence of a *for/∅for* construction in adjuncts which may *only* restrict the modal *must* (and its synonyms) and the simultaneous existence of a *for/∅for* construction in arguments which has reduced acceptability with *must*, but once again, I have nothing more to offer.

### 3.2.10 “Incorporated” Modals

Finally, let us look more closely at predicates which license *IF*-clauses as a consequence of their lexical meaning. Recall, for example, that predicates like *want* incorporate irrealis modality into their lexical semantics. Hence, they should allow *for*-clauses and *∅for* clauses with no difficulty (cf. (183) above). The near synonymy of *want* and *would like*, discussed in connection with example (194), is a relevant hint. Thus, we might imagine *want* first translated into *would like* in the semantics, and then undergoing IC. The modal *would* licenses the *IF*-clause in a now-familiar fashion:⁸¹

- (352) John wants [*∅for* Mary to know French] →  
John would like [*∅for* Mary to know French] →  
John would like (it) that Mary knows French, *IF* Mary knew French.

Thus, we add to the list of Post-LF properties in (310) decompositional procedures that replace certain lexical items like *want* with more complex expressions like *would like*. This piece of post-LF analysis, unlike the morphological analyses of section ???, does closely resemble analyses in generative semantics, with the direct of derivation reversed, so that S-structure feeds into decompositional structure. It will remain to be seen to what extent this work avoids the pitfalls of generative semantics work, but the evidence for the procedure outlined in (352) seems compelling. In turn, the type of decomposition posited here may coincide with the semantic structures proposed by Jackendoff (1983; 1987) and the lexical-conceptual structures explored by Hale and Keyser (1987) and others. Crucially, since these structures are formed after LF, they are not expected to interact with any of the familiar processes of D-structure, S-structure and LF. On the other hand, since decomposition of *want* must precede IC, decomposition must also precede Negative Polarity Licensing. Since Negative Polarity Licensing makes crucial reference to command relations, the decompositional structures proposed here must themselves be tree-like, so that command predicates may sensibly apply. We can now update the picture of post-LF grammar in (310):

(353)

- S-structure/LF: 1. Local Binding Requirement/Binding Theory
- Post-LF: [Clause (iii) of the Projection Principle does not hold.]
2. Decomposition of verbs like *want*
3. IC
4. Negative Polarity Licensing
- $\theta$ -criterion holds

The ordering of Negative Polarity Licensing and Decomposition in (353) is correct, since *want* does not license negative polarity items any better than *would like* does, with postverbal *if*:

(354) *Bill wants Sue to ever play the cello.

Verbs like *want* are not in every respect like *would like*. They seem worse than *would like* with respect to object *it* linked to a *for*-clause or *if*-clause via IC. Compare (355a) in particular with the sentences of (337):

- (355)a. *John wants it for Mary to leave.  
b. *John wants it if Mary left.

This is a problem. If we are otherwise on the right track, the reason for (355) must have something to do with the status of *it*, and its relation under IC to the adjunct clause. Notice that the behavior of *want* is the inverse of the behavior of verbs like *hate* with finite complements in factive environments, which require *it*:

- (356)a. John hates *(it) that the world is round.  
b. John likes *(it) that the world is round.  
c. John resents *(it) that the world is round.

For (356), the following seems to be roughly true:

- (357) **Factive Generalization**  
For F a finite CP, if a [+factive] predicate selects F as a complement after IC, then F is not in complement position in D-structure.⁸²

With verbs like *hate* in factive environments, the Factive Generalization prevents a selected finite CP from occupying direct object position until the application of IC. If these verbs must nonetheless assign their object  $\theta$ -role at D-structure (or, alternatively, assign objective Case), *it* must be present to receive this  $\theta$ -role (or Case).

In contrast to *hate*, *want* is not lexically a factive predicate, even though a subcomponent of its meaning is a predicate which, as a separate verb, would be [+factive]. *Want* is thus [-factive].⁸³ Thus the Factive Generalization does not hold for *want*. Suppose there is an “elsewhere” clause for the Factive Generalization, which requires a complement after IC to be a complement at D-structure wherever possible:

- (358) **Non-Factive Generalization**  
 For F a CP, if a [-factive] predicate selects F or its copy as a complement at a level after IC, then F is in complement position at D-structure.

By (358), any construction involving an overt occurrence of a [-factive] verb like *want* (or *believe*) and a complement CP after IC will show that complement as a complement even before IC. This has a consequence that IC for *hate* may be *complement-fulfilling* in an example like %*I would hate it for Bill to leave*, but IC for *want* can only be *adjunct-fulfilling*.

The Non-Factive Generalization comes close to replacing the factivity clause of the IC, clause (4) of (338), but does not quite subsume it. This is because of the crucial distinction between the lexical marking [ $\pm$ factive] (with respect to which *want* behaves like *believe*) and the semantic property of s-selecting a factive complement (with respect to which the decomposita of *want* behave like *hate* after IC). Consider an incorrect application of IC to a *believe*-class predicate like *hold* in a “complement fulfilling” mode:

- (359) *I would hold it if these truths were self-evident.—>  
 I would hold it that these truths are self-evident, if these truths were self-evident.

The derivation in (359) is excluded by the factivity clause of the IC, since *hold* is s-selectionally incompatible with a factive complement, but is also excluded by the Non-Factive Generalization, since the complement after IC was not the complement before IC. Now consider another incorrect application of IC to *hold* in an “adjunct fulfilling” mode:

- (360) I would hold these truths to be self-evident.—>  
 I would hold it that these truths are self-evident, if these truths were self-evident.

This is excluded by the factivity clause of the IC, for the same reasons that were applicable in (359), but is not excluded by the Non-Factive Generalization, since both before and after IC, *hold* has the same sort of complement. This divergence between the factivity clause of IC and the Non-Factive Generalization is necessary. We want *want* to behave exactly like *would like* after decomposition, undergoing IC, while we want it to behave like *believe* when it is decided at D-structure whether its semantic complement may occupy adjunct position or not.

Thus, the Factive and Non-Factive Generalizations correctly entail that *if*-clauses with *would like* and *for-/∅_{for}*-clauses with *want*, whatever their similarities after IC and in the semantics, should differ with respect to D-structure, S-structure and LF status as adjunct or argument. Extraction from *if*-clauses makes it clear that they are adjuncts, while extraction from *for*- and *∅_{for}*-clauses behaves like extraction from complements:⁸⁴

- (361)a. *How_i would you like it [if I fixed your bicycle t_i]?  
 b. ?How_i do you want today [for me to fix your bicycle t_i]?⁸⁵  
 c. How_i do you want [me to fix your bicycle t_i]?  
 d. How_i do you want [PRO to fix your bicycle t_i]?  
 (362)a. *the way_i he would like it [if I fixed his bicycle t_i]  
 b. ?the way_i he wanted today [for me to fix his bicycle t_i]  
 c. the way_i he wanted [me to fix his bicycle t_i]  
 d. the way_i he wanted [PRO to fix his bicycle t_i]

The difference between overt occurrences of *if* and occurrence of *∅_{for}* and *for* lies precisely in this domain:⁸⁶

- (363)a. Clauses headed by *if* are not arguments at D-structure, S-structure or LF.  
 b. Clauses headed by *for* and  $\emptyset_{for}$  may be arguments and, under certain circumstances, adjuncts as well.

The Non-Factive Generalization is not a true “elsewhere” clause, since it leaves the behavior of one environment open. Non-finite complements to [+factive] verbs, by these two principles, may occupy complement position in D-structure without violating the Factive Generalization, and may occupy non-complement position in D-structure without violating (358).⁸⁷ Complement *for* clauses of the normal sort exemplify the first possibility. The examples in (337) exemplify the second. Notice that the two types of sentences differ with respect to extraction:⁸⁸

- (364)a. ?How_i would he like [for Mary to fix your bicycle t_i]?  
 b. *How_i would he like it [for Mary to fix your bicycle t_i]?  
 (365)a. ?the way_i I always like [for people to fix my bicycle t_i]  
 b. *the way_i I always like it [for people to fix my bicycle t_i]

With  $\emptyset_{for}$ , however, the adjunct possibility seems to be excluded, except that there is a marginal improvement when adverbial material intervenes between object *it* and the  $\emptyset_{for}$ -clause. Thus, (366a) is impossible, while (366b) seems to have the status of the sentences of (337). (366c) shows the structure:

- (366)a. *I would like it to fix his bicycle.  
 b. ?*I would like it a lot to fix his bicycle.  
 c. ?*I would like it *(a lot) [ $\emptyset_{for}$  [PRO to fix his bicycle]].

The improvement in (366b) quite recalls the frequent improvement of clauses with overt *for* when separated from the verb by adverbial material. I will, however, not offer any account of the puzzling difference between (366a) and (366b). That  $\emptyset_{for}$ -clauses may be arguments can be seen by means of extraction possibilities. Adjuncts also act as expected:

- (367)a. Sing the way_i I like [to hear you sing t_i].  
 b. *Sing the way_i I like it a lot [to hear you sing t_i].

The Factive and Non-Factive Generalizations in (357) and (358) are, of course, stipulations, and ugly ones at that — mentioning [+factive] and finiteness. On the other hand, stipulations though they are, (357) and (358) represent true statements in the general picture being presented. The fact is, although *want* behaves for most purposes like a combination of *would* with a factive predicate, the distribution of object *it* is one place where there is a difference. The Factive and Non-Factive Generalizations in effect note this difference and place it in a more general setting. If the general picture is correct, then future research will find some explanation for the Factive and Non-Factive Generalizations as stated here. If the Factive and Non-Factive Generalizations cannot be explained in the long run, then the general system will be called into question. Thus, even the stipulation of the Factive and Non-Factive Generalizations has value. Obviously, one should desire an explanation for the Factive and Non-Factive Generalizations, but since none is forthcoming, I will let the matter rest.

Finally, we need to consider the appropriate analysis of *want*-class verbs other than *want*. In fact, as should be clear from reexamining (64), they are few in number. In (64) we included verbs like *hate*, which we now know to fall into the “*want*-class” only by virtue of the complex route we have been discussing. Verbs like *wish* and *desire* are near-synonyms of *want*, differing in indications of intensity and perhaps subtleties of style, as is *expect* on the “*want*-class” reading



discussed in section 2.13. This leaves *need*, which also incorporates irrealis modality, in that what is needed is that which one would be better off having. Thus, it seems that the analysis presented here will extend with little problem to the entirety of the *want*-class.

### 3.2.11 “Incorporated” Adverbs of Quantification

Modals are one type of licenser for *IF*-clauses. Adverbs of quantification are another. If there are predicates like *want* that incorporate modals into their meaning, we should ask if any predicates incorporate adverbs of quantification into their meaning. I am unaware of verbs with this property, but quantity adjectives like *common* and *rare* seem to fit the bill. Some relevant cases are given below. Bach (1977, 639) cites personal communication from B. Partee for (368a) (cf. (200)-(202)). He comments that (368a) is deviant because “we think of *love* as a more or less fixed relation holding between individuals, not something that stops and starts” — in other words because *love* here is an individual-level predicate. We may now add that these examples improve markedly if a definite NP in the *for*-clause is replaced with an indefinite, as in (368b), or if the verbal cluster is replaced with something stage-level, as in (368c). (369) and (370) provide other examples of the same paradigm:⁸⁹

- (368)a. ?For John to love his wife is common.  
 b. For a man to love his wife is common.  
 c. For John to kiss his wife is common.
- (369)a. *For John to know Armenian is rare.  
 b. For an Azerbaijani to know Armenian is rare.  
 c. For John to speak Armenian is rare.
- (370)a. *For John to be blonde is unusual.  
 b. For an Igbo to be tall is unusual.  
 c. For John to be grouchy is usual.

The adjectives *common*, *rare*, and *unusual* in these examples must be stage-level predicates, or else Kratzer’s prohibition against Vacuous Quantification in (215) will be violated even in the (b) and (c) examples. Recall that Kratzer requires both the restrictive clause and the nuclear scope to contain a variable bound by a quantifier. Examples (b) and (c) show an indefinite and an *l*-place providing the variable in the restrictive clause. For the nuclear scope, I will assume that *common* means something like ‘happens commonly’, *rare* means ‘happens rarely’ and *unusual* means ‘mostly doesn’t happen’. These paraphrases themselves show the relevant contrasts, and make clear the way in which the lexical meaning of these adjectives contains an adverb of quantification, just as *want* contains an irrealis modal:

- (371)a. ?For John to love his wife commonly happens.  
 b. For a man to love his wife commonly happens.  
 c. For John to kiss his wife commonly happens.

## **3.3 Complementizers: $\emptyset$ for, for, Factives and Implicatives**

### 3.3.1 More Evidence for $\emptyset$ for: Subject Infinitives

#### 3.3.1.1 Summary

Let us pull together the various threads and summarize. I have argued that the semantics of  $\emptyset$ for are quite close to the semantics of the overt complementizer *for*. The semantics of

complementizer *for*, in turn, are essentially the semantics of *if* and *when*, possibly with the restriction just discussed. In the previous subsection, I tried to show how we can make sense of the apparent anomaly of a word that means *if* or *when* heading a complement clause. The hypothesis that I developed out, crucially involving IC as well as the Factive and Non-Factive Generalizations, assigns to such complement clauses an interpretation in two structural positions after LF: in complement position as a normal declarative clause and in adjunct position as a restriction on the matrix, in the manner developed by Kratzer. Because of this hypothesis, we expect and find that the restrictions on *if*- and *when*-clauses discovered by Kratzer hold of *for* and  $\emptyset_{for}$ . This is the discovery hinted at by Carstairs (writing before Kratzer, therefore lacking the tools to develop the observation), which I have expanded on in the preceding sections.

All this discussion was in service of a question which was raised in section 3.1.2. As I have noted throughout this book, empty elements can only be detected indirectly. To prove their existence, we must carefully construct means of detection. The existence of  $\emptyset_{for}$  was posited for complicated reasons. I suggested a theory of cross-categorial government with *believe* and *wager* that involves C-to-V movement and the Government Transparency Corollary. The structure of the argument went as follows:

1. What looks like ECM with *want* seems to really be ECM; therefore a similar C-to-V analysis was proposed, involving  $\emptyset_{prop}$ .
2. This, however, leads to false predictions in cases where the embedded subject with *want* has to be ungoverned.
3. To resolve this problem, I proposed that the embedded C with *want* is [-Affix], and noted that LF affixation should be a possibility even for [-Affix] elements.
4. This same sort of embedded C is found with *hate* under certain circumstances. These circumstances turned out to be the environments of *if* and *when*, lending credence to the hypothesis that  $\emptyset_{for}$  is real and is different from  $\emptyset_{prop}$ .

But what of  $\emptyset_{for}$ 's [-Affix] feature, which was its *raison d'être* in the first place? Can we justify the idea that the complementizer whose semantics we have just examined behaves in the peculiar fashion proposed for [-Affix] morphemes, remaining in situ at S-structure but able to incorporate at LF. Remember that our theory of the behavior of [-Affix] morphemes itself rested on the Affix Biconditional in (172), which has not been demonstrated to be correct.

Now that we have a clearer grip on the semantics of this situation, we can answer these worries, and thereby support our entire analysis as it has been presented so far. We must show that the null complementizer with the semantic properties of *if* and *when* also behaves like a [-Affix] morpheme. We need to look for an environment in which, among null complementizers, only a [-Affix] complementizer can occur. If we are lucky,  $\emptyset_{for}$  is the only [-Affix] null complementizer. Therefore, only  $\emptyset_{for}$  could occur in such an environment. How can we tell? The various symptoms of *if* and *when* should appear. In fact, these tests can be performed, and yield extremely encouraging results. We can detect  $\emptyset_{for}$  by looking for the signs of *if*. Furthermore, this is more than a mystical diagnostic: we know why the tool works.⁹⁰

Let us review the environments in which  $\emptyset_{for}$  (and complementizer *for*) may occur:

1. **Non-modal (realis) matrix:** matrix must contain an adverb of quantification, implicit (*≈always* or *generally*) or explicit. Restrictions involving indefiniteness and the stage/individual-level distinction are found.
2. **Modalized (irrealis) matrix:** Restrictions involving indefiniteness and the stage/individual-level distinction are not found.
3. **Otherwise:** Unacceptable.

### 3.3.2 Test 1: Subject Sentences

When I first suggested C-to-V movement for *believe*- and *wager*-class verbs in section 3.0.1, I argued for this analysis by considering environments in which affixation of C is impossible. I noted that head movement from a subject sentence is impossible, and pointed out that this fact, combined with an affixal analysis of what I now call  $\emptyset_{prop}$ , can explain why the type of infinitive selected by *believe* may not occur in subject position. I reproduce (133), updated, below:

(372) * $[_{CP} [_C \emptyset_{prop}] [_{IP} \text{PRO to be round}]]$  was believed by  
Humpty Dumpty.

The complementizer  $\emptyset_{prop}$  is [+Affix]. If  $\emptyset_{prop}$  stays in situ in (372), it violates the Affix Biconditional. If it moves, it violates conditions on head movement (presumably the ECP). Thus, there is no way to legitimate the empty C in (372), and the structure is ruled out. This explanation mirrored precisely the explanation for finite cases like (130b), reproduced below. The morpheme  $\emptyset_{that}$  is also [+Affix]:

(373) * $[_{CP} [_C \emptyset_{that}] [_{IP} \text{the world is round}]]$  was known to  
the Ancients.

I have now argued that there is also a [-Affix] complementizer, and that this complementizer is  $\emptyset_{for}$ . The theory therefore makes a prediction. The complementizer  $\emptyset_{for}$ , and no other null complementizer, should be found in subject sentences, so long as the semantics of the sentence are compatible with it. If the semantics are incompatible, then  $\emptyset_{for}$  should be impossible. In fact, this is true. We know that overt *for* is incompatible with *believe*, thus  $\emptyset_{for}$  is also incompatible with *believe* and cannot rescue the string in (372). However,  $\emptyset_{for}$  is compatible with other predicates, so long as the environment contains either an overt or implicit adverb of quantification or an overt or implicit modal of the right type. Strikingly, these are the only circumstances in which complementizerless subject infinitives are found:⁹¹

(374)a. ??To suddenly realize that the lights were on bothered Bill.  
b. To realize that the lights are on always bothers Bill.  
c. To suddenly realize that the lights are on would bother Bill.

(375)a. ??To be told that Darwin was right bothered Mary.  
b. To be told that someone else is right rarely bothers Mary.  
c. To be told that Darwin was right would bother Mary.

(376)a. ??To leave without saying goodbye last night was rude.  
b. To leave without saying goodbye is rude.  
c. To leave without saying goodbye would be rude.

Furthermore, the other signs of  $\emptyset_{for}$  are present. These subject sentences are only acceptable if the matrix is modalized; if the subordinate clause contains an indefinite; or if the predicate of the subordinate clause contains a stage-level predicate. I assume that  $PRO_{arb}$ , but not  $PRO$  controlled by a name, is indefinite in (377b), supplying the necessary variable for the implicit adverb of quantification.

- (377) a.  $PRO_i$  to know French well would please  $John_i$ .  
b. * $PRO_i$  to know French well pleases  $John_i$ .  
c.  $PRO_{arb}$  to know French well pleases  $John_i$ .  
d.  $PRO_i$  to know a foreign language well pleases  $John_i$ .  
e.  $PRO_i$  to speak French well pleases  $John_i$ .
- (378) a. * $PRO_i$  to be tall would irritate  $Mary_i$ .  
b. * $PRO_i$  to be tall irritates  $Mary_i$  sometimes.  
c.  $PRO_{arb}$  to be tall is irritating sometimes.  
d.  $PRO_i$  to be in demand irritates  $Mary_i$  sometimes.

These results are expected if  $\emptyset_{for}$  exists, is [-Affix] and is the only [-Affix] complementizer, which is the hypothesis I have been developing.

The above examples involve D-structure subjects (if my arguments in this book are correct), and thus relate only indirectly to the complementation structures that we have been examining. It is, in fact, possible to examine subject sentences that relate directly to our complementation structures. Inverted pseudoclefts and similar predication structures form the cleanest examples. (380) and (379) are modeled after (374)-(376), and (381) after (377)-(378):

- (379) a. ??To go to school on Sunday is something Sue hated last week.  
b. To go to school on Sunday is something Sue always hates.  
c. To go to school on Sunday is something Sue would hate.
- (380) a. ??To learn that I won the lottery what I (most) liked yesterday.  
b. To talk to Bill is what I most like.  
c. To talk to Bill is what I would most like.
- (381) a.  $PRO_i$  to know French well is what  $John_i$  would like most.  
b. * $PRO_i$  to know French well is what  $John_i$  likes most.  
c.  $PRO_i$  to know a foreign language well is what  $John_i$  likes most.  
d.  $PRO_i$  to speak French well is what  $John_i$  likes most.⁹²

Not surprisingly, subject sentences related to the object of verbs that “incorporate” *would* are acceptable:

- (382) **Want-class predicates**  
a. To go to school is what Bill desires.  
b. To get another chance is the only thing John needs.  
c. To read *War and Peace* is what Mary wants.  
d. To leave on time is what I really wish (for).

I do not claim that the subject in these inverted pseudoclefts is transformationally derived from object position. It is only important that the subject match the trace of *what* in semantic type, so that if the verb that governs the trace takes an irrealis complement, the subject will have to be an irrealis complement. This seems a likely requirement.

There are other cases to examine as well. The agentive verbs of the *demand*-class are also compatible with *for*, where considerations of obligatory control do not intervene (see section

2.10). Recall that these verbs, like the verbs of the *want*-class, take irrealis, non-propositional complements. Their paradigm is identical to that of the *want*-class, except for ECM, which agentive verbs do not allow. It is somewhat more complex to determine why verbs in this class should allow *for*-complements, since there is no simple paraphrase involving *if*, as there is with *want*-class verbs. Nonetheless, the possibility of *for*-complementation is understandable when the meanings of these verbs are examined. I repeat below the (very) partial list given in (67):

(383) *ask, choose, consent, contrive, decide, demand, endeavor, hope, intend, mean, need, offer, petition, plan, prepare, promise, propose, refuse, request, resolve, seek, strive, struggle, swear, undertake, vow*

Each of these verbs describes an action which is prompted by an attitude towards an unrealized state of affairs of the sort we have earlier described by means of counterfactual conditionals. Thus, if John asked to leave, he is acting on a desire to leave (or at least not discontented). Similarly if John chooses to leave. If John consented for Mary to leave, he would not be against it if Mary left. If John refused to leave, he is acting on his desire not to leave.

There is more to the meaning of each of these verbs, so that any presentation patterned after our decomposition of *want* in (352) will be crude and inaccurate. Nonetheless, one element of the meaning of a verb like *ask* is the subject's attitude towards the unrealized event denoted by the infinitive, and an indication that this event is unrealized. Thus, guides to the semantic analysis of expressions involving *demand*-class verbs might be the sorts of paraphrases provided below, where the material in brackets is irrelevant to our concerns:

(384)a. John asked for Mary to be given the prize.  
b. John voiced his desire for Mary to be given the prize  
[in a context where John has reason to think that voicing his desire might cause the desire to be fulfilled, and where addressee has the power to fulfil the desire ].

(385)a. John proposed for Mary to be given the prize.  
b. John voiced his desire for Mary to be given the prize  
[in a context where John has reason to think that voicing his desire might cause the desire to be fulfilled, and where John and addressee jointly play a role in fulfilling the desire ].

(386)a. John struggled for Mary to be given the prize.  
b. John acted on his desire for Mary to be given the prize  
[in a context where John has reason to think that acting on his desire might cause the desire to be fulfilled, but that arduous action is required].

When these paraphrases are fleshed out, expressions like *desire* internal to (384) will be decomposed after LF exactly as *want* was unpacked in (352), and then subjected to IC. The copy produced by IC will appear in other places in the semantic representation.⁹³ These pieces of meaning sanction the occurrence of *for* and, if our general analysis is correct,  $\emptyset_{for}$  in comparable examples with PRO subjects.

Let us now examine subject infinitives related to object position of *demand*-class verbs that allow infinitival objects. These verbs, like *want*, and unlike *hate* in (379a) should allow subject infinitives related to their objects. If  $\emptyset_{for}$  exists and is the only [-Affix] complementizer, then these, plus the *hate*-class in appropriate environments, should produce the *only* acceptable cases of subject infinitives related to objects. We are therefore ready to begin the long-delayed consideration of infinitival complementation with factive and implicative predicates. Let call the

null C that introduces infinitival complements to *manage*  $\emptyset_{impl}$  and the null C that introduces factive, non-generic, non-modalized uses of *hate*  $\emptyset_{fac}$ . If *is* is [+Affix], then subject infinitivals related to objects of *manage*- and *hate*-class verbs should **never** be possible. The null C would always have to raise out of the subject sentence to some higher position, violating the conditions on head movement. This result, if true, would require us urgently to determine why the embedded subject of *manage*- and *hate*-class complements is not governed by the higher verb: since otherwise, its syntax and morphology should be identical to *believe*- and *wager*-class verbs.

In fact, things seem to work out this way. The *demand*-class, like the *want*-class, allow subject infinitivals related to direct object position. The *hate*-class, when not surrounded by elements that license  $\emptyset_{for}$  and *for*, does not, as we have already seen. Finally, the implicative *manage*-class also does not. On the other hand, certain factors interfere with this demonstration. In the next section we will see a much sharper test of these predications:

(387) ***Demand-class Predicates <with  $\emptyset_{for}$ >***

- a. To leave on time is what we agreed (on).
- b. To have dinner cooked is what we arranged (for).
- c. To leave on time is what we assented to.⁹⁴
- d. To climb this mountain is what I will attempt next.
- e. To go to the Sorbonne is what I have chosen.
- f. To leave on time is what I have consented to.
- g. ??To leave on time is what I contrived.⁹⁵
- h. To go back to school is what he has decided.
- i. To be taken to the store is what she demanded.
- j. To leave on time is what I am offering.
- k. To be given clemency is what the prisoners are petitioning (for).
- l. To leave on time is what I am planning.
- m. To go school is what we are preparing for.
- n. To leave on time is what I can promise at the moment.
- o. To leave at 10:00 is what he proposed.
- p. To be allowed to leave on time is what I am requesting.
- q. To leave on time is what we have resolved.
- r. To free ourselves from exploitation is what we are struggling for.
- s. ??To jump over this hurdle is what we are trying with all our strength.⁹⁶
- t. To leave on time is something we undertake willingly.
- u. To leave on time is what we vow.
- v. To have to fight is what we are prepared for.

(388) ***Manage-class Predicates <implicative; no *for*>***

- a. *To leave on time is what we won't bother (??about).
- b. *To leave on time is what he condescended (??to).
- c. *To contradict Bill is what Mary dared.
- d. *To write the report is what he declined.
- e. *To leave on time is what he disdained.
- f. *To leave is what he helped.
- g. *To leave on time is what he managed.
- h. *To leave on time is what he neglected.
- i. *To mention his guilt is what he omitted.
- j. *To talk rudely is what he presumed.
- k. *To turn off the lights is what he remembered.
- l. *To leave on time is what he scorned.
- m. *To leave on time is what he ventured.
- n. *To leave on time is what he didn't care.

Case is obviously a confounding factor here, since the trace of *what* must be Case-marked, unlike infinitives themselves. Certain *demand*-class verbs do not license Case on a

nominal object, and thus disallow the construction with *what*. This explains the impossibility of examples like, (389) in light of (390):

- (389) a. ??To leave on time is what we are endeavoring.  
 b. *To be astronauts is what the kids are pretending.  
 c. *To leave on time is what he refused.
- (390) a. *What are you endeavoring?  
 b. *What are the kids pretending?  
 c. *What did he refuse?⁹⁷

This factor may therefore be getting in the way of certain examples in (388), independent of the [ $\pm$ Affix] status of the embedded complementizer. For this reason, I turn to a much clearer test of the affixal status of complementizers: complements to nominalizations.⁹⁸

Thus, subject sentences with null complementizers appear to bear the semantic signs of *for*. This is what we expect if  $\emptyset_{for}$ , alone among the null infinitival complementizers of English, is [+Affix].

### 3.3.3 Stowell's (1982) Theory

Before proceeding, I want to take note of an interesting discussion of these matters in by Stowell (1982). Stowell observed some of the facts reported here from much the same vantage point, but drew somewhat different conclusions. Like us, he observed the irrealis quality of complements to *want*- and *demand*-class infinitival complements, and attributed this to an element in COMP. He regarded this element as a tense marker, while I have argued that it is closer to *if*, given IC as a means of copying a complement *if*-clause onto adjunct position. As Chomsky did in *LGB*, Stowell attributed the behavior of *believe*-class predicates to the absence of CP. The absence of CP entails the absence of COMP, hence the absence of irrealis tense in C. Thus, he explains why *believe*-class predicates are not irrealis. Stowell did not explain the existence or behavior of factive or implicative infinitival complements. If the only two choices are CP with irrealis tense or IP without irrealis tense, then there is no place for *manage* or factive *hate* in his system.

Anticipating our arguments here, Stowell explored the properties of subject infinitives on the assumption that infinitival C, like finite C may not be null in a subject sentence. (For us, this is replaced by the assumption that C of a subject sentence may not be [+Affix].) His theory predicts that subject infinitivals may contain overt *for*, in which case irrealis tense reappears in C, or else may be absent entirely due to CP-deletion, in which case no tense appears at all. When no tense appears at all, Stowell assumes that the tense interpretation of the infinitive is determined by the matrix. Among the relevant cases are those in which (for us)  $\emptyset_{for}$  has the meaning of *when* and restricts an implicit adverb of quantification, for which the default is generic:

- (391) [To kill animals] is wrong. (Stowell's (20a))

On another case, there is disagreement on the facts. For (392a), Stowell proposes that the punctual past tense of the matrix clause determines the understood tense of the embedded clause, and considers the examples an acceptable equivalent of the gerund construction in (392b). In my judgment, (392a) is unacceptable as a sentence with punctual past tense, compared to (392b), the postverbal infinitive in (392c), or the generic and irrealis examples in (392d) and (392e):

- (392)a. (*)To lock the door was stupid (of me).  
 b. Locking the door was stupid (of me).  
 c. It was stupid (of me) to lock the door.⁹⁹  
 d. To lock the door is always stupid.¹⁰⁰  
 e. To lock the door would be stupid (of me).

Stowell's general picture is a subset of the picture I have painted here. He did not take note of overt *for* in environments of adverbial quantification, or else the pervasive similarities between *for*-clauses and subject infinitives would have been evident. Similarly, he did not take note of the identical interpretation accorded subject sentences in irrealis environments and *for*-clauses in irrealis environments. Thus, if I am right, he was misled into positing a difference between *for*-clauses and complementizerless subject infinitivals, rather than noting the similarity. The real contrast between complement clauses and subject clauses lies not in a similarity between *believe*-complements and subject infinitivals, but in a sharp contrast between their semantics, as discussed in section 3.0.1 and the beginning of this section. Nonetheless, Stowell's work is a clear ancestor of the theory presented here, particularly in its assumption that null infinitival complementizers may share the properties of finite complementizers, and in its emphasis on the consequences for interpretation. Furthermore, Stowell's idea that infinitives may contain a tense morpheme, while inappropriate for the examples that I have analyzed in terms of *for* and  $\emptyset_{for}$ , will anticipate some of the ideas I will present in section ???.

If our hypotheses are correct, we expect a difference between [-Affix] null complementizers and [+Affix] complementizers in nominalizations. In fact, nominalizations furnish the clearest demonstration of the behavior of [+Affix] and [-Affix] null complementizers, and lead us directly into the long-delayed discussion of implicative and factive infinitival complements.

### 3.3.4 Test 2: Nominalizations and $\emptyset_{for}$

When the C-to-V analysis of null finite complementizers was proposed in ???, I noted how the very observations that block nominalization of EO psychological predicates and double object structures could serve to explain the impossibility of *that*-deletion in complements to nominalizations. Thus, the impossibility of *that* deletion in (134a), repeated as (393a) below, followed from the impossibility of nominalization after C-to-V movement, sketched in (134b), also repeated below, slightly updated:

- (393)a. Sue's confirmation (*that) the world is round.  
 b. *Sue's [[ [ $\emptyset_{that}$  _C]_i [confirm _V]_v][-ation _N]_N] [ t_i the world is round].

When the  $\emptyset_{prop}$  analysis of propositional infinitival complements was first proposed in section 3.0.2, one piece of evidence in favor of the proposal was our ability to extend our explanation for (393b) to the comparable facts with *believe*-complementation, as seen in (135), reproduced below:





- (399)a. If the store had this book, you might purchase it on the second floor.
- b. *Bill's possible purchase of this book if the store had it would be nice.

Similarly for modals with the force of *must*:

- (400)a. If Sue knows French, she must know it well.
- b. Sue's certain/necessary good knowledge of French if she knows it.

Consequently, we might think that there is no way for a clause introduced by  $\emptyset_{for}$  (or *for*) to function as the complement in a nominalization, independent of whether  $\emptyset_{for}$  is [+Affix] or [-Affix]. Fortunately, there is one expression of irrealis modality that is possible in a nominalization. That is the expression of irrealis modality that is "built into" the lexical meaning of verbs like *want*, *desire*, *wish* and similar predicates (discussed at length in section ???). These verbs take complements introduced by  $\emptyset_{for}$  or overt *for* and license these complements in accordance with the IC in (338), as sketched in (352). Thus, the nominalizations of these verbs should accept infinitival complements with null complementizers. Furthermore, if the null complementizer associated with factive and implicative infinitival complements is [-Affix], as suggested in the previous section, then nominalizations of factive and implicative verbs should *not* allow infinitival complements. In fact, since *for* is the only lexical complementizer that introduces English infinitives, and since (by hypothesis)  $\emptyset_{for}$  is the only [-Affix] null complementizer, only nominalizations of *want*- and *demand*-class verbs should allow infinitival complementation at all.

Here there are no complications involving Case assignment. With one exception, to which we will return, these predictions are confirmed:

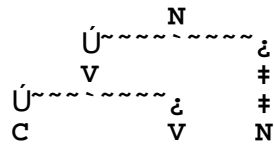
(401) **Want-class Predicates** <with  $\emptyset_{for}$ >

- a. Mary's [[desire_v] ment_N] [ $\emptyset_{for}$  [PRO to win]]
- b. John's need to be accepted
- c. John's wish to released

(402) **Demand-class Predicates** <with  $\emptyset_{for}$ >

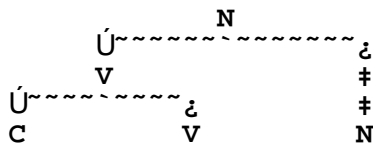
- a. her [[agree_v] ment_N] [ $\emptyset_{for}$  [PRO to leave]]
- b. her arrangement to leave
- c. ?her assent to leave
- d. her attempt to leave
- e. her choice to leave
- f. her consent to leave
- g. %her contrivance to leave
- h. her decision to leave
- i. her demand to leave
- j. her endeavor(s) to leave
- k. her offer to leave
- l. her petition to leave
- m. her plan to leave
- n. her preparation to leave
- o. her pretense to be leaving
- p. her promise to leave
- q. her proposal to leave
- r. her refusal to leave
- s. her request to be allowed to leave
- t. her resolution to leave
- u. her struggle to leave
- v. her údertaking to leave
- w. her vow to leave

(403) **Hate-class predicates** <factive; with  $\emptyset_{fac}$ >



- a. *Mary's [ $\emptyset_{fac_i}$  hate -red] [[_C t_i][PRO to ride in the back seat]]
- b. *John's dislike to go home
- c. *Bill's loathing to play the violin [nominalization reading]
- d. *Mary's love to solve problems
- e. *Sue's preference to listen to the symphony
- f. *Mary's regret to have to inform us of Sue's accident

(404) **Manage-class Predicates** <implicative; with  $\emptyset_{impl}$ >



- a. *his [ $\emptyset_{impl_i}$  condescens ion] [[_C t_i][PRO to leave]]
- b. *his bother to leave
- c. *nobody's care to leave
- d. *his dare to leave
- e. *his declination to leave
- f. *his disdain to leave
- g. *his help to leave

- h. *his management to leave
- i. *his neglect to leave
- j. *his omission to leave
- k. *his presumption to leave
- l. *his remembrance to leave
- m. *his scorn to leave

The one exception is the implicative verb *fail*, whose nominalization does take an infinitive:

(405) his failure to leave

We will return to *failure* in section ???.

It is also worthwhile to consider nominalizations of adjectives that belong by virtue of semantics to the various classes. These adjectives — *willing* in the *want*-class, *prepared* in the *demand*-class, *happy* in the factive *hate*-class, *rude* in the implicative *manage*-class — should have the complementation properties of the corresponding verbs. This would have been hard to see until now. Since adjectives do not participate in ECM, all these adjectives allow PRO and disallow NP-trace, and thus look very much the same. When nominalized, however, those that are semantically compatible with  $\emptyset_{for}$  clearly distinguish themselves from those that are not, just as the verbs do. Since ECM is not an issue, there is no reason to distinguish non-agentive *want* from agentive *demand*-class predicates, though factive and implicative predicates may be distinguished fairly easily.¹⁰¹

(406) **Want/Demand-class Predicates <with  $\emptyset_{for}$ >**

- a. John's ability to play the violin
- b. Bill's anxiousness to leave
- c. Mary's eagerness to win
- d. Sue's eligibility to win the prize
- e. her freedom to leave
- f. his hesitancy to express his opinion
- g. his inclination to leave
- h. her preparedness to leave
- i. Bill's readiness to fight
- j. his reluctance to leave
- k. John's willingness to help

(407) **Hate-class predicates <factive; with  $\emptyset_{fac}$ >**

- a. *John's anger to discover he'd lost the game
- b. *Bill's embarrassment to solve the problem.
- d. *Sue's happiness to have won the lottery
- e. *Bill's luck(iness) to win the lottery
- f. *Mary's pride to be a Norwegian
- g. *Bill's sadness to learn his fish had died
- h. *Sue's sorriness to keep us waiting.
- i. *Bill's stupidity to think he could solve the problem

(408) **Manage-class Predicates <implicative; with  $\emptyset_{impl}$ >**

- a. *his venture to leave
- b. *his carefulness to leave on time
- c. *his carelessness to leave the window open
- d. *Bill's craziness to do that
- c. *his rudeness to leave
- d. *Sue's silliness to leave so early
- e. *her wisdom to bring a book along

Adjectives that undergo Tough-movement are particularly interesting in this connection. The judgment of some speakers, including my own, differs from the norm reported in the literature with respect to nominalizations of Tough-movement structures. Examples like following are acceptable for speakers like myself:

- (409) a. %the door's easiness to open  
b. %its awkwardness to pronounce  
c. %the problem's trickiness to solve

Notably, however, the embedded infinitives have only an irrealis meaning in (409). While a sentence like *the door was easy to open* can report the possibility of opening the door or an actual event of door opening, a nominalization like *the door's easiness to open* can only report the possibility of opening the door. This suggests that *easy* falls into both a class that takes  $\emptyset_{for}$ , and a class that takes a [+Affix] complementizer in the embedded infinitive.

On the other hand, nominalizations with suffixes other than *-ness* seem quite impossible:

- (410) a. *Bill's difficulty to please  
b. *the store's convenience to visit  
c. *the fruit's impossibility to eat

Many examples with *-ness* are to be found among the starred examples listed in (407)-(408), so forms in *-ness* cannot be immune from Myers' Generalization (as discussed in section ???). Instead, some as yet unknown morphological factor must be at stake. This factor might also be responsible for the impossibility of (409) in the previously reported dialects.

Two possible objections should be considered and disposed of.

First, one might be tempted to respond to (404) by objecting that *hatred* does not mean what a nominalization of *hate* should mean, that *management* does not mean what a nominalization of *manage* should mean, that noun *bother* is not an action nominal from verb *bother*, and so forth. There is such an intuition, but the objection begs the question. Most of the relevant verbs when they take clausal objects take only infinitival complements (something that I do not account for here). If the infinitival is excluded from the nominalization for syntactic reasons, the speaker will naturally fail to use the nominal in precisely the sense it would have if it took an infinitival complement. The hypothesis that these infinitives have a [+Affix] complementizer *explains* these gaps in how nominals are used. The gaps themselves explain nothing.

Second, the impossibility of infinitival complements to nominalizations of factive verbs like *hate*, *dislike*, *loathing* and *love* might be considered irrelevant to the analysis of infinitival complementizers, once we observe that these nominalizations also do not allow *that*-clauses:

- (411) a. *Mary's hatred (of it) that she had to ride in the back seat  
b. *John's dislike (of it) that he had to go home  
c. *Bill's loathing (of it) that he had to play the violin  
[nominalization reading]  
d. *Mary's love of it that she needed to solve problems

The impossibility of *that*-complements in (411) is related to the obligatoriness of object *it* with the corresponding verbs. As discussed in section ???, object *it* is generally impossible in nominals, even when referential in the normal fashion:

- (412) *Bill's destruction of it

With *regret*, object *it* is not obligatory, and consequently finite complements are acceptable:

- (413)a. John regretted (it) that he hadn't visited Bill.  
b. John's regret that he hadn't visited Bill.

Furthermore factive adjectives never take *it* with factive complements and consequently allow *that*-complements when nominalized. A few of the examples are somewhat deviant, for reasons unknown, but do not approach the level of deviance found in (407):¹⁰²

- (414)a. John's anger that he'd lost the game  
b. Bill's embarrassment that he hadn't solved the problem.  
d. Sue's happiness that she'd won the lottery  
e. ?Bill's luck(??iness) that he won the lottery  
f. ?Mary's pride that she is a Norwegian  
g. ?Bill's sadness that his fish died  
h. Sue's sorriness that she kept us waiting

The generalization seems to be that finite complements to nominalizations are possible whenever *it* is not required by the corresponding predicate. Therefore, the impossibility of infinitival complements to factive predicates is relevant to the discussion, in just the way discussed above, and the objection is without force.

To summarize, I suggested that [-Affix] morphemes can undergo C-to-V movement at LF, allowing ECM when the higher predicate is verbal and non-agentive. I further suggested that the only [-Affix] null morpheme in English has the semantics of *for*. For this reason, I called it  $\emptyset_{for}$ . Identifying  $\emptyset_{for}$  as [-Affix] allowed us to explain the presence of ECM in the face of the possibility of PRO and the impossibility of NP-trace. We needed to see whether this complementizer shows any other signs of [-Affix] status. After investigating the semantics of *for* at length, we were in a position to identify environments in which  $\emptyset_{for}$  might occur, and to understand the reasons for its occurrence in these environments. We then looked at two environments in which only a [-Affix] null morpheme could occur, for independent reasons. These environments were subject sentences and the complement of nominalizations. In each case, only those complements that had the semantics associated with *for* could occur. This strongly confirms the hypotheses that I have been advancing.

In fact, adjunct infinitivals are another environment in which these hypotheses should be testable (cf. (53c)). I will have little to say about these constructions, but they may indeed fall nicely into the present picture. In any case, I will defer discussion until we have dealt with factive and implicative complements.

### **3.4 From Properties of C to Properties of INFL: Implicatives and Factives**

We must now discover why factive and implicative verbs select infinitives with a [+Affix] complementizer without simultaneously displaying the internal syntax of *believe*- and *wager*-class complements. As I have cautioned throughout, the minute we posit [+Affix] status for a null complementizer, we predict that the higher verb, as a consequence of affixation and the GTC, will govern the embedded subject at S-structure. That is exactly what we do *not* want for factive and implicative predicates. Consequently, some other factor must block government of the embedded subject by the higher verb, despite C-to-V movement.

Let us review why C-to-V movement should yield *believe/wager*-type complementation. We assumed a harmless modification of Baker's Government Transparency Corollary, stated in

(154), as well stipulation (153) concerning the governing properties of null elements, both reproduced below:

- (415) *Government Transparency Corollary (trace version)*  
**A lexical category which has an item incorporated into it governs everything which the trace of the incorporated item governs.**
- (416) **An  $X^{\circ}$  which is phonologically null at D-structure is not a governor.**

The two statements together explained why [+Affix]  $\emptyset_{prop}$ , which undergoes C-to-V at S-structure, allows NP-trace and disallows PRO, while [-Affix]  $\emptyset_{for}$ , which does not undergo C-to-V at S-structure, disallows NP-trace and allows PRO. A null complementizer is not a governor of the embedded subject, but its trace does govern the embedded subject, and by (415) allows the higher verb to govern it as well.

Turning now to factive and implicative complements, we must determine why the embedded subject is not governed, even though C-to-V takes place here as well (as shown by nominalizations and subject sentences). There is only one plausible answer to this question: some element must intervene between C and the embedded subject, blocking government by C even when C is filled by a trace. If C fails to govern the embedded subject, then the higher verb will not govern it either. We must therefore discover something that factive and implicative complements have that propositional complements to *believe-* and *wager-*class verbs do not have. In previous sections, I have focused on properties of null C, since our goal was to account for the contrast between *believe-/wager-*complements and *want-/demand-*complements. In this section, I will argue that the factor that distinguishes factive and implicative complements from all the others is not C, but INFL — more precisely, a type of mood marking in factive and implicative clauses absent from propositional complements. This modal Tense, while not itself a governor, blocks government of the embedded subject by C. ¹⁰³

### 3.4.1 *Tense, Mood and Adverbs: Enç (1991)*

#### 3.4.1.1 *No present tense in English*

To make this idea stick, we will need a way to identify clauses with and without mood markers of the right sort. The way we will detect hidden mood markers is by their interaction with factors connected to tense. Here I will rely heavily on recent work by Enç (1991), who builds in turn on the very work by Kratzer (1989) which has played such a role in my own discussion (cf. section 3.1.4). Enç extends Kratzer's results to provide a new account of differences between stage- and individual-level predicates in sentences generally thought to be marked for present tense.

Consider past- and present-tense uses of a stage-level predicate like *sing*, where tenses are taken to denote intervals:¹⁰⁴

- (417)a. **Mary sang the *Marseillaise*.**  
 b. **Mary sings the *Marseillaise*.**

The past-tense example (417a) may be true, roughly, if there is an interval prior to the time of utterance (or time of evaluation, in complex cases) in which Mary sings the *Marseillaise*. As Enç notes, if the form in (417b) is interpreted analogously as present tense, we expect (417b) to

have a reading which is true if Sally sings during the time of utterance. There is no such reading, however. Instead, (417b) can only be interpreted as something like (418a) or (418b):

- (418)a. **Mary always sings the *Marseillaise*.**  
 b. **Mary generally sings the *Marseillaise*.**

In examples like these, there are numerous intervals in which Sally is singing, the numerousness being given by the meaning of the various adverbs of quantification. Enç proposes, following earlier unpublished work of her own, that verbs like *sing* contain an open position identifiable with Kratzer's *l*-position.¹⁰⁵ This position is subject to the following condition:

- (419) **The *l*-pace must be bound.**

The past tense morpheme in (417a) and the adverbs of quantification in (418) have the capacity to bind the *l*-position associated with *sing*:

- (420) **Mary sang the *Marseillaise*.**  
**Past₁ [sing (Mary, song, *l*) ]**
- (421) **Mary always sings the *Marseillaise*.**  
**Always₁ [sings (Mary, song, *l*) ]**

By contrast there seems to be no present-tense analogue to the past-tense morpheme in (417b) with the capacity to bind the open *l*-position. Thus, (422) can only be interpreted if there is an implicit adverb of quantification. As in our discussion of Kratzer's work, we may assume that the default implicit adverb is generic or universal. Enç concludes that there is no present-tense analogue to the past-tense morpheme because *there is no present-tense morpheme in English*. Sentences interpreted as present tense are interpreted due to a default procedure that identifies the time of tenseless sentences with the evaluation time, but they contain no morpheme that explicitly ties them to present tense. I will thus refer to the so-called "present tense" in English as "tenseless", which I will carefully distinguish from "non-finite". If no adverb or other binder is assumed for *l* in a tenseless finite sentence, the result is an unbound occurrence of *l*:

- (422) **Mary sings the *Marseillaise*.**  
***[sings (Mary, song, *l*) ]**

This leads to a prediction. If Kratzer is correct concerning the absence of the *l*-position in individual-level verbs, such verbs should be fine in a tenseless form, as they are:

- (423) **Mary knows French.**  
**[knows (Mary, French) ]**

Copular and progressive *be*, along with perfective *have* must count as individual-level predicates, even when their complement is stage-level:¹⁰⁶

- (424)a. **Mary is singing the *Marseillaise*.**  
 b. **Mary is drunk.**  
 c. **Mary has sung the *Marseillaise*.**

The absence of an *l*-place in individual-level predicates means that there is no temporal position that needs to be bound. The converse is not true. We can see this in two ways. First, the past tense morpheme cooccurs freely with individual-level predicates; it does not bind an open *l*-place but modifies the time of the sentence in some other way.¹⁰⁷



(425) **Mary knew French**  
**Past [know (Mary, French) ]**

Second, as Enç points out (personal communication), past tense examples like (417b) with stage-level predicates may receive a generic interpretation as well as the reading discussed above. If the generic interpretation arises from an implicit adverb of quantification, then given Kratzer's prohibition (215) against Vacuous Quantification by adverbs of quantification we must assume that the past tense morpheme does not bind the *l*-place, so as to leave it free for the adverb:

(426) **Mary (generally) sang the Marseillaise.**  
**Past generally₁ [sings (Mary, song, 1) ]**

*If*- and *when*-clauses licensed by adverbs of quantification cooccur with bound *l*-places in tenseless finite clauses:

(427)a. **If Bill says *merci*, he pronounces it incorrectly.**  
b. **When a Moroccan speaks French, he speaks it well.**

Here the implicit adverb of quantification binds the *l*-place associated with the verbs in the *if*-clause and in the matrix, just like the overt adverbs in (418) and (421). If they did not, then Kratzer's prohibition against Vacuous Quantification in (215) would be violated.

### 3.4.1.2 Modals

Questions arise concerning the *l*-place when we examine *if*-clauses licensed by an epistemic modal like *must*:

(428)a. **If John talks to Mary, he must drink champagne.**  
b. **If John sings that out of tune, he must sing in the shower.**  
c. **If Sue breaks her leg, she must ski with the children.**

Either the modal in the matrix clause binds the *l*-place associated with the predicates in (428), or else some other element performs this duty. In fact, the examples in (428) have only a generic interpretation for the predicates of the antecedent and consequent clauses. Therefore, the epistemic modal *must* is not a binder for the *l*-place, which must rely on an implicit adverb of quantification. The same can be seen in simpler examples, as Enç notes:

(429)a. **Sally must drive to school.**  
b. **John must sing in the shower.**  
c. **They must ski with the children.**

On the epistemic reading of *must*, the untensed verb in (429) must be interpreted as generic, which we expect if an implicit adverb of quantification is the only available binder for the *l*-place of *drive*.¹⁰⁸

On the other hand, not all epistemic modals behave the same way. The "emotive" modal *should* in a factive clause appears to bind an *l*-place in that clause much as tense does. That this is a property of *should* and not of factives in general can be seen in (431a-b), which lacks *should*. There the embedded verb can only receive a generic interpretation. No such interpretation is necessary with *should* in (430):

- (430)a. That John should sing the *Marseillaise* is upsetting.  
 b. I resent it deeply that you should sing the *Marseillaise*.
- (431)a. That John sings the *Marseillaise* is upsetting.  
 b. I resent it deeply that you sing the *Marseillaise*.

I do not have any explanation for the difference between *must* and *should*. Indeed, the semantics of *should* remain quite elusive (though cf. footnote ???). Let us leave it at this: in certain factive clauses a characteristic epistemic modal appears to act like tenses and adverbs of quantification in binding the *l*-place posited by Kratzer and Enç for stage-level predicates. This observation, incomplete though it is, will be important in the next section, where we examine infinitival complements and propose a non-finite analogue to *should*.

Irrealis conditionals raise questions similar to those raised by *should*.¹⁰⁹ Here too, we find that stage-level predicates do not require a generic interpretation. This is true, both of counterfactuals with *would* and future conditions with *will*. Thus (432a) can be true at only the utterance time (or evaluation time), and (433a) may be true at only one moment in the future. Note that the (c) examples rely on IC if they are interpreted with the position of *it* linked to the *if*-clause:

- (432)a. If John sang the *Marseillaise*, we would leave the room.  
 b. If Mary said anything in French, Ken would answer in Nivkh.  
 c. We would hate it if Sue entered the room right now.
- (433)a. If John sings the *Marseillaise*, we will leave the room.  
 b. If Mary says anything in French, Ken will answer in Nivkh.  
 c. We will hate it if Sue enters the room right now,.

In the examples with *would*, we might suppose that the past tense morphology that characterizes the protases, like real past tense, can bind the *l*-place on its own. This might be true, but does not extend to the examples with *will*. Here, as Enç notes, the apodasis is interpreted as future, but is morphologically tenseless. This fact suggests that the matrix modal *will* supply the binder for the embedded verb's *l*-place, an analysis which I will extend to the examples with *would*. The evidence is insufficient to distinguish between this and the past-tense hypothesis, but a parallel treatment for *would* and *will* is suggested by the fact that *would* itself is morphologically a past tense of *will* (cf. *can/could, shall/should*):

- (434)a. **would_{i,j}, if sang (John, M., l_i), leave (we, room, l_j)**  
 b. **will_{i,j}, if sing (John, M., l_i), leave (we, room, l_j)**

### 3.4.1.3 Locality of Binding

The binding abilities of tense, adverbs of quantification and modals like *should, would* and *will* are subject to fairly severe syntactic locality conditions. For tense, Enç notes (in a footnote) that the embedded clause in structures like (435) can only receive a generic interpretation. This tells us that the past tense morpheme can only bind an *l*-place in its own clause:

- (435) John *Past* said I [CP that he sees us I.]  
 A~~~~~X~~~~~U

For adverbs of quantification, the relevant domain seems to be the clause that contains the adverb and the matrix clause of the restriction created by any *if*-clause. In (436a), *rarely* binds the *l*-place of both *says* and *pronounces*, yielding the reading *there are few occasions x such that Bill says merci at x and he pronounces it correctly at x*. In (436b), by contrast, there is no

reading in which Bill says *merci* at the same time he pronounces it correctly (or Sue makes her claim). If (436b) has any sensible reading, it is only *there are few occasions x such that Sue claims at x that Bill generally says merci and Bill pronounces it correctly at x*.

- (436)a. If Bill says *merci*, he rarely pronounces it correctly  
 b. If Sue claims Bill says *merci*, he rarely pronounces it correctly.

(437) rarely [if Sue claims *l* [_{CP} Bill says *merci l* ] ]...  
 A~~~~~X~~~~~U

Similar facts hold for modals. Example (438), unlike (433a), can only mean *at some (contextually given) future time x if Mary claims at x that John generally sings the Marseillaise then we will leave the room at x*. The modal *will* cannot bind the *l*-place of the clause embedded under *claim*:

(438) If Mary claims that John sings the *Marseillaise*, we will leave the room.

(439) will [if Mary claims *l* [_{CP} that John sings the *M. l* ] ]...  
 A~~~~~X~~~~~U

The generalization seems to be (440):

- (440) **Locality Condition on *l*-binding**  
 If a CP intervenes between an *l*-place and its binder, that CP is the restricting term.

With this treatment of tense and the *l*-place in mind, let us turn to infinitival complements.

### 3.4.2 Tense and Mood in Simple Infinitival Complements

In this subsection, we will see that infinitival complements with  $\emptyset_{prop}$ ,  $\emptyset_{for}$  and overt *for* fit quite naturally into the picture painted by Enç. In the following subsection, we will see how factive and implicative clauses at first fail to fit this picture. The resolution to this problem will turn out to entail the resolution to our general problem concerning the syntax of these clauses.

#### 3.4.2.1 Tense and $\emptyset_{prop}$ -clauses

Infinitives in English are generally regarded as untensed.¹¹⁰ The behavior of infinitival complements of *believe*- and *wager*-class verbs therefore comes as no surprise: they act just like tenseless finite verbs. (441a) is straightforwardly acceptable, since the individual-level predicate *know* has no *l*-place (cf. (423)). On the other hand, *sing* in (441b) has only a generic interpretation, since it does have an *l*-place. The default implicit adverb of quantification is the only possible binder for this place. Example (442) behaves similarly:¹¹¹

- (441)a. Bill believes Mary to know French.  
 b. Bill believes Mary to sing the *Marseillaise*.

- (442)a. Mary was wagered to know French.  
 b. Mary was wagered to sing the *Marseillaise*.

Once again, copular *be* and perfective *have* behave like individual-level predicates (compare (424)):

- (443)a. We believe Mary to be singing this song.  
b. We believe Mary to be drunk.  
c. We believe Mary to have sung this song.

Embedded adverbs of quantification license stage-level predicates in these infinitives, as they do in finite clauses. The examples are not quite as good as (441a), but are basically acceptable and have non-generic readings. The pattern of judgments clearly mirrors that for untensed finite clauses:

- (444)a. ?Bill believes [Mary to sing the *Marseillaise* rarely].  
b. ?The church considered [Bill to sin often when he started sinning more than once a week].  
c. ?Mary was conjectured [to visit New York often].  
d. Bill is said [to generally eat his fish raw].

### 3.4.2.2 *Tense and $\emptyset_{for}$ -clauses*

Now let us turn to infinitives whose complementizer is overt *for* or  $\emptyset_{for}$ . These are complements to *want*-class predicates; complements to modalized and adverbialized clause with *hate*-class predicates; subjects of adjectives like *common*; and complements to *demand*-class predicates. Recall from (427) that a matrix adverb of quantification may bind an *l*-place within its scope inside the *if*-clause (subject to the Locality Condition discussed above). Recall further from (434) that a modal like *would* and *will* may bind the *l*-place of predicates within its scope (again subject to the Locality Condition discussed above). Finally, recall that *want* predicates incorporate a modal with the meaning of *would* in their lexical semantics. This modal is unpacked by the interpretive rule first introduced in section ???. If *l*-place binding follows the rule that unpacks *want* and other *want*-class and *demand*-class predicates, there should be no problem with stage-level predicates in complements with *for* or  $\emptyset_{for}$ . This is correct. The (a-c) sentences of (445)-(446) show environments in which a counterfactual modal binds the *l*-place of the complement clause verb (after unpacking, in the case of the (a) and (c) sentences). The (d-e) sentences show environments in which adverbs of quantification binds this *l*-place:

- (445)a. Bill wants very much for Mary to sing the *Marseillaise*.  
b. Bill would hate for Mary to sing the *Marseillaise*.  
c. Bill asked politely for us to sing the *Marseillaise*.  
d. Bill always hates for students to sing the *Marseillaise* translated into Nivkh.  
e. For a student to sing the *Marseillaise* is common.
- (446)a. Bill wants to sing the *Marseillaise*.  
b. Bill would hate to sing the *Marseillaise* in Nivkh.  
c. Bill asked to sing the *Marseillaise*.  
d. Bill always hates to sing the *Marseillaise* in Nivkh.  
e. To sing the *Marseillaise* off-key is common.

These observations provide indirect support for our analysis of sentences with *for* and  $\emptyset_{for}$  complements as conditionals. Nonetheless, our analysis rests crucially on a particular ordering among post-LF processes, or else we will violate the Locality Condition on *l*-binding in (440). Consider the post-LF derivation of (446a), given in (447). I represent the *l*-place explicitly in the syntactic structure for convenience:

(447)

- a. Bill wants [ $\emptyset_{for}$  [PRO to sing the *Marseillaise* *l*]--->[decomposition]
- b. Bill would like [ $\emptyset_{for}$  [PRO to sing the *Marseillaise* *l*] --->[IC]
- c. Bill would like [ $_{CP}$  that [PRO sing the *M.* *l*] [if PRO sing the *M.* *l*]

In structure (447c), after the application of IC, the *l*-place of the *that*-clause is separated from *would* by a CP boundary. We can see that this is impossible by examining the paraphrase with *would like* directly:

(448) Bill would like it that Mary sings the *Marseillaise* if Mary sang the *Marseillaise*.

In (448), *sings* has only the generic reading. We have two options. First, the crucial *l*-place in (447c) might be bound by *would* as a copy of an *l*-place legally bound by *would* before IC. In other words, *l*-binding would take place in structure (447b), after *would* is unpacked from *want*, but before the restricting term is copied onto a *that*-clause. The *that*-clause copy will inherit its index from the restricting clause original.

(449)

- a. Bill wants [ $\emptyset_{for}$  [PRO to sing the *Marseillaise* *l*]--->[decomposition]
- b. Bill would like [ $\emptyset_{for}$  [PRO to sing the *Marseillaise* *l*] --->[IC]
- c. Bill would_{*i*} like [ $\emptyset_{for}$  [PRO to sing the *Marseillaise* *l*_{*i*}] --->[IC]
- c. Bill would_{*i*} like [ $_{CP}$  that [PRO sing the *M.* *l*_{*i*}] [if PRO sing the *M.* *l*_{*i*}]

If the Locality Condition on *l*-binding were required to be “surface-true”, then the *l*-place would suffer the fate of a negative polarity item, losing its licenser in the copy that loses its *if* in favor of *that*.¹¹²

Alternatively, one might instead propose that IC does not merely replace *if* with a form of *that*, but also adds a factive modal like *should*. This modal would be responsible for binding the *l*-place after IC, as in the somewhat stilted paraphrase:

(450) If Mary sang the *Marseillaise*, Bill would like it that Mary should sing the *Marseillaise*.

This process of modalization would presumably have something to do with the ill-understood connection between IC and factivity, discussed in section ???. This hypothesis might be plausible, but we simply do not know enough about post-LF syntax to be clear about the matter. I will therefore stick to the hypothesis of the previous paragraph, though there is no particular reason not to make the opposite choice.

For now, the picture of Post-LF syntax looks like (451), a revision of (353):

(451)

- S-structure/LF:** 1. Local Binding Requirement/Binding Theory
- Post-LF:** [Clause (iii) of the Projection Principle does not hold.]
2. Decomposition of verbs like *want*
  3. Binding of *l*-place
  4. IC
  5. Negative Polarity Licensing
- $\theta$ -criterion holds

### 3.4.3 Tense, $\emptyset_{fac}$ - and $\emptyset_{impl}$ -clauses

#### 3.4.3.1 Mysterious Category *z*

Finally, let us turn to the problematic class: factive and implicative predicates. Let us review the nature of the problem. The syntax of  $\emptyset_{fac}$  and  $\emptyset_{impl}$  seems identical to the syntax of  $\emptyset_{prop}$ . These complementizers appear to be [-Affix], undergoing obligatory C-to-V movement. This means that factive and implicative infinitivals are just as bad in subject position and with nominals as  $\emptyset_{prop}$ -clauses are (as demonstrated in sections 3.3.1 and 3.3.4). Unfortunately, this sort of behavior should correlate with IPs whose syntax is also identical to the syntax of IPs under  $\emptyset_{prop}$ . We expect ECM to be possible when the higher verb is non-agentive, NP-trace also to be possible; and PRO to be impossible. Each of these expectations is wrong: ECM is impossible, NP-trace is impossible, and PRO is possible. As I noted above, if C-to-V movement entails that V governs what the trace of C governs, we can protect the embedded subject from government by the higher V in  $\emptyset_{fac}$  and  $\emptyset_{impl}$  clauses only if we protect the embedded subject from government by C. This means that there must be some category, whose nature is mysterious, intervening between C and the subject, and blocking government. Let us call this mystery category *Category z*.

Let us return to our discussion of the *l*-place. I have adopted Enç's idea that the *l*-place of stage-level predicates must be bound. In the discussion so far, Tense, adverbs of quantification, and certain modals have been shown to function as binders, subject to the locality condition in (440). In tenseless sentences (non-past finite clauses and infinitives), only the latter two categories are available as binders. For infinitives with  $\emptyset_{prop}$ , only adverbs of quantification in the embedded clause can do the job. In infinitives with  $\emptyset_{for}$  and *for*, adverbs of quantification and (usually irrealis) matrix modals do the job — the same elements that license  $\emptyset_{for}$  and *for* in the first place. The Locality Condition will rule out matrix Tense as a licenser.

When we pursue this investigation in the domain of factive and implicative infinitives, we are led to posit the second mysterious element of this section. Something licenses the *l*-place of stage-level predicates embedded under factive and implicative verbs. As we have seen, factive and implicative complements are not necessarily found in the environments that license  $\emptyset_{for}$  and *for*.¹¹³ There is no irrealis modal packed into the factive or implicative predicate, nor is the embedded clause necessarily understood as generic:

(452) **Factives (with  $\emptyset_{fac}$ )**

- a. Bill hated to learn about the defeat.
- b. Sue loved to ride in the back seat yesterday.
- c. John was happy to sing the *Marseillaise* for the mayor.

(453) **Implicatives (with  $\emptyset_{impl}$ )**

- a. Bill managed to learn about the defeat.
- b. Sue condescended to ride in the back seat yesterday.
- c. John was careful to sing the *Marseillaise* for the mayor.

At this point, we can see the relevance of Enç's observations concerning binding and the *l*-place to our syntactic problem with factive and implicative predicates. I suggest that unknown element that binds the *l*-place of the embedded verbs in (452)-(453) is the same as our mysterious Category *z* that protects the embedded subject from government by C.

What sort of element is this Category *z*, and how does it interact with government? Here matters become difficult. We must determine what position Category *z* occupies in order to understand its interaction with government. To know something about its position, we must know something about its nature. If we learn more about its nature, we will also have more evidence for its existence. I believe that there is fairly persuasive circumstantial evidence concerning the nature and position of *z*, which I present in the following sections. Unlike our discussion of  $\emptyset_{for}$ , in which there were solid arguments for its identity as a relative of *if* and for its position in C, our discussion of Category *z* will have to rest on circumstantial evidence and plausibilities. The results currently available are simply not strong enough to clearly support one option over all the others.

I begin with a discussion of the syntactic position of Category *z*. In this domain, there are at least two plausible proposals. The first is compatible with a quite conservative view of the nature of government, that inherited from Chomsky (1986b) and adopted in much subsequent work. The second requires a good deal more adjustment of the surrounding theoretical apparatus, but is more promising when we turn to the identity of Category *z* and its semantic properties. I will present both, in the end adopting the second, but without terribly strong justification.

### 3.4.3.2 *The C* Hypothesis*

The first proposal might view Category *z* as a "secondary complementizer" C* between C and *to*. Let us call this proposal the **C* Hypothesis**. C*, like  $\emptyset_{for}$ , would be [-Affix]. Since it is phonologically null at D-structure, it would be a non-governor at S-structure by the same stipulation (given in (153) and (416)) that makes the zero complementizers non-governors. Examples (454) and (455) show the structure of (452a) and (453a) after C-to-V movement, assuming the existence of C*:

The traces of  $\emptyset_{fac}$  and  $\emptyset_{impl}$  would be prevented from governing the subject of IP across C*P, perhaps because in the government theory of Chomsky (1986; *Barriers*) C*P would inherit barrierhood from IP.¹¹⁴ The subject would remain in IP if the specifier position of C*P were an A-bar position, like the specifier of CP.

From the perspective of current notions of government, the C* Hypothesis is by far the simpler of the two alternatives that I will consider. If the complex consequences of the second alternative are too daunting or wrong, we may fall back on the C* Hypothesis as a workable option. Internal to the C* hypothesis, it might or might not turn out that there is some reason to distinguish factive C* from implicative C*. I will return to this question below.

### 3.4.3.3 The *to** Hypothesis and the Nature of Government

The second alternative proposes that Category *z* is *to* itself, occupying INFL. Suppose *to* has two uses. In the standard use, *to* is a semantically vacuous marker of non-finiteness. In the other use proposed here, *to* would have semantic content, of a sort to be discussed below. Let us call *to* in this second use *to**. As with the C* Hypothesis, we might wish to distinguish the *to** found with factives from the *to** found with implicatives, but I shall begin by not making this extra distinction.

Both *to* and *to** would occupy the INFL position. The theory of government would be designed so as to allow C to govern the specifier of *to* but not the specifier of *to**. This result would be obtained if the notion of government were sensitive to the difference between purely grammatical morphemes (e.g. *to*) and morphemes with semantic content (e.g. *to**). Consider the configuration in (456):

(456) C [_{IP} NP [_I, INFL VP]]

Where INFL is a form of *to*, it is a non-governor. Nonetheless, we will want it to block government of the subject by C when *to*=*to**, that is, when *to* has semantic content sufficient to bind the *I*-place in VP. This is a situation familiar from discussions of Minimality conditions on government. The basic idea of Minimality is that government of  $\beta$  by  $\alpha$  may be blocked by “closer” elements under certain conditions. Thus, Chomsky (1976b, 42) proposes the following Minimality Condition on government:

(457) In the configuration ... $\alpha$ ...[ $\gamma$ ... $\delta$ ... $\beta$ ...] (order irrelevant),  
 $\alpha$  does not govern  $\beta$  if  $\gamma$  is a projection of  $\delta$  excluding  $\alpha$ .

In this broad notion of government,  $\alpha$  may not govern  $\beta$  when  $\beta$  is a specifier or complement of  $\delta$ . A condition of this sort will prevent government of the subject NP by C in (456) under all circumstances. This is obviously too strong for the subject of infinitival complements to *believe*- and *wager*-class predicates, which are governed from C (and therefore by the higher V, after C-to-V movement). It is also too strong for the subject of infinitival complements to *want*-class predicates, which in ECM cases are governed from C after C-to-V movement at LF. On the other hand, (457) is just right for cases in which  $\delta$  is *to**. Under such circumstances, no matter what happens to  $\alpha$  (C in this case),  $\alpha$  does not govern  $\beta$  across  $\gamma$ . Suppose we restrict  $\delta$  in (457) to elements with a semantic function. Then *to* will not block government by C, but *to** will:

(458) In the configuration ... $\alpha$ ...[ $\gamma$ ... $\delta$ ... $\beta$ ...] (order irrelevant),  
 where  $\delta$  has semantic content,  $\alpha$  does not govern  $\beta$  if  $\gamma$  is a projection of  $\delta$  excluding  $\alpha$ .

We also need to ensure that antecedent government is not ruled out where it is needed. Thus, in a *Barriers*-style analysis (following Lasnik and Saito (1984)), intermediate traces of successive-cyclic adjunct movement may be antecedent-governed in apparent violation of (458):

(459)  
 How_i did [_{IP} Bill INFL [_{VP} t''_i[_{VP} say  
 [_{CP} t''_i that [_{IP} Mary INFL [_{VP} t'_i[_{VP} fixed the bicycle t_i]]]]]]

Given (457), *how* should be blocked from governing t''_i by INFL, on the assumption that tensed INFL has semantic content; t''_i should be blocked from governing t'' by the verb *say*; and t'' should be blocked from governing t'_i by INFL. If this approach is right, then antecedent-government by maximal projections must not be subject to (458). This is in accord



with the general scheme advocated by Rizzi (1989), under which minimality is “Relativized”, so that certain types of heads block government by other heads, and certain types of maximal projections block government by other maximal projections. Without attempting to develop an integrated view of this sort, I will restrict (458):

(460) In the configuration ... $\alpha$ ...[ $\gamma$ ... $\delta$ ... $\beta$ ...] (order irrelevant),  
 where  $\alpha$  (and  $\delta$ ) are X^os, and  $\delta$  is an element with semantic content,  
 $\alpha$  does not govern  $\beta$  if  $\gamma$  is a projection of  $\delta$  excluding  $\alpha$ .

Finally, let us consider A-movement. Within a maximal projection, from complement to specifier of VP, for example, both lexical and antecedent government will obtain. Questions arise concerning movement from specifier to specifier. Consider a configuration in which A-movement is attempted from the subject position of *to** to the specifier of a higher VP. A-movement may not proceed through the specifier of C, since this would involve movement from an A-bar position back to an A-position, which is not permissible:

(461)a. *Bill_j was hated t_j to win the prize.  
 b. NP_j [ $\emptyset_{fac_i}$  [hate]] [_{CP} t_i [_{IP} t_j to* ...]]

Since *to** has semantic content, the trace of  $\emptyset_{fac}$  does not govern t_j. Suppose an A-bound trace must be lexically governed. Then since t_j is not governed by the trace of  $\emptyset_{fac}$ , it is not governed by *hate*; the GTC has no effect, which is what we desire. Compare A-movement from the subject position of simple *to* in the complement to a *believe-* or *wager-*class verb:

(462)a. Bill_i was believed t_j to know French.  
 b. NP_j [ $\emptyset_{prop_i}$  [believe]] [_{CP} t_i [_{IP} t_j to ...]]

Here, since *to* lacks semantic content, it does not prevent government of the subject trace by the trace of  $\emptyset_{prop}$ . By the GTC, the subject trace is governed by *believe* as well, which is the desired result. Complementizers are not “lexical” in the sense required by the ECP, but verbs are. Problems arise with NP-movement out of the specifier position of VP, or out of the specifier position of auxiliaries:

(463)a. Bill_i must [_{AUXP} t' _i have [_{VP} t_i left the room ]]

Consider t_i. Since the verb *leave* has semantic content, its VP should be inaccessible to government from outside. Here we might develop a number of ways out. One possibility would restrict  $\delta$  in (458) to functional categories like C, INFL and, perhaps D, excluding V and Aux (which would pattern with V here). Another possibility would exploit relativization of (458), so that only C and INFL are sufficiently “alike” for the latter to block government by the former. In following up the *to** option, I will accept the first of these possibilities, stipulating that minimality as in (460) holds only of functional elements (counting auxiliaries as verbs here):

(464) **Minimality**  
 In the configuration ... $\alpha$ ...[ $\gamma$ ... $\delta$ ... $\beta$ ...] (order irrelevant),  
 where  $\alpha$  (and  $\delta$ ) are functional X^os, and  $\delta$  is an element with semantic content,  
 $\alpha$  does not govern  $\beta$  if  $\gamma$  is a projection of  $\delta$  excluding  $\alpha$ .

This restriction will also allow verb movement to INFL, without worrying about VP blocking lexical or antecedent government after movement. INFL-to-C movement may raise a variety of questions, which I will not explore.

### 3.4.3.4 The Nature of Category z

In any case, a feasible syntax can be developed in which Category z is a secondary C or a variety of *to*. Either way, Category z will block government of the specifier of IP by C. Once we consider the other properties of Category z, the *to** hypothesis seems somewhat more attractive than the *C** hypothesis, despite the fact that it requires us to be somewhat more adventurous concerning the definition of government. In addition, we will find a bit of evidence suggesting the need to distinguish *to** for factives from *to** for implicatives.

Remember that Category z is needed, not merely to block government (this might simply be an artifact of wrong-headed analysis) but also as a binder for the *l*-place of stage-level predicates. Let us consider how *C** or *to** might play that role. Our overall goal in this chapter is to explain the differences among infinitival complements by appealing to the semantic properties of the sentences in which they occur, and in particular the predicates that select them. We accomplished most of this goal for  $\emptyset_{for}$  and *for*, where we analysed these infinitives as covert conditionals, licensed by modals and adverbs in the matrix clause. For factive and implicative infinitival clauses, we have not reached this point. We know that these clauses are headed by [-Affix] null complementizers, but there is nothing in these clauses that explains why they are factive or implicative in nature. I suggest that this role is played by Category z.

We have already seen that finite factive clauses may contain a modal *should*, which, like Tense, can bind the open *l*-place of a stage-level predicate. A natural candidate for Category z is a non-finite modal which shares this ability with *should*. I stop short of fully identifying Category z with *should* because *should* has complex and elusive semantic properties that are not well-understood (see footnote ???) above. Since *to* appears to occupy the position of modals in finite sentences (the inflection position: INFL) the identification of Category z in factive clauses with a modal would support the *to** hypothesis over the *C** hypothesis. *To** would be a mood marker. Furthermore, *to** would bring factive infinitives in line with finite factive clauses in languages like Catalan (Picallo (1985)) or Spanish (Kempchinsky (1986), from whom (465) is drawn; Laka (1990)), where instead of the (optional) modal *should*, we find subjunctive mood (which is obligatory):¹¹⁵

(465)a. **Siento que tu padre esté enfermo.**  
**I-am-sorry that your father is-SUBJ sick**

b. **Le molestaba que sus padres nunca le permitieran salir.**  
**Her bothered that her parents never her permitted-SUBJ go-out**

Turning to implicatives, we have less guidance in identifying Category z. One reason for this is the (unexplained) fact that few implicative predicates (*remember*, *forget*) take finite complements, and none are fully acceptable with finite complements and implicative meaning. Thus *remember that IP* involves a use of *remember* in which it takes a propositional complement.¹¹⁶ Nonetheless, to my ears, certain implicative finite clauses are marginally possible, and curiously *should* appears, once again apparently binding the *l*-place of embedded stage-level predicates:¹¹⁷

(466)a. **??Bill somehow managed that Mary should get the prize.**

c. **??Sue was careful that Bill should remain safe.**

To the extent that these two examples are acceptable at all, they do have the semantic properties of implicatives. The truth of the embedded clause is entailed, but not presupposed. Thus, for example, negating the matrix verb yields a negative implication concerning the embedded clause:

(467)a. ??Bill didn't manage that Mary should get the prize.  
[entails: *Mary did not get the prize.*]

b. ??Sue wasn't careful that Bill should remain safe,  
[entails: *Bill did not remain safe*]

Karttunen notes that the idiom *see fit* is also implicative. This idiom, in my judgment, is even happier than *manage* or *careful* with finite complements, and practically requires *should*:

- (468)a. *Mary saw fit to speak French.*  
b. ?*Mary saw fit that he should speak French.*  
c. **Mary saw fit that he speaks French.*

Thus, we might assume that implicative complements, like factive complements, contain a mood marker of some sort: a sort of non-finite *should*. This would once again support the *to** hypothesis over the *C** hypothesis. Conceivably, this mood marker might be the same as the one hypothesized for factive infinitival complements, or perhaps it is has different properties. I will leave this question open.

There is other evidence that supports the conclusion that there is something special about the INFL position in implicative complements. This evidence also suggests the correctness of the *C** hypothesis. The Tense of implicative complements is understood in a special fashion. It is quite rigidly bound to the tense of the matrix predicate. This was first observed by Karttunen (1971), who was the first to catalogue the properties of implicative predicates and the first to attempt to understand them. His explication of implicative predicates rests solely on an analysis of their meaning. Interestingly, the special behavior of tense does not seem to be explained in this way, which will support my suggestion that something special needs to be said about the embedded INFL position. Let us begin by surveying the properties of implicative complements explained by Karttunen.

As mentioned in section 2.15, among the notable properties of implicatives is their behavior under negation. Unlike factive predicates, the complement to implicatives lies within the scope of main clause negation, the truth of the complement being asserted rather than presupposed:

- (469)a. *Bill didn't manage to solve the problem --->*  
*Bill didn't solve the problem.*  
b. *Mary didn't bother to lock the door --->*  
*Mary didn't lock the door.*  
c. *Mary didn't remember not to lock the door --->*  
*Mary locked the door.*

Karttunen also notes special behavior with *yes/no* questions:

- (470)a. *Did John manage to solve the problem?*  
b. *Did John solve the problem?*

He notes that an affirmative answer to (470a) "clearly commits the speaker to the view that John solved the problem; a negative answer denies that he did. That is, whatever answer one gives to (470a) implies the same answer to (470b)...If one already knew the answer to (470b), there would be no reason to ask (470a)". Other classes of predicates do not behave this way, including factives. When one asks (471a), one is not asking (471b):

- (471) a. Was John upset to hear that it was raining?  
b. Was it raining?

Karttunen's lucid characterization of implicative predicates provides an explanation for these facts:

"It is assumed there is some necessary and sufficient condition, expressed by the main [implicative] verb, which alone determines whether the event described in the complement took place. This crucial factor may consist of showing enough skill and ingenuity in one's attempt, as in *manage*, keeping one's commitment in mind, as in *remember*, or making an effort, as in *bother*, etc... Let  $v$  stand for any implicative verb and  $S$  for the sentence that manifests itself as the infinitival complement of that verb in the surface structure. I assume that, in the representation of the main clause,  $v(S)$  constitutes the central part of the proposition to which negation, modals, and time and locative references are attached. Leaving out these other details, the semantic analysis of the whole sentence can be represented by the following schema:

- (472)  
PRESUPPOSITION:  $v(S)$  is a necessary and sufficient condition for  $S$ .  
PROPOSITION:  $v(S)$

...[T]he propositional component carries the illocutionary force of the utterance. Only that part is asserted or questioned. The presupposition represents what the speaker must believe in making the utterance.

"As informal and schematic as this analysis is, it makes many of the facts discussed [above]...easy to understand. For example, if the main sentence is an affirmative assertion, it states, according to the speaker's supposition, that a sufficient condition for the truth of the complement sentence is fulfilled. Thereby the speaker indirectly asserts that the complement is also true. A negative assertion claims that a necessary condition for the truth of the complement is not fulfilled; therefore it must be false. If the main clause is questioned, the speaker must be ignorant of whether the complement sentence by itself would make a true assertion." (p.352)

The examples involving negation and yes/no questions above do not exhaust the properties of implicative clauses as discussed by Karttunen. Certain other properties are not adequately accounted for in Karttunen's discussion. Most notably, Karttunen points out that the main clause and the embedded clause must agree in understood tense reference:

- (473) a. *John remembered to lock his door tomorrow.  
b. *John managed to solve the problem next week.  
c. *John saw fit to arrive the day after tomorrow.

As Karttunen notes, although there are non-implicative verbs like *hope* that require the embedded clause to involve a time later than the matrix, there are no non-implicative verbs that require identity of understood tense (but cf. note ??? above).

This observation can be clarified a bit. An infinitival complement to a past-tense *believe*-class sentence also requires some sort of formal identity in tense interpretation. For example, in (474), we understand both matrix and subordinate clause as involving past time:

- (474) John believed Mary to know French.

This “formal” requirement is probably related to the fact that *John knows French* is interpreted as present tense. In the latter case, the default interpretation of an untensed finite clause is the utterance time. In (474), it is the evaluation time set up by the matrix clause. Thus, in (475a), progressive *be* in the infinitival complement to *believe* yields a future interpretation with respect to the evaluation time set up by the matrix. This phenomenon is found in finite clauses as well, as seen in (475b). In (475b) the embedded clause is future with respect to the evaluation time set up by the matrix clause. Nothing of the sort is possible in implicative infinitival complements, as (476a) shows. The highly marginal (476b), with a finite complement to *manage*, once again acts like the finite complement in (475b), and not like its infinitival counterpart.

- (475) a. **Yesterday, John believed Mary to be leaving today/tomorrow.**  
 b. **Yesterday, John believed that Mary was leaving today/tomorrow.**
- (476) a. ***Yesterday, John managed to be leaving today/tomorrow.¹¹⁸**  
 b. **??Yesterday, John managed that he should be leaving today/tomorrow.¹¹⁹**

Let us account for (475a-b) and (476a) as follows: progressive *be* may form an idiom with INFL in which INFL is interpreted as future relative to the evaluation time.¹²⁰ Then we may explain (476a) as a violation of the requirement that INFL in implicative counterparts must be an exact copy of the matrix INFL.

Karttunen claims to account for this copying requirement by the assumptions quoted above, but those assumptions seem insufficient to the task. The scheme in (472) says nothing about the spatio-temporal location of  $v(S)$  with respect to  $S$ . Thus one might perfectly well imagine a verb *mynage* whose meaning is like *manage* (i.e. *John mynages f* is a necessary and sufficient condition for  $f$ ) but which does not require any identity between the time of *managing* and the time of  $f$ . Indeed, the marginal use of *manage* with a tensed clause in (467a) seems to be a fair approximation of *mynage*. If *John managed to win the prize*, then John’s efforts must coincide in some fashion with the time of winning, but if *John managed that Mary should win the prize*, his efforts might precede the winning by a significant length of time. Thus, the identity requirement on the matrix clause and embedded infinitive with implicative clauses does not arise from Karttunen’s semantics, but stems from some independent feature of these constructions. A logical feature to consider is Category  $z$ , i.e.  $C^*$  or  $to^*$ .

The hypothesis that implicative complements contain a Category  $z$  that binds the  $l$ -place of stage-level predicates suggests and a Category  $z$  that blocks government leads naturally to my suggestion that Category  $z$  is also responsible for this tense matching requirement. The postulation of Category  $z$  does not *explain* the matching requirement on Tense in implicatives, but it does provide a plausible syntactic setting for this requirement. Furthermore, the specific hypothesis that Category  $z$  is  $to^*$  and occupies INFL makes this setting even more plausible. INFL is the locus of Tense, which we have already identified, following Enç as one position from which the  $l$ -place may be bound in finite clauses.

Summarizing the hypotheses on the table: *to* in both its forms (simple *to* and  $to^*$ ) is a non-finite, non-agreeing morpheme that occupies INFL. In English (unlike Latin), non-finite INFL never bears lexical tense or overt modality. However, one form of *to*, which we have called  $to^*$ , is interpreted as tensed and modalized, taking its tense value from the Tense of the embedding clause and sharing distribution with modal *should*.^{121,122}

All these mechanics could equally be transferred to the  $C^*$  Hypothesis, which is simpler with respect to government theory, but then we would lose structural the parallel between  $to^*$  and Tense, since Tense is not located in  $C^*$  in finite clauses, but in INFL.¹²³ If  $to^*$  is also a mood

marker, we would likewise lose the parallel between *to** and mood, once again not located in C*, but in INFL.

If the *to** hypothesis is correct, we might think of *to** as a bound pronominal form of Tense, since it inherits the interpretation of its antecedent in full, including modifiers that restrict its temporal interpretation. This explains Karttunen's observation that temporal modifiers in the matrix clause are understood as modifying the event in the embedded clause as well. Karttunen points out, for example, that (477a) not only implies (477b), but also implies (477c):¹²⁴

- (477)a. **Yesterday, John managed to solve the problem.**
- b. **John solved the problem.**
- c. **John solved the problem yesterday.**

Things are more complicated, since (continuing to report Karttunen's observations) there is a clear difference between (478a) and (478b). Both imply (478c), but "give different impressions of what John was supposed to remember":

- (478)a. **Before he left, John remembered to call Mary.**
- b. **John remembered [to call Mary before he left].**
- c. **John called Mary before he left.**

Expanding on Karttunen's presentation, we may note that the time of remembrance and the time of calling are essentially the same in (478a) and (478b); therefore both precede the time of leaving. In (478b), however, remembering is presupposed to be a necessary and sufficient condition for *calling before leaving*, while in (478a), it is a necessary and sufficient condition merely for *calling*, and happens to have taken place before leaving. This shows that the theory should not mechanically copy adverbials from one clause to the other.¹²⁵

Much the same situation obtains with locative modifiers. (479a) and (479b) both imply (479c):

- (479)a. **At the door, John condescended to apologize.**
- b. **John condescended [to apologize at the door]**
- c. **John apologized at the door.**

The phenomenon in (479) is an artifact of the tense copying in (473). Generally parts of events that happen at the same time happen at the same place, hence the entailment of (479c). Once again, in (479a) condescending is a necessary and sufficient condition for apologizing, while in (479b) it is a necessary and sufficient condition for apologizing at the door.

Finally, let us return to *to** in factive infinitives. With respect to tense copying, factive infinitives behave more like *believe* than like *manage*. Recall the data in (475) and (476), which showed the difference between default tense interpretation (in the complement to *believe*) and what I am now regarding as a bound occurrence of Tense (in the complement to *manage*). Factive infinitival complements behave like *believe*, and not like *manage*. Thus, they are acceptable when *be* participates in an idiom that assigns future interpretation to Tense:

- (480)a. ***John hated to leave tomorrow.**
  - b. **John hated to be leaving tomorrow.**
- 
- (481)a. ***John was happy to leave tomorrow.**
  - b. **John was happy to be leaving tomorrow.**

This tells us that there is a difference between the *to** found in implicative infinitives and the *to** found in factive infinitives. Let us accordingly call *to** in factive infinitives *to_{fac}*, and *to**

in implicative infinitives *toimpl*. The following chart summarizes the properties of the various occupants of INFL (assuming the *to** Hypothesis to be correct):

(482) **Occupants of INFL**

	<i>to</i>	<i>toimpl</i>	<i>tofac</i>	<i>should</i>
blocks government by C	" no	yes	yes	? ¹²⁶
binds an I-place in VP	" no	yes	yes	yes
interpreted as a bound variable	" no	yes	no	no

### 3.5 Selection and the Repertoire of Complementizers

#### 3.5.1 *The Final Analysis*

When we considered *want*-class predicates, we learned quite clearly why these predicates select the kinds of infinitives they do. The semantics of *want* and its cohort unpacks as an irrealis factive verb. The irrealis component is in need of a conditional clause. The factive component is in need of a complement. Since *want* is, before unpacking, [-factive], and since the factive verb component takes a complement after IC, the Non-Factive Generalization in (358) requires it to take a complement at D-structure. If this complement is an infinitive, its complementizer must be have the meaning of *if*, so as to undergo IC. The complementizers that have this property are *for* and  $\emptyset_{for}$ , whose syntactic properties follow from their [-Affix] status and the theories of government and Case.

This account may be criticized on a number of grounds, most notably the appeal to the Non-Factive Generalization, some of whose flaws were discussed in section ???. Nonetheless, it provides a sensible and appropriate beeline from the semantic properties of *want* to its syntactic properties, given the repertoire of complementizers available in English.

I have not provided a comparable beeline from the semantic properties of factive and implicative verbs to the syntactic properties of their infinitival complements. Ultimately I will be unable to provide as complete a story for these verbs as I have for *want*. Nonetheless, there is a bit more that can be said. The account that I have provided pins the external behavior of infinitival clauses on the [+Affix] properties of the complementizers  $\emptyset_{fac}$  and  $\emptyset_{impl}$  and pins their internal behavior on the mood markers *tofac* and *toimpl*. Thus, there are two differences between factive and implicative clauses. In fact, this is one difference too many. There is no evidence distinguishing  $\emptyset_{fac}$  from  $\emptyset_{impl}$ . Both are [+Affix]; both are phonologically null; both are complementizers. It was convenient to identify  $\emptyset_{fac}$  and  $\emptyset_{impl}$  by clause-type, but nothing rested on this distinction. If we suppose that  $\emptyset_{fac}$  and  $\emptyset_{impl}$  are the same morpheme, then the one difference between factive and implicative infinitives lies in the occupant of INFL: *tofac* or *toimpl*. Let us call the reunited null complementizer simply  $\emptyset$ .

If the only distinction between factive and implicative complements is the identity of the occupant of INFL, we can finally make a proposal concerning the semantic identity of *tofac* and *toimpl*. Quite simply, *tofac* marks an infinitival clause as factive, while *toimpl* marks an infinitival embedded clause as implicative.¹²⁷ A factive clause is one whose truth is presupposed by the

speaker. An implicative clause (on Karttunen's analysis) is one whose truth is asserted by the speaker, since the event denoted by the matrix is a necessary and sufficient condition for the event denoted by the embedded clause to occur.¹²⁸

Now let us turn to infinitival complements to *believe*- and *wager*-class predicates. Under the analysis presented above, these infinitives are distinct from factive and implicative in two respects. First, they show the [+Affix] complementizer  $\emptyset_{prop}$ . Second, they show an inflectional morpheme *to* that lacks semantic content and consequently does not block government by C. Once again, this is one distinction too many. Once again, we have no reason to distinguish  $\emptyset_{prop}$  from the complementizers found with factive and implicative predicates. All are [+Affix]; all are phonologically null; all are complementizers. Clearly,  $\emptyset_{prop}$  should also be identified with  $\emptyset$ . Propositional infinitives differ from factives and implicatives only in the status of INFL, which is semantically contentless in propositional complements but contentful in factive and implicative complements. Indeed, there is little reason to distinguish any of these infinitival complementizers from the finite null complementizer  $\emptyset_{that}$ . Therefore, we may consider  $\emptyset_{prop}$ ,  $\emptyset_{fac}$ ,  $\emptyset_{impl}$  and  $\emptyset_{that}$  as different names for the same null complementizer  $\emptyset$ , which introduces both finite and non-finite IPs.

By contrast,  $\emptyset_{for}$  really does differ from  $\emptyset$ , in all the ways discussed above. It has the semantics of *if*, and is [-Affix]. Since  $\emptyset_{for}$  does govern the embedded subject,  $\emptyset_{for}$  clauses must be associated with simple *to*, rather than a semantically contentful *to*. (The same is true of overt *for*.)¹²⁹ This makes sense, since an *if*-clause is simply a proposition functioning as a restricting clause. If simple *to* is the propositional inflection element, it should occur here.

If we are to accept the proposal that there are three different varieties of morphemes *to*, we would obviously like to have data from other languages in which the distinctions among these non-finite inflections would be overt. We have seen, both in English and in Spanish, a distinction in *finite* clauses between propositional inflection and factive inflection (perhaps including implicatives), but nothing of the sort for non-finite clauses. In fact, Miskitu may provide some relevant evidence, though my information is incomplete and the data partially orthogonal to our discussion. Factive predicates allow finite and non-finite complements. Among non-finite complements with the infinitive suffix *-aia*, factive complements may follow *-aia* with the definite article *ba*, but *want*-class complements may not. It is possible (and plausible) that omitting *ba* with factive complements creates a generic reading of the sort discussed for English  $\emptyset_{for}$ , but this is uncertain:

(483) Saura pali kan [bâku ais-aia (ba)]  
 bad very was that say-infin the  
 'It was very bad to say that'

(484)a. Jan want-kan [bâku ais-aia]  
 John want-was that say-infin  
 'John wanted to say that'

b. *Jan want-kan [bâku ais-aia ba]

*Demand*-class verbs like *trai* 'try', unsurprisingly, pattern with *want*-class verbs in disallowing *ba*:

(485)a. Trai kaikri [dauk-aia]  
 try see-1pst do-it-infin  
 'I tried to do it'

b. *Trai kaikri [dauk-aia ba]



What is interesting is Miskitu's counterpart to implicative complementation. Forms in *-aia* may not be used in this context at all. Instead, a serialization construction is employed, of a sort also used for causative and perception-verb complements, in which the counterpart to the embedded verb in English bears main-clause inflection, and the counterpart to the matrix verb bears a proximate marker expected in an embedded clause. Furthermore, the predicates used in this construction are predicates that are otherwise useable as members of the *demand*-class:

(486)     Trai kaiki     [dauk-ri]  
           try see-PROX do-1-past  
           'I managed to do it'  
           ≈ 'I tried and did it'

I will not attempt to unravel the syntax of the construction in (486). What is most important for our purposes is the fact that infinitival *-aia* is unusable with implicative meaning. This provides one piece of what we are looking for: evidence that non-finite clauses may limit morphemes to one or another of the categories represented by *to*, *tofac* and *toimpl*. The association of factivity with the definite article, common cross-linguistically in finite clauses, is also notable, in view of our claim that *tofac* may bind the l-place of the embedded VP and Higginbotham's (1983) of a similar role in the noun phrase for the definite article.

There are two ways to think of the distinctions among *to*, *tofac*, and *toimpl*. I have so far assumed, without much comment, that these elements share some set of properties, which we may describe by the feature [-finite], and differ with respect to other properties — those properties that distinguish among propositional, factive and implicative clauses. On this view, the homophony among *to*, *tofac* and *toimpl* is a reflection of the common feature value for finiteness, the other feature distinctions are unexpressed. An alternative view would regard the “core” morpheme of all three uses as the same instance of *to*, marked only by the feature [-finite]. The extra implicative and factive content would result from the affixation to *to* of phonologically null factive and implicative mood markers:

(487)a. *to*           b. [FAC [*to*]]   c. [IMPL [*to*]]

Since inflectional elements do not participate in the derivational system, we have no tools with which to detect null morphemes like those posited in (487). Nonetheless, (487) is somewhat attractive, since the contrast between morphologically unmarked propositional *to* and morphologically marked factive and implicative *to* mirrors the contrast in many languages between simple matrix declarative clauses whose truth is a matter of belief and clauses which are marked as *known*. Thus, in his survey of mood and modality, Palmer (1986, 27-28) notes that in languages that use special inflection to mark distinctions among degrees of certainty, if any form is unmarked, it is the statement of belief rather than some expression of knowledge.¹³⁰ Furthermore, one might imagine that *FAC* in (487) could have something in common with the definite article *ba* in Miskitu, and perhaps imagine some similar analysis for *IMPL*.

### 3.5.2 Summary and Examples

We are now in a position to revise the chart in (125) that outlined what we needed to explain:

(488)

[+ECM]/[-ECM]

	∅ [+Affix]	∅ [+Affix]	∅ _{for} [-Affix]
	" PROPOSITION	‡FACTIVE/IMPLICATIVE ‡	IRREALIS
		∅	∅
[-AGENT]	" believe to	‡ hate to _{fac}	‡ want to
[+AGENT]	" wager to	‡ manage to _{impl}	‡ demand to
	"	‡	
	"[-PRO, +NP-trace] ‡	[+PRO, -NP-trace]	

We can now summarize the treatment of the most relevant examples. Since I am only considering infinitival complements below, the Factive Generalization in (357) does not apply, and all infinitives discussed are assumed to occupy complement position at D-structure. The facts should not be substantially different for subject sentences, where these are possible (with *∅_{for}* and *for*).

=====

### Believe-class

**S-Selection:** proposition  
 infinitiveOK  
 not Agent  
 [-Factive]

**L-selection:**  
**Subject θ-role:**  
**Factivity:**

**Consequences of Selection for Infinitives:**  
 C = ∅, which is [+Affix]  
 INFL = to, which is not semantically contentful

**Consequences of C:**  
 *complement to nominal; *subject sentence

**Consequences of INFL:**  
 Subject is governed by C, after C-to-V movement.

INFL does not bind embedded 1-place; stage-level predicates need other binder (e.g. implicit adverb of quantification).

**ECM:** Yes, since subject is not Agent, by (83)

**Decomposition:**  
 Nothing relevant

**If matrix is modalized (would) or adverbialized (generally):**  
 No consequence, since IC cannot apply. Believe is not factive.¹³¹

=====

### Wager-class

As believe, except:

**ECM:**  
 No, since subject is Agent, by (83).

=====

## Hate-class

**S-Selection:** non-propositional, factive **L-selection:**  
infinitive OK **Subject  $\theta$ -role:**  
not Agent [irrelevant; *tOfac* blocks ECM] **Factivity:**  
[+Factive]

**Consequences of Selection for Infinitives:**  
C =  $\emptyset$ , which is [+Affix]  
INFL = *tOfac*, which is semantically contentful

**Consequences of C:**  
*complement to nominal; *subject sentence

**Consequences of INFL:**  
Subject is not governed by C, since *tOfac* is semantically contentful.

INFL does bind embedded 1-place; stage-level predicates fine.

**ECM:**  
No, since *tOfac* blocks government of subject by C

**Decomposition:**  
Nothing relevant

**If matrix is modalized (would) or adverbialized (generally):**  
IC can apply, since *hate* is semantically compatible with a factive complement. Thus, if environment licenses an *if*-clause, a  $\emptyset_{for}$ - or *for*-complement is possible.

**Consequences:** INFL is simple *to*; hence embedded subject is governed by C when C is a governor.

$\emptyset_{for}$  is a governor when it undergoes C-to-V movement, leaving a trace, and not before.

Since C is [-Affix], C-to-V movement is restricted to LF. ECM is determined at LF, but the distribution of PRO and NP-trace are determined at S-structure. Embedded subject is therefore governed by C for ECM purposes, but not for purposes of PRO and NP-trace.

*****

## Manage-class

**S-Selection:** non-propositional, implicative **L-selection:**  
infinitive OK **Subject  $\theta$ -role:**  
Agent [irrelevant; *to_{impl}* would block ECM anyway]  
**Factivity:** [-Factive]

**Consequences of Selection for Infinitives:**  
C =  $\emptyset$ , which is [+Affix]  
INFL = *to_{impl}*, which is semantically contentful

**Consequences of C:**  
*complement to nominal; *subject sentence

**Consequences of INFL:**  
Subject is not governed by C, since *to_{impl}* is semantically contentful.  
  
INFL does bind embedded 1-place; stage-level predicates fine.

**ECM:**  
No, since *to_{impl}* blocks government of subject by C

**Decomposition:**  
Nothing relevant

**If matrix is modalized (would) or adverbialized (generally):**  
No consequence, since IC cannot apply. Manage is not factive.  
////////////////////////////////////



### **Demand-class**

**S-Selection:** relevant only after decomposition **L-selection:**  
 infinitive OK **Subject  $\theta$ -role:**  
 Agent **Factivity:**  
 [-Factive], since only a piece of *demand* after  
 decomposition selects factive complements.

**Consequences of Selection for Infinitives:**

C =  $\emptyset_{for}$  or *for*, which is [-Affix]  
 INFL = *to*, which is not semantically contentful

**Consequences of C:**

OK in complement to nominal; OK in subject sentence

**Consequences of INFL:**

Subject is governed by C, since *to* is semantically contentful.

INFL does not bind embedded 1-place (but stage-level predicates fine since they are bound by *would* after decomposition of *demand*).

**ECM:**

Not with  $\emptyset_{for}$ , since neither  $\emptyset_{for}$  nor its trace is not a Case assigner. It may undergo LF C-to-V movement, as with *want*. At this point, the only available Case assigner is the higher V. Since the subject  $\theta$ -role of the higher V is Agent, the Agent/ECM Correlation prevents ECM. Case-marking of the embedded subject by overt *for* is in principle possible, though often marginal for reasons discussed in the next section.

**Decomposition:**

Yes. *Demand* decomposes into a complicated structure that includes something like *would like* as a subpart. IC applies to complement in that subpart, since *like* S-selects a factive complement.

**If matrix is modalized (would) or adverbialized (generally):**

Has no effect on *demand*, which already lexically incorporates *would*.

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**Interfering Factors**

Obligatory control (e.g. *attempt*; otherwise *demand-class*) and 1-selection for particular prepositions (*plan*) may block ECM.

Overt *for* is often reduced in status, even when semantically possible.

Multiple selectional possibilities (as with *expect*) may complicate the picture.

## Chapter 4

### CASE THEORY AND COMPLEMENTATION

#### **4.1 Infinitival Second Objects and *wager*-class Verbs**

The account of infinitival complementation that I have just summarized provides a clear path between the s-selectional properties of predicates that l-select infinitives and the syntactic behavior of those infinitives. Certain issues remain open. Two of them are:

1. What is the analysis of verbs like *persuade*, or *force*, which take an infinitive as a second object (*persuade Bill to leave*)? Are the properties of infinitival second objects predictable from the properties of single objects that we have discovered?
2. Why do *wager*-class predicates appear to allow ECM when the embedded subject undergoes A-bar movement? This phenomenon, first noted by Postal (1974), was discussed briefly in section 2.2.2, from which I repeat some examples (originally (62)):

- (489)
- a. **Mary, who Bill admitted to have won the race.**
  - b. **Mary, who Bill affirmed to have won the race.**
  - c. **Mary, who Bill announced to have won the race.**
  - d. **?Mary, who Bill mumbled to have won the race.**

These questions turn out to be related, leading us to a more nuanced theory of case marking than we have developed so far. The theory up to now has posited a process of Case Checking at LF, described in (164) and (165). We learned that these processes apply at LF because LF is the level at which even the [+Affix] morpheme  $\emptyset_{for}$  may (optionally) undergo C-to-V movement, enabling ECM. In this section, I will suggest that there is another process of Case licensing, which applies at S-structure or perhaps at PF. Unlike the Case Licensing discussed earlier, this mode of Case Licensing is sensitive to *adjacency* rather than to government. The existence of the second mode of Case licensing is the crucial hypothesis that will answer all three of our questions. This second mode of Case Licensing will interact with a new condition on Agentive predicates to explain the properties of *wager*-class verbs. This new condition will replace the Agent/ECM Correlation. Nonetheless, though we shall make progress in understanding *wager*-class verbs, the reasons for their exceptionality will remain unknown at the end of this section.

### 4.1.1 Infinitives as Second Objects

Let us consider begin by considering double-object structures in which the second object is a CP. If single-object structures have told us all we need to know about infinitival complementation, then we expect to find the following configurations:

- (490) a. V NP [_{CP}  $\emptyset_{for}$  [_{IP} NP to VP]]  
 b. V NP [_{CP}  $\emptyset$  [_{IP} NP *to_{fac}* VP]]  
 c. V NP [_{CP}  $\emptyset$  [_{IP} NP *to_{impl}* VP]]  
 d. V NP [_{CP}  $\emptyset$  [_{IP} NP to VP]]

In fact, something close to this distribution is found, although there are certain gaps and puzzles in the picture.

#### 4.1.1.1 VNP [_{CP} $\emptyset_{for}$ [_{IP} NP to VP]]

The easiest predicates to find are those which might instantiate (490a). There is a large and extensible class of double-object verbs which appear to take irrealis infinitival complements:

- (491) John asked Bill to leave.  
 [*advise, beg, beseech, challenge, coax, command, commission, counsel, dare¹³², designate, direct, encourage, exhort, implore, inspire,...*]

If we propose that these predicates appear in the configuration (490a), we expect these verbs to allow PRO and disallow NP-trace in subject position of the embedded clause. This is correct:

- (493) a. John asked Bill [_{CP}  $\emptyset_{for}$  [_{IP} PRO to leave]]  
 b. *Mary was asked Bill [_{CP}  $\emptyset_{for}$  [_{IP} *t_i* to leave]]

Of course, there are other factors excluding (493b) — in particular, lack of Case for the first object *Bill*. Thus, (493b) is not a particular achievement of the analysis so far.

ECM is completely impossible with these predicates:

- (494) a. *John asked Bill [Mary to leave].  
 b. *John advised Bill [Mary to leave].  
 c. *John begged Bill [Mary to leave].  
 d. *John challenged Bill [Mary to leave].  
 e. *The King commanded Sue Harry to be shot.  
 f. *Nardini commissioned me Amati to make a new violin.

Suppose  $\emptyset_{for}$  has the option of moving to V at LF, as it does in complements to *want* or appropriately situated *hate*. If C-to-V is possible, and  $\emptyset_{for}$  selects simple *to* as it did in other cases, then we need to seek a new reason for excluding ECM. After C-to-V, *asked* governs the embedded subject *Mary* in (494) by virtue of the GTC:

- (495) *John [ $\emptyset_{for_i}$  [asked]] Bill [*t_i* [Mary to leave]]

One candidate is the Agent/ECM Correlation, since these double object verbs are all agentive. This is plausible. Indeed, the Agent/ECM Correlation should contribute to the unacceptability of these examples. Nonetheless, the Agent/ECM Correlation with verbs of content of speech like *request* yields noticeably weaker effects than the utter impossibility of (494), particularly with content-of-speech verbs (especially *verba judicandi*) like the single-object counterparts of the verbs in (494):¹³³



- (496) a. ?*John asked there to be dinner on the table.  
 b. ?*The King commanded there to be more than one entree at dinner.  
 c. ??We demand there to be an enquiry into the matter.  
 d. ??John ordered it to rain – but of course, it didn't.  
 e. ?*Sue proposed there to be a conference on the topic.  
 f. ??Sue requested there to be a moment of silence.

To be sure, as was noted in section 2.9, there are differences in ECM tolerance among verbs like those in (496). Thus, in my judgment, (496c) is slightly better than (496b), (496f) slightly superior to (496a). There is no such variation among the double-object verbs in (494). All impose an utter and unalterable prohibition on Case-marked lexical subjects in the embedded infinitive.

This suggests that some other factor is at work in (494): in particular, an *Adjacency Condition* on Case of the sort proposed in unpublished work by Vergnaud and by Chomsky (1980, (69)).¹³⁴ A version compatible with this discussion is given in (498) below. This version draws on the notion “licenser for Case”, which was introduced in (163), repeated below as (497):

- (497) a. INFL is the licenser for nominative Case.  
 b. [-N] is the licenser for objective Case.

- (498) **Adjacency Condition on Case (version 1 of 2)**  
 *Case-marked NP, unless adjacent to the element that licenses its Case.

This condition will be imposed in addition to the more familiar condition in (164), which I will now call the *Government Condition on Case*, reproduced below

- (499) **Case Licensing (LF): Government Condition on Case**  
 *Case-marked NP, unless governed by the element that licenses its Case.

The Adjacency Condition on Case cares about intervening case-marked NPs like the first objects in (494). It also cares about Case-marked A-bar traces:

- (500) *Bill, who_i John asked t_i [Mary to leave].

On the other hand null C, traces of C, and intermediate traces of A-bar movement in SPEC, CP seem to be invisible to the Adjacency Condition on Case:

- (501) a. I want [_{FOR} [Bill to leave]]  
 b. I wonder why_k Sue  
 [_i [believed]] [_{CP} t_k [_{C'} t_i [_{IP} Bill to have done that t_k]]]

This recalls Jaeggli's (1980) suggestion that phonological processes like *wanna*-contraction can “see” Case-marked empty elements, but not non-Case-marked empty elements.¹³⁵ Let us assume for the sake of the argument that Jaeggli's proposal extends to Adjacency:

- (502) **Adjacency**  
 Two elements are linearly adjacent only if they are separated by no phonologically realized or Case-marked element.

For the moment, I will leave open the level at which the Adjacency Condition holds. Ultimately, I will argue that it holds at S-structure, and not at LF. If the Adjacency Condition produces stronger effects, and the Agent/ECM Correlation describes weaker effects, then the



the niche that is occupied by implicative predicates among the single-object verbs. Recall from (472) that the presupposition of a sentence  $v(S)$ , where  $v$  is an implicative verb and  $S$  is the complement clause, is (506):

(506)  $v(S)$  is a necessary and sufficient condition for  $S$ .

Consider now examples like the following:

- (507)a. John forced Mary [to leave the room].  
b. John assisted Mary [to leave the room].  
c. Sue caused Bill [to make a mistake].  
d. John compelled Bill [to sell his car].  
e. Mary helped Sue [to finish her book].  
f. John induced Bill [to visit Girona].

Sentences with verbs of this type were discussed in another paper by Karttunen (1970), who proposed that they carry the presupposition in (508):¹³⁷

(508)  $v(S)$  is a sufficient condition for  $S$ .

Karttunen calls these verbs “*if*-verbs” (and in this paper calls implicatives “*if and only if* verbs”). Since his terminology would invite confusion with our discussion of *for* and  $\emptyset_{for}$ , I will call them *weak implicatives*, and refer to implicatives as *strong implicatives*, where the distinction is important. As with strong implicatives, the speaker of the sentence *John forced Mary to leave the room* is committed to the claim that Mary left the room. Thus, the continuation of (509a) with (509b) is infelicitous:

- (509)a. John forced Mary to leave the room.  
b. #...and she didn't.

Unlike either factives or implicatives, however, negation in the matrix clause cancels any commitment concerning the embedded clause. As Karttunen points out, a sentence like (510a) may be continued as either (510b) or (510c):

- (510)a. John didn't force Mary to leave the room.  
b. ...and she didn't.  
c. ...but she did anyway.

It is easy to see why this is the case, if forcing Mary to leave the room is a sufficient but not necessary condition for her to leave. If there is no forcing, we know nothing about whether she left or not.

My judgments are less clear concerning the very similar predicate *get* in its double-object use. *Get* may be implicative, depending on the status of (511c):

- (511)a. John didn't get Mary to leave the room.  
b. ...and she didn't.  
c. ...but she did anyway.

If, as I suspect, (511c) is anomalous, unlike (509c), and if this represents a double-object structure, then *get* may select an implicative second object.¹³⁸ Additionally, certain verbs that take  $\emptyset_{for}$  might also have an implicative sense. Thus, for example, it seems to me that there is a sense of *John persuaded Mary to leave the room* in which it is presupposed that persuasion is both necessary and sufficient for Mary to leave the room; thus if *nobody persuaded Mary to leave the room*, then she did not. Unfortunately, it is difficult, if not impossible, to test for these

matters in a way that might convince others. What is curious is the seeming absence of double-object verbs other than *get* that are limited to an implicative sense and non-homophonous with verbs in other categories.

#### 4.1.1.4 Tests for Syntactic Differences

Despite these puzzles, we might plausibly posit the same set of syntactic distinctions between double-object  $\emptyset_{for}$  verbs and weak implicatives as we detected between single-object  $\emptyset_{for}$  verbs and strong implicatives. These latter two classes differed both in the C system and in the INFL system.

In the INFL-system, complements with  $\emptyset_{for}$  showed simple *to*, which allows government of the subject by C. Strong implicatives with  $\emptyset$  show *toimpl*, which blocks government of the subject by C. Despite this difference, both flavors of *to* cooccur with stage-level predicates, since an implicit modal licenses the I-place of the stage-level predicate with  $\emptyset_{for}$  and *to*, while *toimpl* itself is capable of binding an I-place. The main difference between *to* and *toimpl* arose in the possibility of ECM, which (in the simple cases examined so far) is never an option in double-object structures, as discussed above.

On the other hand, implicative *toimpl* differs from *tofac* with respect to the availability of the idiom by which *be* assigns future interpretation to Tense. In fact, weak implicatives behave like strong implicatives and unlike factives here. They do not participate in this idiom (cf. (476) and (480)-(481)):¹³⁹

- (512)a. *Yesterday, Bill forced Mary to be leaving today/tomorrow.  
 b. *Yesterday, Bill helped Mary to be leaving today/tomorrow.

In the C-system,  $\emptyset_{for}$  in an irrealis complement should display the behavior expected of a [-Affix] null morpheme. Strong implicatives with  $\emptyset$ , by contrast display behavior expected of a [+Affix] null morpheme. Can we detect differences of this sort between  $\emptyset_{for}$  and  $\emptyset$  with the double-object verbs that we are examining? Interfering factors make this task quite hard; still, it is not impossible, and familiar differences are found.

As in section 3.3.2, if we examine a construction that relates the second object of a double-object verb to subject position, we can test for the affixal status of the null complementizer that introduces CP. We expect that CPs headed by  $\emptyset_{for}$  should be acceptable, while CPs headed by  $\emptyset$  should be unacceptable, since  $\emptyset$  must undergo C-to-V raising, while  $\emptyset_{for}$  need not. Pseudoclefts furnished a good environment for testing this distinction, but at first sight appear to yield discouraging results for double-object verbs. No complements of  $\emptyset_{for}$  verbs appear able to participate in this construction:

- (513)a. *To leave the room immediately is what I asked him.  
 b. ?*To get out of town is what John advised Bill.  
 c. ?*To be allowed to leave is what I begged him.  
 d. *To play better than Heifetz is what he challenged him.  
 e. *To find an honest man is what the King commanded him  
 f. *To make a new violin is what Nardini commissioned Amati.  
 g. *To take the train is what Sue persuaded Bill.  
 h. *To take the train is what Sue requested Bill.

However, if either the first object or the trace of the second object is preceded by a preposition, acceptability improves markedly. This is not the case for all verbs. For example, I find no way of improving *persuade* in (513h) (Which object may preceded by which preposition is a topic I will not take up.) The following generalizations appear right:

- when the verb allows a preposition with a nominal second object, as in (514d) (cf. *I challenged him to greater achievements*), that preposition surfaces in the pseudocleft (not surprisingly, since *what* is nominal);
- when the verb allows a preposition with its first object in some other usage, as in (514a) (cf. *I asked of him that he leave/*to leave*), that preposition is used;
- when no preposition is normally used with the verb, as in (514b), a preposition otherwise found in the nominalization is employed (cf. *my advice to him*):

- (514)a. To leave the room immediately is what I asked ___ [of him].  
b. ??To get out of town is what John advised [to Bill].  
c. ?To be allowed to leave is what I begged him [for ___].  
d. ?To play better than Heifetz is what he challenged him [to ___].  
e. ?To find an honest man is what the King commanded ___ [from him].  
f. ?To make a new violin is what Nardini commissioned ___ [from Amati].  
g. To take the train is what Sue requested ___ [of Bill] .

The reason one of the objects must be introduced by a preposition is presumably related to Case. Although CPs in situ appear immune from the Case Filter (as discussed in 1), the trace of nominal *what* linked to CP is not immune. Assume that the verbs in (514) can only license Case on one of the two objects, and we can understand why one or the other of the two objects must be Case marked by a preposition.

By contrast, none of the weak implicative complements may appear in subject condition, even if a likely preposition is found for one of the arguments. The parenthesized prepositions in (515) are those that might have improved the structures, by analogy with (514):

- (515)a. *To go to school is what I forced him [(into) ___].  
b. *To leave the room is what John assisted Mary (with) ___.  
*To leave the room is what John assisted (to) Mary ___.  
c. *To make a mistake is what Sue caused Bill.  
d. *To sell his car is what John compelled Bill [(into) ___].  
e. *To finish her book is what John helped Mary [(with) ___].  
f. *To visit Girona is what John induced Bill [(into) ___].  
*To visit Girona is what John induced (to) Bill ___.

Some of these examples allow gerund subjects, which highlights the unacceptability of the infinitival examples:

- (516)a. Going to school is what I forced him into.  
b. Leaving the room is what John assisted Mary with.  
c. Finishing her book is what John helped Mary with.

We thus seem to have solid evidence that irrealis infinitival second objects involve  $\emptyset_{for}$ , and weak implicative second objects involve  $\emptyset$ , in addition to evidence that weak implicatives display the INFL element *toimpl* (or at least not *tofac*). Thus, the analysis of infinitival single objects seems to extend reasonably well to double object structures.

The second test that distinguished [-Affix]  $\emptyset_{for}$  from [+Affix]  $\emptyset_{impl}$  in our previous discussion was the behavior of complements to nominalizations. It is impossible to nominalize a CP-selecting verb, where the head of the CP is [+Affix]. The affixal C must appear between the

verb and the nominalizing affix, which violates the morphological conditions discussed in earlier chapters. When considering nominalizations of verbs that take two objects, the first thing to notice is nominalizations of zero-derived verbs are impossible no matter what the complement type. As discussed first in Appendix ??, verbs like *persuade* and *convince* appear to be derived from underlying bound predicates meaning 'be persuaded' and 'be convinced' by the addition of the phonologically null causative affix CAUS. Thus, addition of a nominalizing affix is impossible, be the second object infinitival, finite or nominal. I repeat examples (X364)-(X365) from Appendix ???:¹⁴⁰

- (517)a. *the rain's persuasion of Mary to turn back  
b. *the rain's persuasion of Mary that England was no fit place to live  
c. *the rain's persuasion of Mary of Bill's innocence  
d. *[[_v CAUS [_v √persuade]] ion_N]
- (518)a. *the rain's conviction of Mary to turn back  
b. *the rain's conviction of Mary that England was no fit place to live  
c. *the rain's conviction of Mary of Bill's innocence  
d. *[[_v CAUS [_v √convince]] ion_N]

Naturally, we learn nothing about the syntax of infinitival complementation from these cases, since the nominalizations are excluded for independent reasons.

Verbs like *persuade* and *convince* are analysed as bimorphemic by the language learner because they contain a Cause argument as well as an Experiencer argument.¹⁴¹ As discussed in , both Cause and Experiencer map onto external argument positions. This forces lexical items that assign both arguments to be derived from two predicates, so that each argument may have its own external argument position. Verbs that lack a Cause argument do not have this difficulty, and therefore may be monomorphemic. (Obviously, they may be analysed as polymorphemic for other reasons.) Verbs of this type that take an irrealis infinitival second object do nominalize. What is crucial is that if the verb does not already I-select a preposition for its first object, the first object must be Case-marked by *to*:

- (519)a. Sue promised Mary to leave.  
b. Bill advised Sally to get out of town.  
c. Kennedy challenged NASA to put a man on the moon by 1970.  
d. God commanded to the Jews to worship no idols.  
e. Nardini commissioned Amati to make a new violin.  
f. Sue ordered Harry to get out of the room.
- (520)a. Sue's promise to Mary to leave  
b. Bill's advice to Sally to get out of town  
c. Kennedy's challenge to NASA to put a man on the moon by 1970  
d. God's commandment to the Jews to worship no idols  
e. Nardini's commission to Amati to make a new violin  
f. Sue's order to Harry to get out of the room
- (521)a. *Sue's promise of Mary to leave  
b. *Bill's advice of Sally to get out of town  
c. *Kennedy's challenge of NASA to put a man on the moon by 1970  
d. *God's commandment of the Jews to worship no idols  
e. *Nardini's commission of Amati to make a new violin  
f. *Sue's order of Harry to get out of the room

Verbs like *demand*, *request* and *require* I-select *of*, an ability which their nominalizations inherit. Nonetheless, these predicates show a peculiar pattern. *Of* is possible with finite (subjunctive) complementation. With non-finite complementation, *of* is not entirely excluded, but is not entirely acceptable either. The absence of *of* yields mixed results. Finally, nominalizations of these verbs are possible, with the odd pattern documented below:

- (522)a. Sue demanded of Bill that he get out of town.  
??Sue demanded of Bill to get out of town.  
*Sue demanded Bill that he get out of town.  
*Sue demanded Bill to get out of town.
- b. Sue requested of Bill that he get out of town.  
??Sue requested of Bill to get out of town.  
*Sue requested Bill that he get out of town.  
Sue requested Bill to get out of town.
- c. Sue required of Bill that he get out of town.  
??Sue required of Bill to get out of town.  
*Sue required Bill that he get out of town.  
Sue required Bill to get out of town.
- (523)a. Sue's demand of Bill that he get out of town  
?Sue's demand of Bill to get out of town.  
*Sue's demand to Bill that he get out of town  
*Sue's demand to Bill to get out of town.
- b. Sue's request of Bill that he get out of town  
?Sue's request of Bill to get out of town.  
Sue's request to Bill that he get out of town  
Sue's request to Bill to get out of town.
- c. Sue's requirement of Bill that he get out of town  
?Sue's requirement of Bill to get out of town.  
*Sue's requirement to Bill that he get out of town  
*Sue's requirement to Bill to get out of town.

Semantic factors are clearly playing a role here. *Demand* and *request* are speech act verbs, and hence involve an interlocutor, while *require* is not a speech act verb. This presumably plays a role in the acceptability of *to* with *demand* and *request* and the unacceptability of *to* with *require*. Likewise, the first object is a source of benefit to demander, requester and requirer — hence, perhaps, the possibility of *of* (and also the marginal possibility of *from*). What leads to the extra complexities is a mystery — in particular the sharp but unexplained contrasts between tensed and finite clauses in the verbs, and their attenuation in the nominals. What is sufficient for our purposes is the continued observation that the proper choice of preposition for the first object makes infinitival complementation possible in the second object position. As for the obligatory presence of *to* instead of *of* examples like (520)-(521), I will return to this topic once we have examined the *for* ~  $\emptyset$ *for* alternation below.

The important fact for this section is the absolute impossibility of infinitival complementation with nominalizations of weak implicative verbs, regardless of the choice of preposition for the first object. The examples in (524) display *to*, which is possible without the infinitive with *assist*, *help* and *inducement*. There is no alternative preposition that improves these structures:

- (524)a. *Sue's assistance to Mary to leave the room
- b. *Sue's causation of Bill to make a mistake.
- c. *John's compulsion of Bill to sell his car.
- d. *John's help to Mary to finish her book
- e. *John's inducement to Bill to visit Girona

At this point, let us introduce an objection which will make us look at these examples in a somewhat different manner. One might object that the nominalizations in (520), (523) and (524) are not "true argument takers", but are instead result nominals of some sort. If this were true, the apparent infinitival complements in (520) would not occupy complement position at all, but would be some sort of adjunct — an "appositive", as Stowell (1981) suggests. We confronted this issue before, in connection with examples (X176) in chapter and in connection with our initial discussion of clausal complementation in chapter ???. In the latter discussion, we applied Grimshaw's (1989) tests to demonstrate that nominalizations like *agitation* were indeed argument-takers. Among the tests were the ability to be modified by adjectives that relate to events, such as *continual*, *constant* or *frequent*, and successful use as an articleless mass noun. The nominalizations in (520) are a mixed bag with respect to these tests. Some tolerate adverbs like *constant*; only *advice* may be used as a mass term, and this usage is probably independent of its status as argument-taker or non-argument-taker:

- (525)a. ?Sue's constant promise to Mary to leave.
  - b. ?Bill's frequent advice to Sally to get out of town.
  - c. *Kennedy's continual challenge to NASA to put a man on the moon by 1970.
  - d. *God's constant commandment to the Jews to worship no idols.
  - e. *Nardini's continual commission to Amati to make a new violin.
  - f. ?Sue's frequent order to Harry to get out of the room.
- (526)a. *Promise to people to leave is always good.
  - b. Advice to people to get out of town should be given only when necessary.
  - c. *Challenge to children to solve a problem should be given with caution.
  - d. *Commandment to believers to worship no idols is essential.
  - e. *Commission to artisans to make violins is uncommon.
  - f. *Order to children to get out of the room is bad.

Furthermore, the phrases we have called first and second objects of these nominals are only optionally realized. The facts in (527) are mirrored by all the nominals of (520):

- (527)a. Bill's advice to Mary
- b. Bill's advice to leave
- c. Bill's advice

Finally, an appositive analysis of the infinitival clauses in (520) is certainly a plausible option, given the possibility of predicating these clauses of the nominalization (seen in (528)), or of using them as unquestionable appositives (seen in (529)):



- (528)a. Sue's promise to Mary was to leave.  
b. Bill's advice to Sally was to get out of town.  
c. Kennedy's challenge to NASA was to put a man on the moon by 1970.  
d. God's commandment to the Jews was to worship no idols.  
e. Nardini's commission to Amati was to make a new violin.  
f. Sue's order to Harry was to get out of the room.
- (529)a. Sue's promise to Mary, namely to leave...  
b. Bill's advice to Sally, namely to get out of town...  
c. Kennedy's challenge to NASA, namely to put a man on the moon by 1970...  
d. God's commandment to the Jews, namely to worship no idols...  
e. Nardini's commission to Amati, namely to make a new violin...  
f. Sue's order to Harry, namely to get out of the room...

On the other hand, there is at least one reason to believe that the clauses following the nominalizations in (520) may function as arguments. The *to*-phrase following N, optional though it may be, behaves like an argument with respect to negative polarity items. The contrast in (530) (due to Lakoff (1970; interpreted by Jackendoff (1977); see also Heim (1987, 25)), suggests that complements to N may license negative polarity items external to NP, but adjuncts may not. The examples in (531) extend this observation to nominalizations. The *to*-phrases in nominalizations like (520) behave like complements, as can be seen in (532).

- (530)a. Fathers of few children have any fun.  
b. *Fathers with few children have any fun.
- (531)a. The destruction of few enemy cities provoked any reaction.  
b. *The destruction inside few enemy cities provoked any reaction.
- (532)a. Promises to few people are ever kept.  
b. Advice to few students has any consequences at all.  
c. Kennedy's challenges to few agencies got any response.  
d. God's commandments to few tribes were ever obeyed.  
e. Nardini's commissions to few artisans led to any truly great instruments.  
f. Sue's orders to few servants got any response.

In fact, objects in the *to*-phrases of (531) can license negative polarity items inside following infinitivals. Though the nominalizations in (533) are long and awkward, I think they are all acceptable.

- (533)a. Sue's promises to few people to ever do anything at all did not escape notice.  
b. Bill's advice to few students to take any calculus was the reason for the low enrollments.  
c. Kennedy's challenges to few agencies to anything extraordinary can be held responsible for the failure of his programs.  
d. God's commandments to very few tribes to attack anybody can be attributed to His peaceloving nature.  
e. Nardini's commissions to very few artisans to make anything like a viola da gamba may be considered indicative of sound judgment.  
f. Sue's orders to few servants to do anything led to general chaos in the house.

Elements in true appositives may not be licensed in this fashion:

- (534)a. *Sue's promises to few people, namely to ever do anything at all, did not escape notice.  
 b. *Bill's advice to few students, namely to take any calculus, was the reason for the low enrollments.  
 c. *Kennedy's challenges to few agencies, namely to anything extraordinary, can be held responsible for the failure of his programs.  
 d. *God's commandments to very few tribes, namely to ever attack anybody, can be attributed to His peaceloving nature.  
 e. *Nardini's commissions to very few artisans, namely to make anything like a viola da gamba, may be considered indicative of sound judgment.  
 f. *Sue's orders to few servants to do anything led to general chaos in the house.

These data suggest that the nominalizations in (520) have at least one structural description in which they are argument-takers. This means that we must look elsewhere to explain the fact that they fail Grimshaw's tests. Since these tests relate to aspectual properties of verbs and nominals, we might look there for an answer, but I will not pursue these questions.

In any case, however this question is resolved, the contrast between (520) and (524) furnishes us with an argument that the former involve [-Affix]  $\emptyset_{for}$  and the latter, [+Affix]  $\emptyset$ . Regardless of whether the infinitives in (520) are complements or adjuncts, they presumably meet the s-selectional requirements imposed on the complement of the related verb. If they are complements, this is trivially true. If the nominalization is a "result nominal", and expresses an abstraction over the complement position, then an appositive modifier of such a nominal will have to be compatible with such an abstraction. An appositive infinitive will need a [-Affix] complementizer, since head-movement from an appositive phrase would strongly violate the structural (ECP) conditions on head movement. The contrast between (520) and (524), on this interpretation, will still reflect a difference in the affixal properties of infinitival second objects to irrealis and weak implicative verbs, even if the argument is different from those we have seen so far.

Thus, although our path has been troubled by various interfering factors, we have constructed two arguments that support our analysis of irrealis and implicative complementation in a double-object setting. We now turn to propositional complementation. Here we will see support for our adoption of an Adjacency Condition on Case. Furthermore, we shall have to take a clearer view of the structure of VPs that contain two objects.

#### 4.1.1.5 VNP [_{CP} $\emptyset_{prop}$ [_{IP} NP to VP]]

Given everything we have said so far, propositional infinitives should be excluded from the second object position of VP. Assume that propositional infinitives, whether single objects or second objects, have the simple null [+Affix] complementizer  $\emptyset$  and the simple INFL element *to*, which does not block government of the subject by C. C will be required to raise to V, allowing the higher verb to govern the embedded subject. Thus, the embedded subject may not be PRO:

- (535) *subject  $\emptyset_i$ -V NP [_{CP}  $t_i$  [_{IP} PRO *to* VP]]  
                   A~govt.~ (GTC)~ ~ ~ ~ U

On the other hand, if the embedded subject is lexical, it will violate the Case filter, since it is not adjacent to V, as required in (498):

(536) *subject  $\emptyset_i$ -V NP [_{CP} t_i [_{TP} lexical-NP to VP]]  
 $\bar{A}$ *case~(adjacency)U

If the embedded subject is NP-trace, it will satisfy government requirements, just as in simpler examples with *believe* and *wager*. However, this NP-trace will need to find its antecedent in the subject position of the higher verb. This means that the higher subject position is non-thematic, hence (by Burzio's generalization) the verb may not license Case on its first object, which in turn has nowhere to move so as to receive Case:

(537) *subject_j  $\emptyset_i$ -V NP [_{CP} t_i [_{TP} t_j to VP]]  
 $\bar{A}$ xU  
 Case

In fact, however, there is one circumstance in which propositional infinitives do surface as second objects: when their subject is an A-bar-bound trace. This phenomenon was first noted by Kayne (1981, p.xiii; p.5), who presented only (538):

- (538)a. I assure you [that Bill is the best]  
 b. *I assure you [PRO to be the best]  
 c. *I assure you [Bill to be the best]  
 d. *Bill_i was assured you [t_i to be the best]  
 e. Bill_i, who_i I assure you [t_i to be the best]
- (539)a. I satisfied myself [that Bill is the best]  
 b. *I satisfied myself [PRO to be the best]  
 c. *I satisfied myself [Bill to be the best]  
 d. *Bill_i was satisfied myself [t_i to be the best]  
 e. Bill_i, who_i I satisfied myself [t_i to be the best]

The verbs *persuade* and *convince* also participate in this paradigm. Examples with embedded PRO subject are, of course, fine, but not with a propositional reading of the embedded infinitive. The judgments on the (b) examples below reflect the relevant reading:

- (540)a. I persuaded her [that Bill is the best]  
 b. *I persuaded her [PRO to be the best]  
 c. *I persuaded her [Bill to be the best]  
 d. *Bill_i was persuaded her [t_i to be the best]  
 e. ?Bill_i, who_i I persuaded her [t_i to be the best]
- (541)a. He's going to convince you [that Bill is the best]  
 b. *He's going to convince you [PRO to be the best]  
 c. *He's going to convince you [Bill to be the best]  
 d. *Bill_i was going to convince you [t_i to be the best]  
 e. ?Bill_i, who_i he's going to convince you [t_i to be the best]

As we expect from a propositional infinitive, the embedded clause must be individual-level, or else receive either a generic interpretation or one modulated by a modal or explicit adverb of quantification. The (d) and (e) examples below are best with an explicit adverb like *generally* or *often*, and are impossible unless interpreted as if such an adverb were implicit:

- (542)a. Bill, who I assure you to be the best...  
 b. Bill, who I assure you to have completed his studies successfully...  
 c. Bill, who I assure you to know French well...  
 d. #Bill, who I assure you to be happy...  
 e. #Bill, who I assure you to walk to school...

The paradigms in (538)-(540) are puzzling in the theory we have developed. If the Adjacency Condition on Case in (498) is correct, then both lexical and WH-trace subjects should be impossible. On the other hand, if the Adjacency Condition on Case is incorrect, then both lexical and WH-trace subjects should be acceptable. In fact, by folding Kayne's ideas about these paradigms into the multi-level theory of Case proposed above, we can explain these paradigms. According to Kayne, Case theory is so structured that in a configuration like (538c) or (538e) the embedded subject may not bear Case assigned by the higher verb, but an intermediate trace of successive-cyclic A-bar movement may bear this Case. In Kayne's particular instantiation of this hypothesis, updated to accommodate IP and CP, Case in (538e) is assigned by the higher V to an intermediate trace  $t'$  in the Spec,CP:

(543)  $\bar{U}$ ~~~~~*case~~~~~ $\bar{t}$   
 Bill_i, who_i I assure you [_{CP}  $t'_i$  [_{IP}  $t_i$  to be the best]  
 A~ok~case~~~ $\bar{U}$

I will take from Kayne the insight that the higher predicate may interact with an intermediate trace in an A-bar position to provide an escape from the Case Filter for certain chains. Thus, if we substitute a non-Case-marking active verb or adjective for *assure* in (543), this interaction is barred:

(544)a. *Bill_i, who_i it seems [_{CP}  $t'_i$  [_{IP}  $t_i$  to be the best]  
 b. *Bill_i, who_i it is likely [_{CP}  $t'_i$  [_{IP}  $t_i$  to be the best]

On the other hand, intermediate traces cannot always provide an escape from the Case Filter. In (545), modeled after examples in Déprez (1990), *assure* bears the same structural relation to an intermediate trace of movement as in (543). Yet the result is impossible:

(545)  
 *Bill_i,  
 who_i I assure you [_{CP}  $t_i$  [_{IP} it is likely [_{CP}  $t'_i$  [_{IP}  $t_i$  to be the best]]]]

The theory of Case and ECM developed here posits an illuminating difference between (543) and (545) if we examine the initial trace  $t$  in the subject of *to be the best*.¹⁴² In both (543) and (545), the most embedded complementizer is the null complementizer  $\emptyset$  found in propositional infinitives. In both cases,  $\emptyset$  raises to the next higher predicate (*assure* in (543), *likely* in (545)). As a consequence of the GTC, the initial trace  $t$  is governed by the Case-assigning verb *assure* in (543), but is governed by the non-Case-assigning adjective *likely* in (545). In other words, the hierarchical conditions for Case are present in (543), but not in (545). In fact, only the linear condition of Adjacency prevents the initial trace in (543) from being Case-marked by *assure*. (Remember that the role of adjacency can be seen in the impossibility of a lexical NP in the position of  $t$ ; cf. (538c).)

Suppose government requirements on Case assignment must always be met by the tail of an A-bar chain — that is, by the first A-bar bound link of the chain. We automatically draw the right distinction between (543) and (545). Now we merely need to find a way around the adjacency condition for instances of A-bar movement. Here is where intermediate traces are involved: although government requirements on Case must be satisfied by the original trace, the Adjacency Condition in (498) will be revised to (546):

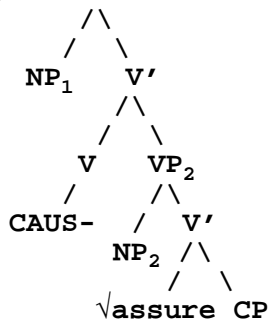
(546) **Adjacency Condition on Case (version 2 of 2)**  
 *Case-marked NP, unless a member of its chain is adjacent to the element that licenses its Case.

This suggestion, of course, is useless if the structure of (543) is as indicated. The intermediate trace,  $t'$  in SPEC,CP, is no more adjacent to *assure* than is the original trace  $t$ . On

the other hand, we have already proposed additional structure for the inside of VPs headed by verbs like *persuade*, *convince* and, we may now add, *satisfy* and *assure*. This additional structure will make my proposal work.

Verbs like *persuade* and *assure* assign both Cause and Experiencer arguments. Consequently, they display biclausal D-structures to which head-to-head movement applies, in accordance with our hypotheses in section ??? and Appendix ???. Thus, the D-structure for a sentence of the form  $NP_1$  assured  $NP_2$  CP, ignoring details of the matrix INFL system, is (547):

(547)

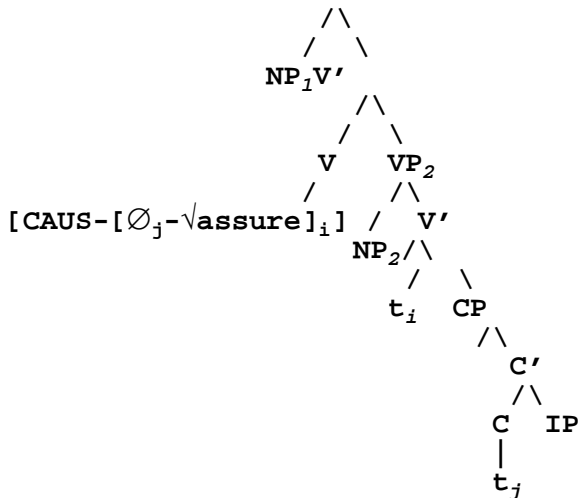


As a consequence of this analysis, nominalizations of these verbs are impossible:

- (548)a. *Mary's persuasion of the committee that the world is round.
- b. *Mary's assurance of the committee that the world is round.
- c. *Bill's conviction of the students that the world is round.
- d. *Sue's satisfaction of herself that the world is round.

$\sqrt{Assure}$  is not a Case licensing verb, except insofar as an NP following  $\sqrt{assure}$  may be Case-marked by *of*, I-selected by  $\sqrt{assure}$  (*John assured me of his reliability*). On the other hand, CAUS- is a Case licensing verb, and is responsible for Case marking of  $NP_2$ . If the CP complement to  $\sqrt{assure}$  is infinitival, its null complementizer  $\emptyset$  affixes to  $\sqrt{assure}$ . In the mapping to S-structure, the bound root  $\sqrt{assure}$ , to which  $\emptyset$  has been affixed, affixes to CAUS-.¹⁴³ The resulting structure is shown in (549):

(549)

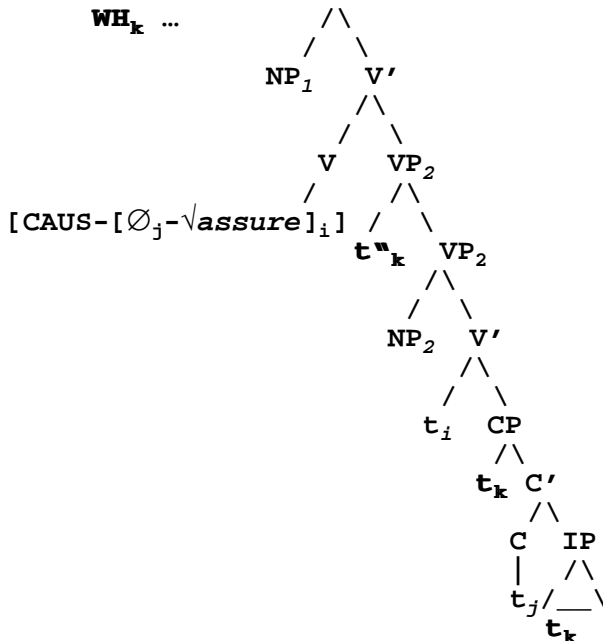


In (549), CAUS- has  $\emptyset$  incorporated in it. Therefore, it governs everything that  $\emptyset$  governs. Since CAUS- is a Case licenser, it will license Case on the subject of the lowest IP. Since the

GTC is not an “Adjacency Transparency Corollary”, adjacency is not met between *CAUS-* and the subject of this IP. Therefore a lexical subject is impossible.

Suppose A-bar movement extracts the subject from the CP complement of  $\sqrt{assure}$ . This constituent may stop in the specifier of this CP, as in Kayne’s analysis. As noted above, a trace in this position is no more adjacent to *CAUS-* than the subject of IP is. In addition, however, this constituent might adjoin to  $VP_2$ :

(550)



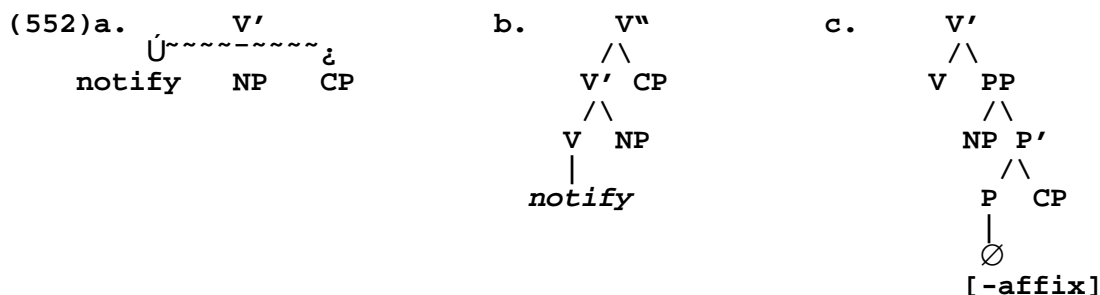
The trace  $t''$  is adjacent to the Case-assigner *CAUS-* (or, more accurately, the word  $[CAUS-[\emptyset_j-\sqrt{assure}]_i]$  headed by *CAUS-*). If adjacency between an intermediate trace and a Case-assigner is a means of satisfying the Adjacency Requirement on Case, then the chain indexed  $k$  satisfies this requirement thanks to adjunction to  $VP_2$ . We thus solve the paradox posed by these constructions. WH-movement allows the subject position to be non-adjacent to its Case assigner, but does not allow it to be ungoverned by its Case assigner.

This result is close to Epstein’s (1987) suggestion that WH-trace must be governed by a Case-licenser but not necessarily Case-marked by it, except that it does not stipulate any weaker requirement for WH-traces than for lexical NPs, as Epstein does.¹⁴⁴ Both elements must be governed by a Case-licenser, and both elements must have some member of their chain adjacent to this Case licenser. Our result also derives Déprez’s (1989) observation that the phenomenon identified by Kayne only involves subject traces. Only movement from subject position can start from a position governed by a higher verb (due to C-to-V movement) and involve an intermediate step adjacent to that verb.

Interesting questions remain. Consider, for example, the nominalizations of certain other verbs that allow propositional second objects:

- (551)a. John’s notification of the committee that the world is round.
- b. Bill’s instruction of/to the committee that the world should be viewed as.
- f. Sue’s warning to the committee that the world is round.
- g. Bill’s reminder to us that the world is round.

The fact that these nominalizations are possible at all suggests that the corresponding verbs do not involve the same structure as *persuade*, *convince*, *satisfy* and *assure*. There are three possible structures that we might assign to the verbs that correspond to these nominalizations, e.g. *notify*:



Structure (552b) seems inappropriate, since Principle C shows that the first object c-commands the second. Recall from section 3.2.5.1 that Principle C diagnoses c-command, and not m-command:

- (553)a. *Mary notified him_i that John_i's coat was ready.  
 b. *John instructed her_i that Mary_i should leave.

If (as I suggested in chapter ???) we accept Kayne's proposal that government requires binary branching, structure (552a) is also excluded. This leaves (552c), in which the non-affixal status of the empty preposition permits the higher verb to nominalize. This conclusion is unfortunate, since either (552a) or (552b) can explain quite smoothly the impossibility of A-bar movement of the subject of an infinitival second object:

- (554)a. *Bill, who I notified the committee to be the best.  
 b. *Bill, who I instructed the committee to be the best.  
 f. *Bill, who I warned the committee to be bad news.  
 g. *Bill, who I remind you to be the best.

If there is no small clause embedded by *notify*, *instruct* and *warn*, then there is no way for an intermediate trace to satisfy the Adjacency Requirement on Case.¹⁴⁵ If (552c) is the correct structure, then we will need a reason why adjunction is possible to a small clause only if its head is affixal. There is, of course, a way out of all these questions if we assume that the verbs in (552) simply do not l-select propositional infinitives. This requires us to key l-selection to s-selection, so that *remind* may take an irrealis infinitive when it means 'admonish', but may not when it means something like 'cause to remember'. I leave these questions open, though I return to the possibility of a non-affixal null P below.¹⁴⁶

Finally, why is the Adjacency Condition on Case satisfiable by intermediate traces, while the basic Government Condition is not satisfiable by intermediate traces? One promising idea, whose consequences will turn out to be correct, stems from a recent suggestion by Chomsky (1989). Lasnik and Saito (1984) faced a basic problem in the analysis of adjunct/argument asymmetries. Intermediate traces of argument extraction do not appear subject to the ECP, while intermediate traces of adjunct extraction are. Thus, though the initial traces in both (555a-b) are properly governed, the intermediate traces are not, due to the intervention of the WH-island formed by *whether*. In (555b), this leads to strong unacceptability — attributed to the ECP — while in (555a) this leads to a mild Subjacency effect:

- (555)a. ?What_i did John ask whether Bill said [t'_i [Harry bought t_i]].  
 b. *How_i did John ask  
     [whether Bill said [t'_i [Harry fixed the bicycle t_i]]]

To solve this problem, Lasnik and Saito posited optional deletion of intermediate traces after  $\gamma$ -marking of arguments at S-structure.  $\gamma$ -marking is a sufficient condition for passing the ECP at LF. Since adjuncts are not  $\gamma$ -marked until LF, their intermediate traces may not delete until LF. Therefore, their intermediate traces are themselves subject to the ECP. Chomsky (1989) conjectured that deletion of intermediate traces in argument chains is not optional, but obligatory. Deletion of intermediate traces, he suggests, is triggered by an LF requirement that chains (minus their head) be “uniform”: all argumental (as with A-chains) or all adjunct (as with A-bar chains from adjunct position). “Mixed” chains formed by moving from an argument position through a series of A-bar positions are illicit objects at LF, and are made uniform by deletion of intermediate traces.

Suppose now that both the Adjacency Condition on Case and the Government Condition are in principle conditions on Chains. However, suppose the Government Condition holds at LF, as I have assumed throughout. Then, if Chomsky is right in his conjecture, A-bar-bound arguments will not enter chains that contain intermediate traces, because these intermediate traces will have been obligatorily deleted by LF. Suppose now that the Adjacency Condition holds at S-structure. It will quite naturally allow intermediate traces to satisfy this condition, since these intermediate traces are present. We may now revise the Government Condition so as to make it uniform with the Adjacency Condition.

- (556)      **Adjacency Condition on Case (S-structure)**  
             *Case-marked NP, unless a (non-head) member of its chain is adjacent to the element that licenses NP's Case.
- (557)      **Government Condition on Case (LF)**  
             *Case-marked NP, unless a (non-head) member of its chain is governed by the element that licenses NP's Case.

This division of labor explains why Kayne's paradigm with *assure* is not found with LF movement:

- (558)    *Who assured you whom to be the best?

Example (558) fails the Adjacency Condition on Case at S-structure, and no amount of LF movement of *whom* can save the structure.

Finally, (556) and (557) are nicely in accord with a view of LF as a level at which linear order does not matter. For levels that do not feed phonology but merely feed semantics, this makes good sense (though, of course, matters could be otherwise).

#### 4.1.2 WH-movement from Wager-class Complements

The *wager-class* examples in (489) resemble Kayne's paradigm with *assure*. The problem here is the contrast with lexical subjects. As described so far, these violate the Case filter, not because of Adjacency problems, but because of the Agent/ECM Correlation:



- (559) a. *John admitted Mary to have won the race.  
 b. *John affirmed Mary to have won the race.  
 c. *John announced Mary to have won the race.  
 d. *John mumbled Mary to have won the race.

In its most revised form, this Correlation was stated as in (83), repeated here:

- (560) **Agent/ECM Correlation (version 2 of 2)**  
 For  $\alpha$ ,  $\beta$  and  $\gamma$  in E, if  $\alpha$  assigns Agent to  $\gamma$  in E  
 and requires  $\gamma$  to be animate as a lexical property,  
 then  $\alpha$  Case-marks  $\beta$  only if  $\alpha$   $\theta$ -marks  $\beta$ .

Because C-to-V applies with *wager*-class verbs, and *to* does not block government, the Government Condition on Case is satisfied with *wager*-class verbs; only the Agent/ECM Correlation prevents ECM. The Agent/ECM Correlation is one of only two generalizations so far that have the power to eliminate ECM in an embedded infinitival while leaving all other possibilities untouched. The other generalization is the Adjacency Condition on Case. For the moment, let us only look at proposition-taking verbs of the *wager*-class, and reserve until the next section discussion of *demand*-class examples.

If we limit the discussion in this way, it is possible to link the effects of the Agent/ECM Correlation to the Adjacency Condition. Redeeming a promissory note from section 3.1.1.1, recall that ECM is impossible “over” a phonologically overt non-governing complementizer like Italian *di*. As we noted in that section, LF movement of *di* to the higher verb should in principle be possible, by the same reasoning that allows LF raising of  $\emptyset_{for}$ . Nonetheless, ECM over an overt complementizer like *di* is never acceptable, as observed in (176), reproduced below. (561a) is an LF structure corresponding to the surface form (561b):

- (561) a. Mario  $di_i$ -suppone [ $t_i$  [me aver fatto il mio dovere]]  
 b. *Mario suppone di me aver fatto il mio dovere.  
 Mario supposed of me to-have done my duty

Even though Case on *me* is licensed at LF due to government by *suppone*, the presence of *di* at S-structure between *suppone* and *me* means that the S-structure adjacency condition on Case-assignment is not met.¹⁴⁷ This tells us that not only maximal projections, but also heads (like C) count for the Adjacency Condition on Case. Remember that *di* contrasts with  $\emptyset_{for}$  in that the latter is non-overt, and invisible to the adjacency requirement.

Nonetheless, overtiness is not the only factor influencing adjacency. In (502), I adopted Jaeggli’s (1980) suggestion that linear adjacency is also broken by Case-marked categories, whether overt or non-overt. Suppose the trace of C in (562) behaves like a Case-marked category, blocking the adjacency relation between *wager* and the embedded subject. Then, (540) is excluded by the Adjacency Condition on Case in (546):

- (562) *Sue [ $\emptyset_i$  [wagered]] [ $_{CP}$  [ $_{C'}$   $t_i$  [ $_{IP}$  Bill to have done that]]]

Let us assume then that an Agentive verb of the sort singled out in (560) requires its complement to be Case-marked, even when it is a CP. Furthermore, let us assume that Case-marking on CP is shared by C, by a general feature-sharing (percolation) convention:

(563) **Agent Principle**

If  $\alpha$  assigns Agent to  $\beta$  and requires  $\beta$  to be animate as a lexical property, then there must be a Case-marked argument licensed by  $\alpha$ .

(564) **Case Percolation**

A Case feature on a maximal projection is shared by its head.

The Agent Principle is stated without reference to the object of  $\alpha$  so as to allow passivization of *wager*-class verbs, in which there is no ECM, and Case is assigned to the Passive morpheme, in accordance with the theory of Baker, Johnson and Roberts (1989), discussed in earlier chapters.

Reducing the Agent/ECM Correlation to the Agent Principle might look at best like a minor but salutary move, and at worst like a trick that uses the word “Case” to make dissimilar things look similar.¹⁴⁸ In fact, however, this reduction is better than that. It has an important empirical consequence when A-bar movement applies to the embedded subject (the circumstance which motivated this discussion). Recall that ECM suddenly seems possible. Consider (489a), under the analysis developed so far:

(565) **Mary_i, who_k Bill**

$[\emptyset_i \text{ [admitted]}] [_{CP} t'_k [_{C'} t_i [_{IP} t_k \text{ to have done that}]]]$

The Government Condition on Case (557) is satisfied for the subject trace  $t_k$ , since the embedded C has adjoined to the higher (Case-assigning) verb *admit*. The trace of this C,  $t_i$ , is Case-marked by the Agent Principle (563). Thus the subject trace is not adjacent to the higher verb and cannot satisfy the Adjacency Condition. Remember, however, that the Adjacency Condition on Case (556) can also be satisfied by members of the A-bar chain whose tail is  $t_k$ . In (565), the intermediate trace  $t'_k$  is adjacent to *admit*, and therefore the Adjacency Condition is satisfied. This is unexpected if the Agent/ECM Correlation is simply a matter of associating  $\theta$ -role with Case (since the intermediate trace  $t'_k$  is not  $\theta$ -marked by *admit*), but is completely expected if agentive verbs produce Adjacency Condition violations. Thus, the Adjacency Condition on Case, supplemented by the Agent Principle, explains something that the former Agent/ECM Correlation failed to observe.

One apparent problem is only superficial. The effect seen in (562) is weaker for native speakers than less controversial Adjacency violations like **I assure you Bill to be the best* in (538c) or **John asked Bill Mary to leave* in (495). In fact, I used this contrast to motivate the Adjacency Condition in the first place, in the previous section, when I argued that (495) should not be attributed to the Agent/ECM Correlation. If we are now “reducing” the Agent/ECM Correlation to an Adjacency Condition effect, we might seem to have come full circle and to have lost the motivation for the Adjacency Condition in the first place. Actually, no circularity has occurred. The work previously done by the Agent/ECM condition is now done jointly by the Agent Principle and the Adjacency Condition. In general, an acceptability judgment is only as strong as the best possible analysis.¹⁴⁹ Suppose Adjacency violations yield strong judgments of unacceptability, but violations of the Agent Principle yield weak effects. Example (562) will be judged marginally acceptable if on an analysis in which C is not Case-marked in violation of the Agent Principle (a weak effect). On this analysis, the Adjacency Condition on Case is not violated, sparing the speaker from the strong judgments that violation of this Condition produces. (Remember from section 1 that there is no general requirement that CP be Case-marked.) In any case, judgments will be further graded by the contrasts summarized in (91)-(93), which will now be understood as conditions on the Agent Principle.

One group of examples remain problematic. When motivating the Agent/ECM Correlation, I observed in section 2.7 that performative change-of-state verbs like *decree*

appeared to show ECM despite taking an obligatory animate agent as subject. The relevant examples, from (84), are reproduced below:

- (566) a. Congress declared March to be National Syntax Month.  
 b. The king decreed March 1992 to have 32 days.  
 c. The judge ruled Bill to be competent to stand trial.

I argued that these represent rare cases of  $\theta$ -marking across a clause boundary. Verbs like *declare* may take three arguments, with one included inside the other. If the Agent/ECM Correlation is reduced to the Agent Principle and the Adjacency Condition on Case, we have two choices. First, we might prevent C from being Case-marked by *declare* when it contains an argument of *declare*. Alternatively, we might posit movement of the embedded subject in (566) to SPEC,CP, where Adjacency is met. The first possibility can be stated as an *unless*-clause on (563), but seems like a step backwards. The second is perhaps more promising:

- (567) Congress [ $\emptyset_i$  [declared]] [_{CP} March_k [_{C'} t_i [_{IP} t_k to be...]]]

SPEC,CP in English is not a position to which elements may move freely. In previous work, SPEC,CP has seemed to be occupied (in English) only by WH-phrases. WH-phrases are allowed in embedded clauses as a consequence of selection by the governing verb. We might similarly allow SPEC,CP to be occupied by simple NPs like *March* or *Bill* as a consequence of selection by the governing verb. In the case of embedded WH-questions, it is generally argued that the higher verb s-selects a question; the structural realization of a question involves a [+WH] complementizer; and [+WH] complementizers require WH-phrases in SPEC. Alternative views, for example those of Cheng, posit the opposite: if a verb s-selects a question, WH-movement is necessary for a clause to be “typed” as that question (s-selection being satisfied at S-structure). Conceivably, complements to verbs like *declare* require a similar mechanism: to be “typed” as a change-of-state performative, the “state-changing” NP must occupy SPEC,CP. As before, we will posit cross-clausal  $\theta$ -marking, and movement to SPEC,CP may serve to satisfy some locality condition on this  $\theta$ -marking. This suggestion seems the most plausible one available in the present theory, but I will leave the matter open. Since more careful investigation of the semantics of these predicates is needed.

I thus conclude that the Agent/ECM Correlation is an epiphenomenon of the Agent Principle and the Adjacency Condition on Case, supplemented by an appropriate account of verbs like *declare*. This conclusion is empirically motivated by the contrast in ECM between lexical and trace subjects, and is conceptually an advance, since the burden of excluding lexical subjects embedded under *wager* falls on the independently motivated Adjacency Condition on Case. Nonetheless, the reasons for the exceptionality of Agentive predicates remain as unknown as before. Clearly, there is still work to be done.

Now let us turn to a final problem with this approach. The ameliorating effect of A-bar movement on ECM with agentive *wager*-class predicates is not matched for agentive, irrealis-taking *demand*-class predicates:

- (568) a. *What did Bill demand [ $t'_i$   $\emptyset_{for}$  [ t_i to be read]]?  
 b. *Who did Sue consent [ $t'_i$   $\emptyset_{for}$  [ t_i to read the poem]]?  
 c. *What hurricane did Bill prepare  $\emptyset_{for}$  [ $t'_i$  [ t_i to arrive]]?

We cannot blame this on the impossibility of extracting a subject across  $\emptyset_{for}$ , since when ECM is possible, this sort of extraction is fine:¹⁵⁰

- (569) a. What do you want [ $t_i$   $\emptyset_{for}$  [ $t_i$  to be read]]?  
 b. Who would you prefer [ $t_i$   $\emptyset_{for}$  [ $t_i$  to read the poem]]?  
 c. Who would you like [ $t_i$   $\emptyset_{for}$  [ $t_i$  to arrive]]?

Let us assume that  $\emptyset_{for}$ , just like the trace of  $\emptyset$ , is subject to the Agent Principle: marked for Case in the environment of a agentive verb of the proper type. There are now several ways to account for (568). First, there might be some problem satisfying the Adjacency Condition on Case via the intermediate trace. This seems unlikely, since nothing plausible connects properties *demand* and *wager* or  $\emptyset_{for}$  and  $\emptyset$  to differences in chains or Case. Alternatively, (568) in conjunction with some other factor might violate a condition on WH-movement. This also seems unlikely, given (569). Finally, (568) might relate to the special property of  $\emptyset_{for}$ , namely its status as [-Affix]. As in *wager*-class examples, ECM in (546) depends in part on government by the higher verb. This government, however, is not established until LF raising of  $\emptyset_{for}$  to  $\bar{V}$ . Thus, the Government Requirement on Case for the lower subject is satisfied by government from [ $\emptyset_{for}$   $\bar{V}$ ]. The Adjacency Requirement, however, holds at S-structure, where it can only be satisfied by government from the  $\bar{V}$ . In other cases, it seems to be important that Case be licensed by the same element both for S-structure Adjacency purposes and for LF Government purposes. Consider (554) once more. ECM in (554a) (**Bill, who I notified the committee to be the best.*) was said to be impossible because of the absence of a landing place where an intermediate trace could be adjacent to *notify*.

Consider now more complex structures like (569):

- (570) *John,  
 who_i I believe [_{CP}  $t''_i$  [_{IP} Bill notified the committee  
 [_{CP}  $t'_i$  [_{IP}  $t_i$  to be the best]]]]

Here, as in (554a), there is no position for an intermediate trace of *who_i* adjacent to *notify*, the verb that governs the initial trace  $t_i$  and licenses its Case for government purposes. Unlike (554a), there is another intermediate trace,  $t''$  which is adjacent to a Case-assigner: in this case, *believe*. Nonetheless, the structure is as bad as (554a). Evidently, the Case licenser for Government and the Case licenser for Adjacency must be one and the same (a fact already built into our formulations in (556) and (557), where a unique licenser is presupposed).

Returning to (568), we can ask whether S-structure licensing by  $\bar{V}$  contained in [ $\emptyset_{for}$   $\bar{V}$ ] and LF licensing by  $\bar{V}$  contained in  $\bar{V}'$  constitute licensing by one and the same element. If the answer is no, we have an explanation for (568). Case is *not* licensed on the initial trace, and the examples are Case filter violations. Finally, the same considerations will rule out counterparts to (568) with in which the  $\emptyset_{for}$ -infinitive is a second object:

- (571) a. *What did you persuade Sue [ $t_i$   $\emptyset_{for}$  [ $t_i$  to be read]]?  
 b. *Who did you ask me [ $t_i$   $\emptyset_{for}$  [ $t_i$  to read the poem]]?  
 c. *Who did John request of Mary [ $t_i$   $\emptyset_{for}$  [ $t_i$  to arrive]]?

#### 4.1.3 The Complementarity of Overt *for* and $\emptyset_{for}$

Our Case theory plays a role in the distribution of overt *for*. As I have noted at various points, judgments concerning the availability of overt *for* are often cloudy and are subject to variation across speakers and dialects of English. Nonetheless, there are certain striking patterns. The most commonly cited judgment concerns the impossibility of overt *for* immediately

following *want*. When the complement to *want* is separated from the verb, *for* is possible for most or all speakers (at least of American English). In my judgment, *desire* and *need* behave the same:

- (572)a. *Mary wants for Sue to be elected president.  
b. Mary wants very much for Sue to be elected president.
- (573)a. *We need for Sue to be elected president.  
b. We need right now for Sue to be elected president.
- (574)a. *Mary desired for Sue to be elected president.  
b. Mary desired with all her heart and soul for Sue to be elected president.

In the (b) sentences, *for* may not be omitted. If it were omitted, C would be occupied by  $\emptyset_{for}$ . Presumably (depending on the structure assumed),  $\emptyset_{for}$  could raise to the higher verb at LF, satisfying the Government Condition on Case for the embedded subject. The Adjacency Condition, however, would not be satisfied, making ECM impossible. In this small group of verbs, then, *for* appears to be possible just when ECM would violate the Adjacency Condition.

Both the Adjacency and Government Conditions limit licensing to appropriate [-N] elements. Interestingly, as far as I can tell, there are no nouns or adjectives that are semantically compatible with *for* and  $\emptyset_{for}$  and do not allow *for*:

- (575)a. Bill is anxious for Mary to get home.  
b. Sue is eager for Mary to get home.  
c. John is prepared for there to be objections.  
d. Tom is ready for someone to turn off the lights.  
e. Mary is reluctant for there to be another meeting.  
f. Bill is willing for John to try his hand at the job.  
g. Sue was proud for John to see her run.  
h. Mary would be sad for something to go wrong.  
i. Bill would be sorry for the summer to end without a fireworks display.
- (576)a. Bill's desire for Mary to leave  
b. Sue's need for someone to thank her  
c. Bill's eagerness for Mary to get home.  
d. Sue's reluctance for there to be another meeting.

Similarly, relevant subject sentences semantically compatible with *for* are always acceptable with *for*, as we have seen earlier. Here neither Adjacency nor Government Conditions on Case Assignment would be met by any sort of ECM involving  $\emptyset_{for}$ -to-V movement, even if such movement were possible:

- (577)a. For Sue to leave would be nice.  
b. For Sue to leave is what we want.

I conclude that *for* is a syntactically conditioned allomorph of  $\emptyset_{for}$ , inserted only when ECM is otherwise impossible. Suppose, then, that only  $\emptyset_{for}$ , and not *for*, is present at D-structure. The following language-specific rule inserts *for* late in the mapping from D-structure to S-structure, following Case Licensing under adjacency.

(578) ***For*-insertion (version 1 of 3)**

$\emptyset_{for}$   $\rightarrow$  *for* / _____ [_{IP} [ $\alpha_{NP}$ ]...], where  $\alpha$  is Case-marked but not Case-licensed.

This rule presupposes that  $\emptyset_{for}$ , and not *for*, is present at D-structure. This assumption is simply, but not warranted. Alternatively, we can insert at D-structure a more abstract form, lacking phonological features but otherwise non-distinct from both  $\emptyset_{for}$  and *for*. Then, late rules of lexical insertion, applying at S-structure, will insert phonological features in the case of *for*, and insert a null phonological matrix in the case of  $\emptyset_{for}$ . I use “ $\emptyset$ ” as a name for the non-phonological features of *for* and  $\emptyset_{for}$ :

(579) ***For*/ $\emptyset_{for}$ -insertion (version 2 of 3)**

$\emptyset$   $\rightarrow$  *for* / _____ [_{IP} [ $\alpha_{NP}$ ]...], where  $\alpha$  is Case-marked but not Case-licensed.

otherwise,  
 $\emptyset$   $\rightarrow$  [null matrix]

In any case, a problem is raised by verbs like *like*, *hate*, *prefer* and similar verbs (e.g. *love*, *loathe*). For some speakers, in some registers, these verbs accept *for* even when immediately adjacent to the verb (cf. Chomsky 1977a, 189):

- (580)a. John would like *for* Bill to leave the room.  
 b. Sue generally hates *for* rain to fall on the day of a picnic.  
 c. Mary would prefer *for* Sue to be elected president.

Identical strings with  $\emptyset_{for}$  replacing *for* are acceptable, which looks like a counterexample to (579). It is not clear, however, that these strings have identical structures associated with them. In particular, I suggest *for* is acceptable in (580a-c) only when the embedded CP is not an argument, but an adjunct. Conversely,  $\emptyset_{for}$  is possible only when the embedded CP is an argument. Recall from the discussion of the Factive and Non-Factive Generalizations in section ??? that [+factive] verbs like *like*, *hate*, and *prefer* permit their complements after IC to occupy a non-complement position at the levels preceding IC. By contrast, [-factive] verbs like *want* require their complements after IC to occupy complement position at all levels. These generalizations covered contrasts like the following:

- (581)a. *John wants it *for* Sue to be elected president.  
 b. *We need it *for* Sue to be elected president.  
 c. *Mary desired it *for* Sue to be elected president.  
 d. ?John would like it *for* Bill leave the room.  
 e. ?Sue generally hates it *for* rain to fall on the day of a picnic.  
 f. ?Mary would prefer it *for* Sue to be elected president.

If the post-IC complement to a [+factive] verb can occupy an adjunct position at S-structure with object *it*, this might be possible even without overt object *it*. In that case, VPs of the form *like CP* would be structurally ambiguous between a configuration in which CP is a complement and a configuration in which CP is an adjunct. When this CP is an adjunct, if *for* is replaced by  $\emptyset_{for}$ , ECM is impossible:  $\emptyset_{for}$  cannot raise to the higher V from an adjunct. Thus, the occurrence of overt *for* might be limited to environments in which ECM is impossible — this time due to the Government Condition. Some support for this generalization comes from the impossibility of adjunct extraction out of embedded clauses like those in (580):¹⁵¹

- (582)a. How_i would John like [ (?*for) Bill to fix the bicycle t_i].  
 b. When_i does Sue most hate [(?*for) rain to fall t_i].  
 c. The reason why_i [Mary would prefer [(??for) Sue to be writing her novels t_i] is out of some moral imperative.

If an adjunct analysis of the infinitives in (580) is correct, the rules in (579) can and must apply to yield ECM. There is a difficulty, however. If the adjunct analysis is correct, insertion of *for* in (580) is motivated by the Government Condition on Case, not by the Adjacency Condition, since the adjunct is (on the analysis so far) adjacent to the higher verb. The Government Condition holds at LF. This was necessary in order to explain ECM after LF C-to-V movement with [-Affix]  $\emptyset_{for}$ . (Remember that S-structure C-to-V movement is impossible for a [-Affix] complementizer, and would incorrectly exclude PRO and allow NP-trace in the subject position embedded under  $\emptyset_{for}$ .) On the other hand, (579) must feed PF. How can (579) “know” at S-structure whether Case will be licensed at LF?

Here we have a number of options. We might readjust our analysis of (580) slightly, and posit a null, Case-marked object pronoun comparable to *it* in (581). This object pronoun would invoke the Adjacency Condition on Case, preventing the embedded subject from being Licensed under adjacency:

(583) John would like **pro** (*for*/ $\emptyset_{for}$ ) Bill to leave the room.

This proposal would raise questions concerning the licensing of object *pro* (already discussed in connection with (314), where the status of the Projection Principle was considered), but would make S-structure application of *For*-insertion in (579) easy. Alternatively, we might suppose that (580) with  $\emptyset_{for}$  would be only an LF violation of the Government Condition on Case. In this case, the application of (579) would be global. Like *Do*-support in Chomsky’s (1989) proposal, the rule of *For*-insertion would be a globally conditioned “Last Resort”. If and only if a derivation with  $\emptyset_{for}$  fails at LF, *for* may be inserted at S-structure. Neither solution is problem-free, but further investigation would take us farther afield than we should go at this point.

## **4.2 [-Affix] and [+Affix] Complementizers?**

Why is  $\emptyset_{for}$  [-Affix]? In chapter ???, I advanced a hypothesis concerning zero morphemes, which I quite obviously abandoned when  $\emptyset_{for}$  was introduced:

(584) A zero morpheme is [+affix].

As I noted when (584) was introduced, a condition like (584) is not unexpected. Research on phonologically zero categories in syntax has observed again and again that such categories require special licensing. Empty elements are not sprinkled freely in the syntactic tree. Instead, traces occur only if they are governed in various ways; null pronouns must be specially provided for by the various facets of the pro-drop parameter; and null VPs must have their content determined. (584), combined with the Affix Biconditional in (172), simply tells us that empty heads are licensed through affixation. For this reason, (584) is attractive.

The sole exception to (584) so far (unless we adopt the C* hypothesis of section 3.4) has been  $\emptyset_{for}$ .¹⁵² We have just seen that  $\emptyset_{for}$  and *for* are allomorphs, whose distribution is determined by Case licensing. This suggests that we distinguish between morphemes that are simply “zero” (“null”, “non-overt”) and morphemes that are *strongly zero* in some principled fashion. By defining the notion *strongly zero* (*s-zero*) and revising (584) to make reference to this term, we can make some sense of the [-Affix] status of  $\emptyset_{for}$ :

(585) **S-zero**

An *s-zero morpheme* is a zero morpheme with no non-zero allomorphs.

(586) An *s-zero morpheme* is [+affix].

For now, let us add to the standard definitions of allomorphy (which deal with word-internal environments) the following condition:

(587) **Allomorphy (1 of 2)**

Morphemes  $\alpha$  and  $\beta$  are *allomorphs* if

- (i)  $\alpha$  and  $\beta$  are synonyms, and
- (ii) the rule that inserts  $\alpha$  and the rule that inserts  $\beta$  apply in disjoint environments.

Consider how the system consisting of (585) and (586) might work for clear cases like *for*,  $\emptyset_{for}$  and *if*. The complementizer  $\emptyset_{for}$ , by (585) and (586), is free to be [+Affix], since it has a non-zero allomorph *for*. This is the case because *for* only occurs in non-Case-licensed clauses, while  $\emptyset_{for}$  only occurs in Case-licensed clauses, as a matter of lexical properties. Of course, something stronger is true:  $\emptyset_{for}$  is not [+Affix]. If it were even optionally [+Affix], verbs like *want* would allow NP-movement from the embedded subject position. Suppose therefore that the following markedness condition is true:

(588) The child assumes that a morpheme is [-Affix] unless there is reason to assume that it is [+Affix].

In other words, [-Affix] is the unmarked value for a morpheme. “Reasons to assume” in (588) includes the evidence of one’s ears, in the case of a morpheme which is audibly an affix, and also includes evidence induced by principles like (586), for phonologically null affixes. In the case of a phonologically null form like  $\emptyset_{for}$ , there is no auditory evidence, and (586) is irrelevant. Thus  $\emptyset_{for}$  is [-Affix].¹⁵³

If our general analysis is correct, *for* and  $\emptyset_{for}$  have another allomorph in the form of *if*. I discussed at length the semantic identity of *for*,  $\emptyset_{for}$ , and *if*, but left a basic syntactic difference unobserved:

(589)a. *For* and  $\emptyset_{for}$  1-select infinitival IPs.  
 b. *If* 1-selects finite IPs.

*For*,  $\emptyset_{for}$ , and *if* thus form a family of allomorphs. Extending (579), we would account for the distribution of these morphemes by the following rules:

(590) ***For/* $\emptyset_{for}$ */if*-insertion (version 3 of 3)**

- (i)  $\phi \rightarrow \textit{for}$  / _____ [_{IP} [ $\alpha_{NP}$ ] I...], where  $\alpha$  is Case-marked but not Case-licensed and I is [-finite],
- (ii)  $\phi \rightarrow \textit{if}$  / _____ [_{IP} [ $\alpha_{NP}$ ] I...], where I is [+finite],
- (iii) otherwise,  
 $\phi \rightarrow$  [null matrix]¹⁵⁴

This is significant, because there is no requirement that languages have morphemes meaning ‘if’ for every possible syntactic environment. Most well-studied languages, in fact, lack a clear analogue to English *for*, but have a word meaning ‘if’ with syntax roughly like that of



English *if*. Languages that lack *for* but do have  $\emptyset_{for}$  may very well also treat  $\emptyset_{for}$  as [-Affix]. Consider the process of “Aux-to-Comp” in Italian, discussed in section 3.1.1.1 above. Recall that the movement of the infinitival auxiliary to C (restricted to literary registers) permits a nominative lexical subject. The examples in (591) are repeated from (157) (from Rizzi (1980; example (16)):

- (591)a. Hanno sempre sostenuto [non esser io  
They-have always asserted not to-be I  
  
in grado di affrontare una simile situazione.]  
able to face such a situation
- b. Così facendo, suppongo [aver tu voluto  
Doing this, I suppose [to-have you wanted  
  
compiere un gesto di buona volontà  
to-accomplish an act of good will

Rizzi (1982, chapter 3) argues that the fronting of the auxiliary in (591) is indeed movement to C. In particular, fronting may not cooccur with an overt complementizer, for example the complementizer *di* that is otherwise compatible with these verbs:

- (592)a. *Hanno sempre sostenuto [*di* non esser io in grado di  
affrontare una simile situazione.]
- b. *Così facendo, suppongo [*di* aver tu voluto compiere un gesto  
di buona volontà

I assume that Aux-to-Comp in (591) involves adjunction of INFL to a null complementizer  $\emptyset$ , much as ECM in English involves adjunction of  $\emptyset$  to V. Both types of movement can in principle satisfy the [+Affix] property of  $\emptyset$ , but English for some reason sharply restricts raising to C in a manner not found in literary Italian. Crucially, as Rizzi (1982) points out, Aux-to-Comp is not possible in the complement to *want*-class and *demand*-class verbs:

- (593)a. *Preferirei [aver lui sempre fatto il suo dovere].  
I would prefer [to-have him always done his duty
- b. *Cerco [esser lui messo al corrente]  
I try [to-be him acquainted

This is what we expect if these verbs, as in English, select a null complementizer akin to  $\emptyset_{for}$ , and if  $\emptyset_{for}$ , unlike  $\emptyset$ , is [-Affix]. Why should Italian  $\emptyset_{for}$  be [-Affix]? Italian lacks any straightforward equivalent to overt *for*. On the other hand, non-interrogative *se* ‘if’ behaves much as in English. Except in its interrogative usage, *se*, like *if*, is possible only with tensed clauses:

- (594) *Se andare al Roma, troverai la tua fortuna.  
'*If to go to Rome, you will find your fortune'

Therefore, if the general hypothesis advanced for English  $\emptyset_{for}$  is correct, it must be the allomorphy between  $\emptyset_{for}$  and *se* ‘if’ that allows  $\emptyset_{for}$  to be marked [-Affix].

This argument is not conclusive. Much of the data that motivated our analysis of  $\emptyset_{for}$  cannot be examined straightforwardly in Italian. There are a number of confounding factors involved in nominalizations, which were a clear test for the non-affixal status of  $\emptyset_{for}$  in English. In particular, there is a strong tendency to introduce infinitives internal to NP with *di*, whatever

their form in VP. A fuller investigation would study the nature of *di* (e.g. whether it is a preposition or complementizer or both) and the reasons for its presence, and then turn to the structure of the infinitival complement, but I have not carried out such an investigation.

An additional problem arises because Aux-to-Comp is also impossible in the complement to *hate*- and *manage*-class verbs, where presumably COMP is filled by a [+Affix] null complementizer, if our analysis for English extends to Italian. Here, some property of INFL might be at stake, since English *tofac* and *toimpl* were seen to have special properties, but the data await a full analysis. The impossibility of Aux-to-Comp with these predicates weakens our ability to attribute to  $\emptyset_{for}$  the absence of Aux-to-Comp in (593). Nonetheless, it is important to raise the question, which should lead to investigations that will develop or alter the analyses presented in this book.

Finally, is disjointness of environment with a non-zero form should really a part of the notion “s-zero affix”? Could it be that synonymy and, perhaps, non-overlapping distribution is all that is required? If so, we might redefine the notion *s-zero* as follows:

(595) *S-zero (not adopted)*

**An s-zero morpheme is a zero morpheme with no non-zero synonyms.**

In most cases, it could be argued that synonymy does all the work, and that (595) is adequate. Consider the zero morphemes that we do *not* want to be [-Affix]. We want CAUS- to count as s-zero, hence [+Affix], despite the existence of lexical non-affixal causative morphemes like *make*. Remember, however, that CAUS- and *make* are only **near**-synonyms, and not full synonyms. In footnote ???, we observed a number of respects in which their meanings differ, for example, with respect to chemical vs. perceptual causes of emotional states. Likewise, MIDDLE- and passive *-en* differed in the presence of a modal element in meaning. Similarly, the fact that preposition *to* has a phonologically unrealized near-synonym in the double-object construction did not mean that the two were actual synonyms. Only *to*, but not its zero cousin, could participate in constructions involving movement produced by continuous imparting of force. Thus, CAUS-, MIDDLE- and the null preposition in double-object structures are safely marked [+Affix].

Certain other cases argue against (595), however. The adnominal affix PASS-, for example, is synonymous with passive *-en*, as far as one can ascribe any meaning at all to such grammatical morphemes. Nonetheless, it is still affixal. In this case, we might refine our theory. We have assumed that phonologically null morphemes with overt counterparts are [-Affix]. We might assume instead that phonologically null morphemes with overt counterparts inherit the value for [ $\pm$ Affix] from their overt counterpart. Thus, PASS- would be [+Affix] because *-en* is [+Affix].¹⁵⁵

This will not work, however, for the alternation between the [+Affix] complementizer  $\emptyset$  and overt *that*:

- (596)a. **Sally believes that the world is round.**  
 b. **Sally believes  $\emptyset$  the world is round.**

These two morphemes are, as far as one can tell, synonymous (perhaps lacking semantic value entirely). Furthermore, *that* is [-Affix]. Thus, if only synonymy were at stake, or synonymy plus the value of the overt morpheme for [ $\pm$ Affix], the null complementizer in (596b) would be [-Affix], like  $\emptyset_{for}$ . We have seen, of course, that this is false: the complementizer  $\emptyset$ , with finite as well as non-finite clauses, displays the behavior we expect from a [+Affix] complementizer.

On the other hand,  $\emptyset$  and *that* are clearly not in complementary distribution, as (596a-b) demonstrate.¹⁵⁶ This issue will become important when we consider infinitival complementation in French.

### **4.3 Infinitives in Romance**

The preceding section, with its discussion of Italian, brings to the fore a legitimate worry about the present work. In the sections on English infinitival complementation, I tried to show how UG combines in a simple fashion with the semantic properties of infinitive-taking predicates to predict the syntactic properties that these predicates display. Even if I have been on the right path, the enterprise has rested on an oversimplification of the facts. Languages differ in their treatment of clausal complementation in ways to which the theory so far has not been responsive. UG is a theory about a finite but complex space of possible grammars into which the world's actual grammars fall. The semantic properties of infinitive-taking predicates should interact in a proper fashion, not merely with the grammar of English, but with the grammar of any language for which a category like "infinitive" is relevant. That I have not pursued these matters in this book was a tactical decision, not a principled decision.

In this section, I will discuss some problems that arise when considering the infinitival structures of Italian and French, as an indication of where the research reported here might lead, and where problems can already be seen. We will examine enough of the system to suggest an optimistic conclusion. There are properties of these languages that suggest a broadening of the possibilities suggested here for English. Nonetheless, the systems are fundamentally tame. Nothing too much beyond the bounds of what we have seen will be found. A fuller working out of the problems and questions raised by these languages will not be attempted here.

#### **4.3.1 Italian**

In this section, I will explore a number of approaches to infinitival complementation in Italian, keeping as close to our analysis of English as possible.

In the previous section, we saw that the [+Affix] status of  $\emptyset$  with *believe-* and *wager-*class predicates in Italian may be satisfied by INFL-to-C. In fact, at first sight, something stronger seems to be true. It looks as though C-to-V is not available at all. ECM of the sort that would result from C-to-V is not found in Italian:

- (597)a. *Hanno sempre sostenuto [Maria non esser in grado di  
affrontare una simile situazione.]
- b. *Così facendo, suppongo [Gianni aver voluto compiere un gesto  
di buona volontà]

Nor is NP-trace generally impossible in the embedded subject position, as discussed by Rizzi (1980, 132). I return below to certain predicates that do allow this kind of passive:

- (598) *Quelle persone erano supposte non essere state messe al  
These people were supposed not to-have been acquainted  
corrente delle vostre decisioni.  
with your decisions

Example (598) can be excluded in two ways (given the discussion so far). First, it can be excluded as an ECP violation, since the result of adjoining AUX to C does not create an environment in which the embedded subject is lexically governed (assuming INFL is not a lexical governor). The configuration is in this respect akin to that found when C is null at D-structure, as with  $\emptyset_{for}$ .

I will not develop an account of why the possibility of INFL-to-C might make C-to-V impossible. One possibility involves the Earliness Principle, which requires filters like the Affix Biconditional to be satisfied as early as possible in the derivation. If movement obeys the strict cycle, then whenever a language allows a [+Affix] C to undergo affixation on the CP cycle, that option will be taken, in preference to affixation on a higher VP cycle.¹⁵⁷ Instead, I want to turn to a wider class of infinitival complements in Italian, which complicate the picture.

In particular, as stressed by Rizzi, constructions involving AUX-to-C and nominative lexical subjects in infinitives are restricted to a stylistically marked literary register, while other infinitival constructions are not restricted in this fashion.¹⁵⁸ WH-movement from the subject position of infinitival complements to *believe*- and *wager*-class verbs is apparently acceptable in registers that totally disallow overt nominative subjects with AUX-to-C (cf. especially Rizzi (1980, fn. 13) as well as discussion in Rizzi (1982):

(599) **Quante persone ritieni [essere in grado di pagare il riscatto]**  
**How-many people you-believe to-be able to pay the ransom**

But for the registral difference between (599) and (579), it would be hard to tell whether (599) involves AUX-to-C or not. There are no sure signposts to tell us whether the original WH-trace is to the left of *essere* or to its right. Rizzi proposes that (599) is an instance of extraction from an infinitive in which AUX-to-C has *not* applied. If AUX-to-C has not applied, then we would have to ask how Case is assigned to the WH-chain in (599). A conservative proposal, and an attractive one, would assign to (599) exactly the analysis we gave to comparable cases in English involving *wager* and *assure*. This analysis would posit an empty [+Affix] complementizer  $\emptyset$  marked [+Case] so as to exclude simple ECM, S-structure raising from C-to-V, S-structure Case-licensing of the intermediate trace *t'* and LF Case-licensing of the original trace *t*. Example (600) shows S-structure under this analysis. LF differs only in the presence of *t'*:¹⁵⁹

(600) **Quante persone_i [ $\emptyset_j$  [ritieni]]**  
**[_{CP} *t'*_i [_C *t*_j [_{IP} *t*_i [_{I'} **essere in grado di pagare il riscatto**]]]]]**

This analysis, would, following Rizzi, attribute the registral difference between (591) and (599) to the application of Aux-to-Comp in the former but not in the latter. The stipulation that  $\emptyset$  is [+Case] (here unrelated to Agency) does the job in this register that forcing AUX-to-C does in the marked register; it blocks ECM.

Unfortunately, once we allow S-structure C-to-V raising of  $\emptyset$ , we allow NP-movement as in (598) back in. This suggests a revision of the proposal that Italian *believe*- and *wager*-complements display a null complementizer whose properties are identical to its English cognate. Putting AUX-to-C aside (i.e. limiting ourselves to the unmarked register), the only case in which the complements in question successfully take the complementizer  $\emptyset$  is the case of WH-movement from subject position seen in (600). In fact, complementizers that are limited to instances of WH-movement from the nearest subject are a well-known phenomenon. The most familiar example of this phenomenon is the alternation between *que* and *qui* in French, discussed by Taraldsen (1978) Pesetsky (1979a; 1981) and many others (e.g. Rizzi (1990, 56ff.)). The alternation between *da* and *die* in West Flemish (Bennis and Haegeman (1984)) provides another example, except for the presence of an option not available in French. The special

complementizer *die* found with subject extraction is optional, while its French counterpart *qui* is not:

- (601)a. *L'homme que_i je crois [_{CP} t_i [_{C'} que [_{IP} t_i viendra ]]]  
 'The man that I think that will come'
- b. L'homme que_i je crois [_{CP} t_i [_{C'} qui [_{IP} t_i viendra ]]]
- c. L'homme que_i je crois [_{CP} t_i [_{C'} que [_{IP} Marie aime t_i ]]]
- d. *L'homme que_i je crois [_{CP} t_i [_{C'} qui [_{IP} Marie aime t_i ]]]
- (602)a. Den vent [_{CP} t_i [_{C'} da [_{IP} t_i gekomen is]]]  
 the man that come is  
 'the man that came'
- b. Den vent [_{CP} t_i [_{C'} die [_{IP} t_i gekomen is]]]
- c. Den vent [_{CP} t_i [_{C'} da [_{IP} Pol getrokken heet]]]  
 the man that Pol made-a-picture has
- d. *Den vent [_{CP} t_i [_{C'} die [_{IP} Pol getrokken heet]]]

We have already noted (in connection with example (173), page 47) that Italian allows an overt complementizer *di* with *believe*- and *wager*-class predicates:

- (603) Mario suppone/dichiara di PRO aver fatto il suo dovere.  
 Mario supposes/declares of to-have done his duty.

*Di* is incompatible with WH-extraction from the embedded subject position:¹⁶⁰

- (604) Quante persone ritieni [(**di*) essere in grado di pagare il riscatto]  
 How-many people you-believe to-be able to pay the ransom

We can attribute this incompatibility to the same factors that were discussed at the end of section 4.1.2. There, we wished to exclude examples like (568a), reproduced below:

- (605) *What did Bill demand [t'_i  $\emptyset_{for}$  [ t_i to be read]]?

I noted that *demand* could license the intermediate trace t'_i at S-structure and the original trace t_i at LF, if  $\emptyset_{for}$  raises to *demand* at LF. We had previously seen that the S-structure licenser and the LF licenser of a Case-marked element must be the same. I suggested that *demand* by itself and *demand* to which  $\emptyset_{for}$  has adjoined are not "the same" in the sense relevant to this condition. The same would apply to (604). In order to Case-license the embedded subject trace at LF, [-Affix] *di* would need to raise to the higher verb *ritieni* which Case-licensed the intermediate trace at S-structure. The difference between S-structure word *ritieni* and the LF word *di+ritieni* would eliminate the possibility of Case-licensing here.

Given the impossibility of *di* in this configuration, the distribution of *di* and  $\emptyset$  in the unmarked register quite closely mirrors the distribution of *que* and *qui* in French. *Di* is the "normal" complementizer found in infinitival complements to *believe*- and *wager*-class verbs. The null complementizer  $\emptyset$  is found if and only if its SPEC is filled by WH-movement of the nearest subject. This excludes it from simple ECM environments as well as environments of NP-movement. Since *di* is [-Affix] and a non-governor, it happens that all examples that do not involve subject WH-movement show PRO in subject position. This correctly accounts for the distribution of lexical and null subjects in complements to *believe*- and *wager*-class verbs.

The only clear difficulty concerns the affixal status of Italian  $\emptyset$  in (600). This complementizer must be [+Affix]. If it were [-Affix] it could still raise at LF, but its syntax should be the same as *di* and  $\emptyset_{for}$ . Case-marking of the subject trace left by WH-movement should be impossible. Nonetheless, *di* and  $\emptyset$  are in complementary distribution (at least with the verbs considered here) so we might expect  $\emptyset$  to be [-Affix], just as  $\emptyset_{for}$  is [-Affix]. This is not a problem. The notion of allomorphy spelled out in (587) does not make direct reference to complementary distribution between two morphemes  $\alpha$  and  $\beta$ , but rather requires that “the rule that inserts  $\alpha$  and the rule that inserts  $\beta$  apply in disjoint environments.” We clearly need to restrict the rule inserting  $\emptyset$  to cases of local WH-movement of the subject. We might go on and restrict the rule inserting *di* to complementary cases, i.e. to all circumstances *other* than local WH-movement of the subject. If *di* were introduced by such a rule, then  $\emptyset$  and *di* would qualify as allomorphs, and  $\emptyset$  would be [-Affix]. There is no need to restrict the insertion of *di* in such a fashion, however. As we have just seen, there are independent, Case-theoretic reasons for excluding *di* from structures involving local WH-movement of the embedded subject. Therefore, the rule that inserts complementizer *di* into phrase markers does not have to be sensitive to the absence of the configuration that allows  $\emptyset$ . In principle, then the alternation between *di* and  $\emptyset$  is more like West Flemish *da/di* than like French *que/qui*, even though the facts more closely resemble the latter than the former.¹⁶¹

Let us systematically review the analysis of Italian proposed here. Consider first the unmarked register. With *believe-* and *wager-*class verbs, *di* is the normal complementizer, as a result (presumably) of I-selection. *Di* is [-Affix], phonologically non-zero, and non-governing, and thus is compatible only with PRO in embedded subject position. However, when SPEC,C is filled due to local WH-movement of the embedded subject, *di* is replaced by  $\emptyset$ . This complementizer, like any zero affix that has no allomorphs under (587), is [+Affix]. Raising of  $\emptyset$  to V enables Case-marking of the WH-chain just as with *wager-*class predicates in English. The consequence of this system is the limitation of the embedded subject to PRO and WH-trace. NP-trace and lexical subjects are incompatible with  $\emptyset$  and are excluded with *di*. In this domain, at least, we no longer need the assumption that all instances of C are [+Case].

Let us turn now to *want-* and *demand-*class verbs. Here, I assume a complementizer  $\emptyset_{for}$  with the properties attributed to its English counterpart. (The evidence for this was the absence of AUX-to-C in the marked register, discussed in the previous section in connection with (593).) The only relevant difference between Italian and English here is the continued impossibility of ECM:

(606) ***Preferirei** [ $\emptyset_{for}$  **Gianni aver sempre fatto il suo dovere**].  
**I would prefer Gianni to-have always done his duty**

Here at least, we need the assumption that  $\emptyset_{for}$  is [+Case] to prevent ECM under adjacency with *preferirei* at S-structure and government at LF (after LF movement of  $\emptyset_{for}$  to *preferirei*).

*Manage-* and *hate-*class verbs have been less investigated, and I have not carried out any sort of thorough study. These verbs may show a wider distribution of complementizers. For example, *riuscire* ‘manage’ I-selects the complementizer *a*, and *odiare* ‘hate’ I-selects (apparently) a null complementizer. We may view the properties of *odiare* as the unmarked case, seen in greater numbers in English (which lacks equivalents to complementizer *a* or *di*) than in Italian. These predicates, as in English, will be assumed to require a contentful INFL in their embedded clauses, as a consequence of s-selection, with all the results familiar from English. They await further investigation.

Turning now to the marked register that allows AUX-to-C in infinitives, we have two choices for distinguishing this register from the less marked registers. First, we can say that this register differs from the less marked registers in allowing AUX-to-C, or in allowing AUX-to-C

to license nominative Case. Alternatively, we can say that all registers in principle allow AUX-to-C, but only the marked register allows the null complementizer  $\emptyset$  in environments other than local WH-movement of the subject.¹⁶² The second possibility is theoretically more satisfying, since it attributes the registral difference to the lexicon, where registral differences are quite familiar. This choice is also empirically justified. AUX-to-C is restricted to a marked register in infinitives, but “applies quite ordinarily in gerundival clauses” (Rizzi (1979, 134):

- (607) **Avendo Mario accettato di aiutarci, potremo risolvere il problema.**  
**having Mario accepted to help us, we'll be able to solve the**  
**problem**

This observation suggests that it is not AUX-to-C that is register-specific, but the infinitival complementizer that hosts AUX-to-C.¹⁶³

### 4.3.2 *Small Clauses*

Before concluding this discussion of Italian, we should note a set of exceptional cases. According to Rizzi (1979, Appendix) certain cases of NP-movement from infinitival complements to *believe*- and *wager*-class verbs are “marginally acceptable”. Thus, (608) contrasts with (598):

- (608) **??Questa donna era reputata aver tradito la nostra causa.**  
**'This woman was considered to have betrayed our cause'**

Like *reputare* ‘repute’ are *ritenere* ‘believe’ and *giudicare* ‘judge’. NP-movement here contrasts with WH-movement, which, as Rizzi shows, yields completely acceptable results with these verbs in structures like (599). Rizzi argues that this class of verbs corresponds precisely to the class of verbs that allow small clause structures of the form “V NP AP”:

- (609) **Reputo/Ritengo/Giudico tu fratello un disgraziato.**  
**I consider/believe/judge your brother a scoundrel**

These small clause structures allow NP-movement:

- (610) **Tuo fratello era reputato/ritenuto/giudicato un disgraziato.**

Rizzi proposes that some sort of analogic process extends the syntactic possibilities of small clause structures to infinitivals. Indeed, as Rizzi notes, this process is carried to the maximum when the infinitival has copulative *essere* as its main verb. Even ECM appears possible:^{164,165}

- (611)a. **?Ritenevo Mario essere una persona onesta.**  
**'I believed Mario to be an honest person'**  
  
b. **Mario era ritenuto essere una persona onesta.**

We can adapt his analysis without the reference to analogy. First we must discuss small clauses briefly. In English, small clauses appear to have some sort of empty complementizer. Thus, for example, as noted in Pesetsky (1982), passive is impossible from small-clause complements to *want*-class verbs, but fully acceptable from complements to *believe*-class verbs:¹⁶⁶

- (612)a. He considered it clear that the world was not going to end.  
b. It was considered clear that the world was not going to end.
- (613)a. He wanted it clear from the start that the world was not going to end.  
b. *It was wanted clear from the start that the world was not going to end.
- (614)a. Sue considered it rainy when she took her exam.  
b. It was considered cold when she took her exam.
- (615)a. Sue would like it rainy when she takes her exam.  
b. *It would be liked rainy when Sue takes here exam.

This suggests structures of the following sort, in which “small clause” is either headed by its predicate or by some inflectional element (Kitagawa (1985)):

- (616)a. consider [_{CP}  $\emptyset$  [_{small clause} NP AP]]  
b. want [_{CP}  $\emptyset_{for}$  [_{small clause} NP AP]]

In small clauses,  $\emptyset$  is [+Affix], and  $\emptyset_{for}$  is [-Affix], just as in *to*-infinitives, yielding the contrast in (612)-(615). Furthermore, the impossibility of small clause complements to nominals derived from *believe*-class verbs will follow from the same factors that prevent infinitival complements to these nominals:

- (617)a. *John's belief of Mary smart  
b. *my judgment of the problem solved

While there are no fully acceptable examples of overt *for* with small clauses (for unknown reasons, on this account), *for* is sometimes marginally possible after nominalizations of the relevant class:¹⁶⁷

- (618) ?*His desire for it clear from the start that the world was not going to end surprised us

Certainly, complementizer-like particles with small clauses are not unknown, for example in Irish (Chung and McCloskey (1987)), and might furnish an appropriate analysis for examples like:

- (619) With it finally clear that the world isn't about to end, we can get back to work.

Thus, the idea that small clauses are introduced by complementizers is neither absurd nor unsupported by evidence. Let us assume that this is so.

In our analysis of Italian infinitivals, I restricted the occurrence of the null complementizer  $\emptyset$  with infinitives to the WH-movement environment familiar from the *que/qui* and *da/die* alternations. As a null hypothesis, Italian small clauses, like English small clauses, are also introduced by a null complementizer, which I will call  $\emptyset_{sc}$ . The occurrence of  $\emptyset_{sc}$  is not limited to WH-movement environments.

In this theory, selection for a small clause is simply I-selection for this complementizer.  $\emptyset_{sc}$ , like most null complementizers, is [+Affix]. We need to stipulate that AUX-to-C is not possible when C is  $\emptyset_{sc}$ . If this is so, then  $\emptyset_{sc}$  will raise to the V, allowing NP-movement from



the embedded clause and disallowing PRO. Furthermore, if  $\emptyset_{sc}$  is not [+Case] (another stipulation) it will not block ECM.

Let us now consider the selectional properties of  $\emptyset_{sc}$  itself. Assume that  $\emptyset_{sc}$  s-selects a phrase with the interpretation accorded to copular structures, with no further restrictions. A typical instantiation of such a phrase is the predicative small clause, but an infinitive with overt *essere* 'be' could do as well. Thus, a verb that l-selects  $\emptyset_{sc}$  (like the verbs in (609)-(610)) will allow, in addition to whatever other complementizer it l-selects (e.g. *di*), infinitives with a copula as main verb. We thus expect the data in (611), except for the slight marginality of ECM. Conceivably this is an echo of the [+Case] feature that otherwise is applied to C in Italian, weakened perhaps by the sort of semantic properties that modulate this feature in English infinitivals. I will not explore this matter.

Consider now the contrast between (598) and (608). Evidently mistaken l-selection for  $\emptyset_{sc}$  produces a stronger violation than mistaken s-selection by  $\emptyset_{sc}$ . Thus, if  $\emptyset_{sc}$  is inserted where l-selected by a higher verb, the fact that  $\emptyset_{sc}$  takes a non-copulative structure as its complement yields two at worst question marks. If, on the other hand,  $\emptyset_{sc}$  is inserted where it is not l-selected, then even if it is followed by a copular structure (as in (598)), the result is completely ungrammatical. There is no particular reason for this disparity in judgments, but the theory does make a cut where the judgments differ. That in itself is a certain achievement, even if it leaves questions open. Crucially, this account captures Rizzi's observation that selection for a small clause is related to improvements in NP-movement from embedded infinitives, and it does so without recourse to principles of analogy.¹⁶⁸

### 4.3.3 French, *claim* and *fail*

French infinitival complementation is in general similar to Italian and English, but raises certain interesting and novel questions.

Let us begin with *believe*- and *wager*-class predicates. AUX-to-C, at least in the form familiar from Italian, is impossible. In many other respects, these verbs show the same paradigm as they do in Italian. In embedded subject position, with verbs that do not allow small clauses, ECM is impossible, NP-trace is impossible, but WH-trace is possible:

- (620)a. *Pierre a longtemps constaté Marie avoir résolu ce problème.  
 Pierre has long noticed Marie to have solved this problem'
- b. *Marie a longtemps été constaté t_i avoir résolu ce problème.  
 'Marie has long been noticed to have solved this problem'
- c. Marie, que Pierre a longtemps constaté avoir résolu ce problème...  
 'Mary, who Pierre has long noticed to have solved this problem'

Verbs that allow small clauses (as discussed by Pollock (1984)) allow NP-movement, just as in Italian. Unlike in Italian, however, these verbs still do not allow ECM. *Croire* 'believe' is one such verb. Others are *considérer* 'consider', *supposer* 'suppose', *dire* 'say' and *estimer* 'estimate':

- (621)a. *Pierre a longtemps jugé Marie avoir résolu ce problème.  
Pierre has long judged Marie to have solved this problem'
- b. ?Marie a longtemps été jugé  $t_i$  avoir résolu ce problème.  
'Marie has long been judged to have solved this problem'
- c. Marie, que Pierre a longtemps jugé avoir résolu ce problème...  
'Mary, who Pierre has long judged to have solved this problem'
- (622)a. *On avait constaté Jean coupable.  
'*People noticed John guilty.'
- b. On avait jugé Jean coupable.  
'People judged John guilty.'

As in Italian, copular structures are better than others:

- (623) Cet écrivain a été jugé être médiocre par tous les critiques littéraires.  
'This writer was judged to be mediocre by all the literary critics'

Let us suppose for the moment that the null complementizer  $\emptyset$  seen in (620), as in Italian, is limited to the environment of local subject WH-movement, as shown in (620c). By contrast, the null complementizer found with small clauses,  $\emptyset_{SC}$ , has a freer distribution than  $\emptyset$ , and is [+Affix], accounting for (621b). In contrast to Italian, all complementizers, including  $\emptyset_{SC}$ , are marked [+Case] and therefore block ECM.

As in Italian, PRO is also a possibility with this verb class, but French differs markedly in the complementizer found with PRO. In Italian, PRO with *believe-* and *wager-*class predicates was always in the immediate domain of the non-zero [-Affix] complementizer *di*. In French, the complementizer remains null:

- (624)a. Pierre a constaté PRO avoir résolu ce problème.  
Pierre has reported to-have solved this problem
- b. Marie croit PRO être malade.  
Marie believes to-be sick

In fact, this is perhaps not too surprising when we consider the relation of French  $\emptyset$  in infinitives to *que* 'that'. In Italian, as in English, the finite complementizer *that* is sometimes in free variation with the null complementizer  $\emptyset$ , though this is limited to the subjunctive (Graffi (1981), Rizzi (1982, 85) (from whom these examples are taken)):

- (625)a. Mi auguro (che) lui abbia fornito tutte le indicazioni del caso.  
'I hope (that) he has-SUBJ provided all the necessary information'
- b. Speravo (che) tu fossi disposto ad aiutarci.  
'I hope (that) you were-SUBJ ready to help us'

In French, by contrast, *que* cannot be omitted in any finite clause:

- (626) J'espère *(que)...

Thus, in French the lexical insertion rule that inserts *que* (“/___ [+finite]”) and the lexical insertion rule that inserts the null complementizer  $\emptyset$  (620) (“/___ [-finite]”) in (624) specify disjoint environments, making *que* and  $\emptyset$  allomorphs under (587). If that is so, then  $\emptyset$ , like  $\emptyset_{for}$ , is [-Affix]. This will explain the possibility of PRO in (624).

The assumption that verbs like *constater* take complement infinitives with a [-Affix] complementizer raised two problems. First, if all we have said is correct, the null complementizer in (620c), like its Italian counterpart, must be [+Affix]. If it were not, we would have familiar Case-licensing problems. Case-licensing of the WH-chain would depend on LF raising of the complementizer. LF raising would create a verb  $\emptyset$ -V that differs enough from the simple verb at S-structure to impair Case-licensing. We thus have an appealing analogy between *que/qui* and [-Affix]/[+Affix] versions of  $\emptyset$ . The problem is to determine why there is a [+Affix] version of  $\emptyset$  in the first place.

In Italian, we answered the parallel question by noting that *di* and  $\emptyset$  are not introduced by rules that “apply in disjoint environments”. The same is true in French of [-Affix]  $\emptyset$  and the [+Affix]  $\emptyset$  found in (620c). Insertion of [+Affix]  $\emptyset$  is limited to environments in which SPEC,CP contains a trace of the nearest subject at S-structure. Insertion of [-Affix]  $\emptyset$  need not be restricted from these positions, since Case theory will independently exclude [-Affix]  $\emptyset$  in (620c). On the other hand, [+Affix]  $\emptyset$  and *qui* are arguably allomorphs, just like [-Affix]  $\emptyset$  and *que*. [+Affix]  $\emptyset$  and *qui* are both restricted to a particular environment created by A-bar movement, but differ in whether their complement is finite. The problem posed by French suggests that we refine this story somewhat. In Italian *di* and  $\emptyset$  did not count as allomorphs because  $\emptyset$  was a “special form” of *di*:

**(627) Special form**

A morpheme  $\alpha$  is a special form of  $\beta$

- (i) if  $\alpha$  and  $\beta$  are synonyms, and
- (ii) the rule that inserts  $\alpha$  applies in an environment that is a proper subset of the rule that inserts  $\beta$

[+Affix]  $\emptyset$  in French is a “special form” of [-Affix]  $\emptyset$  in exactly this way. This suggests modifying the notion of allomorphy introduced in (587):

**(628) Allomorphy (2 of 2)**

Morphemes  $\alpha$  and  $\beta$  are allomorphs if

- (i)  $\alpha$  and  $\beta$  are synonyms,
- (ii) the rule that inserts  $\alpha$  and the rule that inserts  $\beta$  apply in disjoint environments, and
- (iii)  $\alpha$  is not a special form of another morpheme.

French, like Italian, chooses to have a special form of C for certain circumstances involving WH-movement. The finite complementizer *qui* is a special form of *que*. The non-finite C is null, and is a special form of another complementizer which is also null. The special form is [+Affix] since it is null and is not an allomorph of any other morpheme by clause (iii) of (628). The regular form is [-Affix] since it is an allomorph of *que*. One must suppose that French language learners would not assume that there is a special form of the null complementizer were it not for the *que/qui* alternation, but I will not explore this matter.¹⁶⁹

There is another problem with this analysis. We have analyzed the null complementizer with *believe*-class verbs as [-Affix] to account for PRO in (624). Surprisingly, this complementizer otherwise behaves as [+Affix], differing sharply from the null complementizer found with French *want*-class verbs. The relevant data are from Huot (1981, 213), who noted

that infinitival complements to *believe*- and *wager*-class verbs may not be dislocated, while comparable complements to *want*-class verbs may:

- (629)a. Pierre pense avoir convaincu son auditoire.  
 b. *Avoir convaincu son auditoire, Pierre le pense.  
 'To have convinced his audience, Pierre believes it'  
 c. *Pierre le pense, avoir convaincu son auditoire.
- (630)a. Jean a déclaré n'avoir jamais reçu le représentant de cette firme.  
 'Jean declared never to have received the representative of this company.'  
 b. *N'avoir jamais reçu le représentant de cette firme, Jean l'a déclaré,  
 c. *Jean l'a déclaré, n'avoir jamais reçu le représentant de cette firme.
- (631)a. Il a toujours souhaité revenir mourir dans son pays.  
 'He always desired to return to die in his country.'  
 b. Revenir mourir dans son pays, il l'a toujours souhaité.  
 c. Il l'a toujours souhaité, revenir mourir dans son pays.
- (632)a. Désire-t-il vraiment travailler sur ce sujet?  
 'Does he really desire to work on this subject?'  
 b. Travailler sur ce sujet, le désire-t-il vraiment?  
 c. ?Le désire-t-il vraiment, travailler sur ce sujet?¹⁷⁰

The pattern of acceptability in the dislocations is explained quite simply if the zero complementizer in (629)-(630) is [+Affix], and the zero complementizer in (631)-(632) is [-Affix], exactly in English — except that we are left with no explanation for the possibility of PRO. If the zero complementizer is [+Affix], then it is required to undergo C-to-V raising at S-structure, with results familiar from English.

Clearly, we are not barking up the wrong tree altogether, we must complicate the story at some point. Consider the nature of the violations in (629b-c) and (630b-c). If the null complementizer of the dislocated infinitive is [+Affix], then these examples show head-movement out of non-arguments. This, following *Barriers* and related work, is an ECP violation, where the ECP holds at LF. Now in the theory so far, we have two types of heads. [-Affix] heads like English  $\emptyset_{for}$  may not undergo head movement at S-structure (except to a [+Affix] head, as in V-to-I movement), but may move at LF. LF movement can produce an ECP violation. Consider, for example, (633), in which the clause headed by  $\emptyset_{for}$  is an adjunct:

- (633)a. John barked  $\emptyset_{for}$  to impress his friends.  
 b. *John barked  $\emptyset_{for}$  his voice to impress his friends.

In (633b), the embedded subject is adjacent to the unergative verb *read*, which presumably can assign objective Case, as in *John barked a loud bark*. Thus, at S-structure, it can be Case-licensed by *bark*. At LF, however,  $\emptyset_{for}$  must raise to *bark* if it is to be Case-licensed under

government. The ECP rules out head-raising from an adjunct. Therefore the embedded subject is not Case-licensed.

Head movement has been motivated throughout this work by the *Affix Biconditional*, first introduced as (172), repeated below:

**(634) Affix Biconditional**

$\alpha$  is [+Affix] iff  $\alpha$  or its sister is in an incorporation configuration at S-structure.

Suppose certain [-Affix] morphemes are required to enter incorporation configurations at LF. These morphemes would act for all intents and purposes like  $\emptyset_{for}$ , except that they would occur only in phrases from which they could undergo Head Raising without running afoul of the ECP. This is exactly the behavior of the [-Affix] complementizer  $\emptyset$  in French (given the coexistence of PRO with Huot's fact), and exactly *not* the behavior of  $\emptyset_{for}$  in English or in French.

These observations suggest that some principle beside the Affix Biconditional regulates incorporation configurations at S-structure. Since  $\emptyset_{for}$  and French  $\emptyset$  are the only [-Affix] null complementizers we have discovered, there is not very much information available on which to develop a theory of the contrast between them. Nonetheless, I will advance a speculation.  $\emptyset_{for}$  has semantic content, instructing LF and subsequent levels to treat CP the way *if*-clauses are treated. By contrast, French [-Affix]  $\emptyset$  has no more semantic content than its allomorph *que* 'that', which is probably meaningless. Let us add the following stipulation to our story:

**(635) At LF, if  $\alpha$  is a zero morpheme and lacks semantic content then  $\alpha$  is in an incorporation configuration.**

(635) puts no requirement on morphemes like  $\emptyset_{for}$  that mean 'if', but does place the desired requirement on morphemes like French [-Affix]  $\emptyset$ . This principle has an interesting consequence for certain exceptional constructions in English.

In section 2.12, we saw that *claim*, which by its semantics should behave exactly like *wager*-class predicates, exceptionally allows PRO:

**(636) Bill claimed [PRO to be the king of France, which was true].**

*Claim* also participates in the normal *wager*-class paradigm, allowing NP-trace:

**(637) Bill was claimed [t to be the king of France].**

We can handle this exception if we posit an optionally [-Affix] zero complementizer in (636) alongside the expected [+Affix] complementizer in (637). Just as in French, however, the putative [-Affix] complementizer behaves in other respects like an element that must undergo C-to-V raising:

**(638)a. *PRO to be the king of France was claimed by Bill.  
b. ??PRO to be happy is what Sue claimed.**

This is entirely expected if (635) is true. The null complementizer selected by *claim* is a propositional complementizer which, whatever its exceptionality with respect to the feature [-Affix], is semantically contentless. Therefore, it must undergo C-to-V movement at LF and thus is excluded from subject position.

*Claim* contrasts with another exceptional verb, *fail*, discussed briefly in section 3.3.4. This verb is implicative. If *Sue failed to leave*, then Sue did not leave. We thus expect it to display a contentful INFL which allows only PRO as the embedded subject, and a null [+Affix] complementizer incompatible with positions from which C-to-V raising cannot take place. The former expectation is met, but the latter is not. As we noted in (405), the nominalization of *failure* quite unexpectedly allows an infinitival complement:

(639) **his failure to leave**

In addition, this complement, if the preposition *at* is supplied, may occur in position from which C-to-V raising is impossible:

- (640) a. **PRO to leave on time is what we failed at.**  
b. **PRO to take out the garbage noone should fail at.**

*Fail* has another important property. Negative polarity items are licensed in its complement, even when that complement is not c-commanded by *fail*:

- (641) a. **We failed to take any action on the matter.**  
b. **PRO to take any action on the matter is what we failed at.**

Laka (1990) has argued at length that verbs like *fail* select a special negative complementizer, which is distinct in Basque and Irish and homophonous with non-negative complementizers in English:

(642) **We failed [[_C NEG] PRO to take any action on the matter.]**

If this proposal is right, as Laka notes, the negative polarity item in (641b) is no surprise. It may not be c-commanded by *fail*, but it is c-commanded by the negative complementizer selected by *fail*. If the negative polarity item is extracted from the domain of the complementizer, the result is unacceptable, just as predicted:

- (643) a. **I thought he would fail to say he would read this, and  
read this he failed to say would**  
b. **I thought he would fail to say he would read anything, and  
*read anything he failed to say he would.**

The complementizer embedded under *fail* and *failure* is just as exceptional as the complementizer embedded under *claim*. Both are expected to be [+Affix], yet both behave for S-structure purposes as [-Affix]. Nonetheless, the complementizer with *claim* behaves as if it must undergo C-to-V raising at LF, while the complementizer with *fail* does not. Why? If Laka is correct, the complementizer with *fail* has semantic content: it is the locus of the negative semantics induced by *fail*. This complementizer is therefore not subject to (635), unlike the complementizer with *claim*. The theory appears to hold together, correctly handling even exceptional cases.

Intriguingly, these consequences are apparently correct for French as well. Verbs with “negative content” like *nier* ‘deny’ and *douter* ‘forget’ behave in all respects like *constater* in (620), until Huot’s paradigm is considered. At least when left dislocated, the complements to *nier* and *douter* are fully acceptable:¹⁷¹

- (644)a. *Avoir convaincu son auditoire, Pierre l'a nié.*  
'To have convinced his audience, Pierre believes it'
- b. *Avoir compris ce problème, Jean en a douté*  
'To have understood this problem, John doubts [of] it'¹⁷²

The explanation is the same as that offered for *fail*. These verbs involve a negative version of  $\emptyset$ . Since this version of  $\emptyset$  has semantic content, it does not need to undergo C-to-V at LF.¹⁷³

We obviously, as always, wish to know why (635) holds. Somehow, the work that allomorphy does at S-structure, semantic content does at LF. Just as allomorphy excuses a zero morpheme from affixation at S-structure, semantic content excuses a zero morpheme from affixation at LF. Otherwise, zero morphemes must affix. There is some symmetry in this picture, but a fuller understanding must await further investigation.

#### 4.3.4 *Conclusions*

Infinitival complementation in French and Italian looks very much like infinitival complementation in English, at least at a superficial glance. The new information provided by these languages has complicated the picture somewhat, but the basic outlines of the theory remain the same as always in this book. In the next section, I will deal with some loose ends, tying some, attempting to tie others and leaving others, alas, untied.

## **Chapter 5**

### **LOOSE ENDS**

[TO BE CONTINUED: status of WH-complementizer, peroration]



## NOTES

1. This discussion was summarized and developed by Chomsky (1986a), which is the only published presentation of this work to date.

2. The relevance of these examples was pointed out to me by Ken Hale (personal communication).

3. One small group of problems was noted by D. Steriade (personal communication), who observes that the verb *welcome*, which appears to take a concealed proposition, but not a sentential proposition:

- (i) John welcomed [_{NP} Mary's departure on time].
- (ii) *John welcomed [_{CP} that Mary departed on time].

She notes the same property in *understand*, when it has the meaning 'sympathize with'.

Other cases might include the "obligatory extraposition" verbs with factive complements, like *resent*:

- (iii) I resent *(it) that John is here.

I offer no explanation for these cases.

4. Actually, filter (23) may be regarded as one such intervening factor, and, of course, it is a factor which does turn off the possibility of CP complementation.

5. The passive of *wonder* is the least unacceptable of the examples given. B. Schein (personal communication) notes that the passive is rather good with a temporal adverb like *often*:

- (i) It has often been wondered where you got your funny accent.

R. Kayne (personal communication) notes (ii), which suggests that *wonder* is a Case assigner in some circumstances, if WH-trace needs Case:

- (ii) What_i I'm wondering e_i is why you came .

But compare:

- (iii) *What_i I (care, inquired, exclaimed, complained...) e_i is ...

6. I am not claiming here, as I did in Pesetsky (1981), that *about* is a “dummy” preposition like *of* which makes no semantic contribution. As correctly pointed out by Abney (1985), *about* does make a contribution. Thus *John asked about the time* need not be a request to name a specific time of day (e.g. ten o’clock), but may be a general request for information concerning some particular time of day (e.g. why ten o’clock and not noon was chosen for some event).

7. Grimshaw also suggests that the ungrammaticality of (34b) need not be stipulated via subcategorization. Rather, she proposes, the fact that adjectives do not take NP complements follows from the absence of an NP position after A in the base rules. The role of this claim, like the claims discussed in the text, is now played by Case theory (Stowell (1981)).

8. In principle, for closed-class categories like P, one could imagine predicates like *dryve* that achieve this paradigm as a consequence of I-selection for every preposition of the language (or just the semantically compatible ones). Even for open-class categories like N, one might imagine I-selection for all values of relevant non-syntactic features. I will have to assume that there are enough prepositions and enough features for such an I-selectional property to pose a complexity problem to the language learner.

9. I will silently replace the labels *S'* and *S* from earlier work with CP and IP, respectively. For arguments for these labels, see Stowell (1981), Pesetsky (1982) and Chomsky (1986b).

10. If INFL is occupied by a modal, particularly a deontic modal it probably does  $\theta$ -mark VP, which is Chomsky’s conclusion in the general case.

11. The notions “excludes” and “dominates” are given a special sense in *Barriers*, so that a category that is adjoined to  $\alpha$  is not dominated by  $\alpha$ , but is not excluded by it either.

12. More precisely, *immediately dominates* should be *max-immediately dominates*, where:

$\alpha$  *max-immediately dominates*  $\beta$  iff  
(i)  $\alpha$  and  $\beta$  are maximal projections,  
(ii)  $\alpha$  dominates  $\beta$ , and  
(iii) there is no  $\gamma$ ,  $\gamma$  a maximal projection, such that  
 $\alpha$  dominates  $\gamma$  and  $\gamma$  dominates  $\beta$

This is a necessary clarification if *C'* can intervene between CP and IP, as I assume.

13. Conceivably there are expressions that behave like *belyve*, as in:

- (i) **Let’s say (??that) we have a party.**
- (ii) **Suppose (??that) 9 were prime. What would that mean?**

Arguably, in these idioms *let’s say* and *suppose* are elements of CP — mood markers, in essence. (Compare Russian *pust’* ‘let’, presumably an imperative by etymology, which can be followed by a bare IP: *pust’ (*čto) vseгда budet solnce* ‘may there always be sunshine’).

14. Bresnan cites as another difference between *believe* and *want* the availability of reflexive anaphora in the embedded subject position. Thus, she cites *?Alice wants herself to learn karate* as jarring, if not ungrammatical. Similar judgments concerning reflexives and reciprocals are taken up elsewhere, including by Kayne (1984, chapter 2; orig. 1978-1981). It seems to me that such contrasts are far from compelling, and I will not attempt to explain them in this work.

15. The Agent/ECM Correlation may be behind some examples of Borkin's (1984) generalization that "subjective' complements are more easily broken up [by subject-to-object Raising] than objective' complements, e.g.:

- (i) The doctor has told Sam that Mary has leukemia, but Sam won't believe that she is sick.
- (ii) *The doctor has told Sam that Mary has leukemia, but Sam won't believe her to be sick. [sc. "refuses to believe..."] (p.79)

16. The requirement that  $\alpha$  Case-mark  $\beta$  only if  $\alpha$   $\theta$ -marks  $\beta$  is, of course, also the defining requirement of inherent Case. This suggests that (83) might be restated as (i):

- (i) **Agent/ECM Correlation (Third approximation)**  
For  $\alpha$ ,  $\beta$  and  $\gamma$  in E, if  $\alpha$  assigns Agent to  $\gamma$  and requires  $\gamma$  to be animate as a lexical property, then  $\alpha$  assigns inherent Case to  $\beta$ .

At this point, one's imagination can invent ways of reducing (i) to other generalizations. Consider, for example, the similarity of (i) to Burzio's Generalization, which allows  $\alpha$  to assign Case to its object only if  $\alpha$  assigns a  $\theta$ -role to its subject. Though we rejected Belletti and Rizzi's (1988) claims about the analysis of verbs like *annoy*, we have accepted their idea that inherent Case is immune from Burzio's generalization. This allowed us to analyze the failure of passive in (ii) as a consequence of unaccusativity, while still allowing Case to be assigned to object position:

- (ii)a. Smith's name escaped us for some reason.  
b. *We were escaped by Smith's name for some reason.
- (iii)a. The correct generalization eluded Panini.  
b. *Panini was eluded by the correct generalization.

Suppose obligatorily animate subjects that are assigned the role Agent have something in common with subjects that are assigned no thematic role at all. Then Burzio's Generalization, as modified by Belletti and Rizzi, would predict that verbs with obligatorily animate agentive subjects can assign only inherent Case. This would rule out ECM.

17. Ultimately, as just noted, I will suggest an approach that does not rely directly on this factor (section 4.1.2), but still uses the suggestions of this section in a relevant fashion.

18. This usage requires the context given, for reasons I do not understand. The negative polarity item is used to avoid a direct quotation.

19. The following data (not from Postal) may be related:

- (i) Sue estimated what Bill's weight was.
- (ii) *?Sue estimated who weighed 150 lbs.
- (iii) Sue estimated who weighed what.
- (iv) Sue estimated who weighed how much.

The interrogative complement to *estimate* must include an operator over a measurement variable (*what, how much*), whether overtly moved or in situ. Since these WH-words are not in any sort of an argument position, it is unclear how to extend the analysis appropriately.

20. Thus, Kayne (1984, 121 note 15; orig. 1981) writes "We do not find Postal's...DOC facts to be at all clear; that is, we accept [ECM] with almost all the cited verbs."

21. On the relevant, jussive reading. *There* is used as the embedded subject to avoid a possible analysis with a matrix lexical object and an embedded PRO subject.

22. Other examples among non-agentive verbs are *yearn, hunger, and care*. Among more agentive verbs we find *assent, endeavor, petition, perhaps try*.

23. French and other Romance languages allow verbs meaning 'believe' and its relatives to act like English *claim*. I will return to this in section ??? below.

24. *Expect* also allows a double-object structure with *of* introducing the animate object, but this is restricted to finite complements: ?*I expect of you that you will do the dishes*, better *What I expect of you is that you will do the dishes*. I must suppose that the exclusion of the infinitive here (**(What) I expect of you (is) to do the dishes*) is an instance of I-selectional dependence: choosing *of* means choosing [+finite]. The phenomenon might be more general: *Bill required of Sue that she leave/?*to leave*. If so, then there is something of interest to explore.

25. A similar ambiguity is found with *intend*. This verb displays the behavior of *want* as well as a double object structure wherein the infinitive gives the purpose of the first object:

- (i) The teacher intended [there to be more than one answer to the question].
- (ii) The teacher intended [this question to be hard].
- (ii) The teacher intended this question [PRO to be hard].

Passive disambiguates:

- (iii) This question was intended [PRO to be hard].
- (iv) *There was intended to be more than one answer to the question.

Quirk et al. (1985, 1194 Note [b]) seem to suggest that *desire* behaves in this fashion as well (though they do not note (iv) for any of these examples), but I do not share this judgment. Example (iv) seems much better to me with *meant* replacing *intended*. I am not sure of the

semantics of the complement to *mean*, but this may constitute a counterexample to the typology presented in this chapter.

26. Following common usage, I will call the predicates *factive* and *implicative*, and I will also call their complements *factive* and *implicative*. This should not give rise to any confusion.

27. This correlation is weakened with finite complements. As discussed in section 3.4 below, implicative verbs hardly allow finite complementation. On the other hand, sentences like *Bill finally admitted it that he was guilty*, while slightly marginal, perhaps, display an agentive predicate with a factive complement.

28. *It* is expletive here. PRO, were the example acceptable, might receive the ARB reading.

29. Probably the nominalizer is a [-voice] feature changing /v/ into /f/.

30. This concept will play a crucial role in infinitives quite shortly.

31. The inflection *-s* on *wants* is probably structurally exterior to the empty incorporated complementizer, but I will ignore this detail here.

32. This is true for English V-to-I, if Lasnik (1990) is correct in assuming that existential *be* assigns Case. Not all English V movement allows inheritance of Case properties by the trace of V, however, as shown in Pesetsky (1991, in prep.)

33. F.R. Higgins (personal communication) reports that many of these examples are less acceptable in British speech. This is confirmed by Quirk et al. (1985, 1193).

34. Related facts were also noted by Carstairs (1973).

35. The examples are slightly altered in a grammatically irrelevant fashion.

36. By contrast, Williams (1974, p.91) allows:

- (i) It upset Mary for John to be there.
- (ii) It scared Mary for John to be there.

I find these examples deviant. What makes them better than the examples in the text is, I think, a somewhat complex interpretive option for the matrix clause. The *for*-clauses in (i) and (ii) are factive, a well-known property of Cause arguments. In addition, however, the embedded clause *for John to be there* carries with it the presupposition that John might not have been there. Hence, an expression like *It upset Mary for the sun to rise in the morning* is somewhat odd, the sun always rises in the morning. Compare, *It upset Mary that the sun rose*, which has no such

problems. This type of infinitive has much the same flavor as is conveyed in finite factive clauses by *should*:

- (i) It upset Mary that John should be there in the morning.
- (ii) #It upset Mary that the sun should rise in the morning.

Since the Cause argument might have been otherwise, the matrix might have been otherwise as well (or else we would not speak of Causes). This situation is not marked by any overt modal element in English, though expressions like *end up* convey this force in sentences like:

- (iii)a. It ended up upsetting Mary for John to be there.
- b. It ended up upsetting Mary that John was there.
- c. It ended up upsetting Mary that John should be there.

If we suppose that these examples require some type of unexpressed modality operator in the matrix clause, they will fall under the rubric of modalized sentences discussed above in the text, to the extent that such a modality operator is possible in the absence of an overt indicator of its presence (like *should*). Bresnan's example expresses a judgment (*be odd*) rather than an emotional event (*upset*), and thus is perhaps less friendly to a modal that implies that things might be otherwise. The same is true for the non-causative psych verbs that populate the *hate*-class. Hence our conclusions about the distribution of *for* with *hate* are not threatened.

37. I will use the term "ECM *hate*" to mean "*hate* in the aspectual environments that license ECM". ECM *hate* may occur without actual ECM, as in *I would hate PRO to have to go to the dentist*.

38. I am grateful to B. Schein for bring Bach's review to my attention.

39. Quirk et al. (1985, 1193) note that, while constructions like *Jack prefers for his wife to drive the truck* are best in American English, constructions like *They arranged for Mary to come at once*, which otherwise behaves like *hope* in (204)-(205), are fully acceptable even in British English. This supports the distinction discussed in the text. British English apparently permits *for* complementation to preposition *for*, while restricting it after verbs.

40. Filter (209) resembles in form the filters against sequences of gerunds in English (Ross's (1972) "Double-ing" filter) and sequences of infinitives in Italian (Longobardi (1980)).

41. She rejects the possibility because of the contrast between (i) and (ii) (judgments hers):

- (i) I don't believe that Mary did that: it is unnatural for a woman to do such a thing.
- (ii) #I don't believe that Mary did that: it is unnatural if a woman does such a thing.

I think that what is going on here has to do with the existence of a derivation for (i) involving "subject extraposition", however that is to be analysed. Such a derivation is

unavailable for (ii), since overt *if*-clauses are syntactically excluded from argument positions: cf. *I would hate *(it) if John did such a thing*. I am not sure what the “#” indication is intended to show in (ii).

42. I am indebted to F.R. Higgins for acquainting me aware with Carstairs’ work.

43. Kratzer notes that her view of the distinction thus differs from Carlson’s. I will avoid discussion of this point here.

44. Barry Schein (personal communication) has pointed out that the distinction mooted by Kratzer cannot be one of presence vs. absence of the *e*-place posited by Davidson (1966), since, apart from spatiotemporal modification, stage and individual-level predicates behave identically with respect to the properties of adverbial modification discussed by Davidson. Thus, either Kratzer’s *l*-place is not Davidson’s *e*-place, or else the difference is not one of presence vs. absence, but one of availability for binding.

45. Kratzer puts things slightly differently, without attempting to distinguish bad from good readings for the starred examples in (219). There is no substantive difference between our presentations, I think.

46. Williams actually gives the verb of the *if*-clause, non-normatively, as *were*. I cannot bring myself to follow him.

47. Of course there is a free choice reading available, facilitated by stress on the polarity item. This can be disregarded for our purposes.

48. The judgments are less sharp with *when*-clauses, but seem roughly the same:

- (i) **When a layman knows anything about language, I like it.**
- (ii) ***I always like it when a layman knows anything about language.**

49. I use the neutral term “referentially linked” to forstall the question of whether this is coreference or binding, an issue I will touch on below.

50. Not because it is a paraphrase. The logic runs the other way: the paraphrase is a paraphrase because it is a near synonymous S-structure that can be interpreted without the aid of the “unpacking” rules discussed below. No status is assigned to paraphrases either in the grammar or in the argumentation of this chapter, other than as hints towards an analysis. In fact, the properties of the original and the properties of the paraphrase differ at a number of points, to be dicussed below.

51. This formulation is perhaps too literal-minded. All that is crucial is that a declarative complementizer other than *if* be placed in the copy. It could be  $\emptyset_{prop}$ ,  $\emptyset_{that}$  or some more abstract form unmarked for finiteness or phonological realization. This should be borne in mind in all cases where derivations involving IC are sketched.

52. Compare Grimshaw's (1979) observation that Null Complement Anaphora may interpret missing objects that can only belong to one syntactic category as coreferent with objects of another syntactic category (cf. section 1)

- (i) I didn't know the time, so I inquired.
- (ii) *I inquired the time.

If we imagined Null Complement Anaphora to involve an empty object at D-structure to which content is ascribed by some semantic rule, then this is another instance in which categorial differences between NP and CP are ignored.

53. A discussion with Alec Marantz was important in clarifying a number of these points.

54. Much the same reading obtains in *It's wonderful when a Moroccan knows French*.

55. I use the term "sentence-initial" rather than "preposed" to avoid implying that sentence-initial *if*-clauses are necessarily moved from sentence-final position. In fact, sentence-initial *if*-clauses are not necessarily fronted by syntactic movement, according to Iatridou (1991), although syntactic fronting is necessary in cases of long-distance links between an *if*-clause and the clause it modifies.

56. At this point in the discussion, as a matter of logic, IC might optionally apply to sentence-initial *if*-clauses, since the only result would be to rule out a derivation on which a negative polarity item is licensed. In fact, IC may *not* apply under these circumstances. I will return to this point later.

57. Of course, alternative word orders always affect preferred focus and Topic/Comment structure in various ways. I ignore these details here, and they do not lie behind the reports of semantic difference.

58. This is an oversimplification of her position. She also argues that I' is an alternative attachment site. It is important to the account presented below that this suggestion be wrong. I return to this point below.

59. My " $M_{\mathcal{C}}$ -command" is Chomsky's (*Barriers*) "*m-command*".

60. The m-command effect is sharper for some reason when the object corefers with a VP (or V'):



- (i) If Bill did it, Mary read the book too.
- (ii) If a Moroccan does it, Mary reads the book too.
- (iii) If Bill were to do it, Mary would read the book too.
  
- (iv) If Bill read the book, Mary did it too.
- (v) If a Moroccan read the book, Mary does it too.
- (vi) If Bill were to read the book, Mary would do it too.
  
- (vii) Mary read the book if Bill did it too.
- (viii) Mary reads the book if a Moroccan does it too.
- (ix) Mary would read the book if Bill were to do it too.
  
- (x) Mary did it if Bill read the book too.
- (xi) ?*Mary does it if a Moroccan reads the book too.
- (xii) ?*Mary would do it if Bill were to read the book too.

61. Reinhart's command relation, for which she coined the name *c-command* is actually much closer to *m_e-command*. In particular, the object "*c-commands*" the *if*-clause in (269a) on Reinhart's definition of the term, so long as no branching structure between V' and VP is added to the tree. I adhere to the definitions from the text in what follows.

62. Reinhart (1981, 118) considers examples similar to (279a) and (280a) ungrammatical, due to a high attachment site for the sentence-final adjunct in her system. Her examples are **So many patients called a psychiatrist_i that he_i couldn't handle them all* and **We fired each of the workers_i since he_i was corrupt*. I disagree with the judgment on the first example. For the second example, an attachment site for *since* higher than *if* is plausible.

63. Iatridou (1991) notes that some speakers find (280a) unacceptable.

64. Iatridou also notes that reconstruction may take place to a sentence-initial position:

If John_i is sick, Mary said that he_i takes aspirin.

If the *if*-clause were to reconstruct to a sentence-final position, John_i would be bound by he_i, violating Principle C. The possibility of the upstairs *if*-clause modifying the lower IP arises from the presence of a trace in the lower IP:

65. Note as well that (289) improves if the pronoun *him* is replaced by a gap: *Who will Mary invite ___ if Sue likes ___*. This means that parasitic gaps observe an anti-*c-command* condition, not an anti-*m-command* condition, as observed (in slightly different terms) by Chomsky (1986b, 60-62).

66. Rothstein (1991) makes a very different proposal for cases quite similar to ours. She argues that examples like (ia-d) show a normal occurrence of *it* functioning as a bound variable:

- (i)a. I regretted it every time I had dinner with John.
- b. He hated it when it thundered loudly.
- c. The children will enjoy it every time you tell them a story.
- d. They resented it every time you were late.

According to Rothstein (ia) “asserts that every event which involved my having dinner with John was also an event of my regretting having dinner with him; there is thus a one-to-one matching between instances of having dinner with him and of regretting it”. This is correct, but it is insufficient for establishing that *it* is a bound variable. The phrase *every time I had dinner with John* is interpreted as an adverb of universal quantification (e.g. *generally* or *always*) with a restriction (e.g. *if I had dinner with John*). On the IC proposal, these two pieces must be pried apart before IC, which then copies the restriction. The one-to-one matching cited by Rothstein is the consequence of *always* binding the *l*-place (or *e*-place, perhaps) within both the restriction *if I had dinner with John* and the copy placed in object position by IC: *that I had dinner with John*. The post IC representation, then, is something like *Always, I regretted that I had dinner with John if I had dinner with John*, where the adverb of quantification licenses the *if*-clause. For IC to apply correctly, *every time* will have to undergo QR (May (1977)) independent of the expression that follows it, which then undergoes IC. Minor modification of IC might be necessary, depending on the identity and position of the phrase *I had dinner with John* at LF. That it is smaller than CP is suggested by *??I regretted it every time that I had dinner with John*, on the relevant reading. If it must undergo QR along with *every time*, perhaps separating by the process that separates quantifier from restrictive term (May (1977); Heim (1982)), I might need to qualify my argument presented below that IC requires *it* to m-command the clause that replaces it.

In support of her thesis, Rothstein notes that (ia) is quite different in meaning from (ii):

- (ii)       **I regretted every time I had dinner with John.**

Example (ii) does not show a bare NP adverb, as (ia) does, but instead a quantified NP in the object position of *regret*. Thus, there is no application of IC here, and the interpretation is correspondingly different: occasions are regretted, not states of affairs. The problem with analysing *it* here as a simple bound variable is the same as the problem with analysing it as a co-referring pronoun. It acts as if its position were occupied by a *that*-clause counterpart of the restricting expression. Thus, with negative polarity items, its behavior is what we have been seeing:

- (iii)a. *Bill liked it every time Mary touched the violin at all.
- b. Every time Mary touched the violin at all, Bill liked it.
  
- (iv)a. Every time Mary budged even an inch, Bill appreciated it.
- b. *Bill appreciated it every time Mary budged even an inch.

67. Modulo the replacement of *if* by *that*, which I discussed briefly immediately after IC was presented in (248) above.

68. We cannot extract the *if*-clauses under discussion, for reasons discussed below. Therefore, one traditional test for the adjunct/argument distinction, due to Huang (1982), is unavailable here.

Furthermore, the fact that extraction from the *if*-clause is blocked as it is from adjuncts also does not help us:

(i) *How_i would Bill be happy [if Bill fixed the bicycle t_i]

*If*-clauses like might block extraction, not due to their status as adjuncts, but due to the same factors that produce WH-islands, perhaps an operator in SPEC,CP. See Iatridou (1991) for discussion.

69. This situation is also strongly excluded by Chomsky's (1986a) *Principle of Full Interpretation*, which, however, goes farther, excluding all uninterpreted elements at LF, not just semantically uninterpreted contentful elements. Chomsky's principle was written so as to hold at LF. Reference to later levels was not made, presumably because nothing like our rule IC was considered.

70. These examples are fine if the object of *about* is questioned. I do not know the reason for the contrast:

(i) What are you so  $\infty$  cheerfulⁿ about?  
 $\emptyset$  joyous²  
 $\epsilon$  somber  $\beta$

71. As noted by Williams (1977, 97).

72. As we saw above, adjectives with negative content like *upset* can license a negative polarity item on their own. Thus *I'd be upset if anything happened to Bill* does not tell us anything in the present context.

73. The complement to *hate* with ECM may not contain an individual-level predicate at all. (This makes Carstairs' (1973, 148) sharp and interesting contrasts, reported in (228)-(230), less relevant than they might have been, e.g. *John hates Mary to have long hair* vs. **Mary hates Mary to have a long nose*.) I do not know why this should be. Nonetheless, even here, I find that the contrasts go in the right direction:

- (i) a. *John would hate his students to be tall.
- b. *John must hate his students to be tall.
- c. **John always hated his students to be tall.
- d. *John always hated someone to be tall.

This may be related to a general slight degradation of ECM with *hate* (compared with *like* and other predicates of its class).

74. Much the same can be seen for *for*-clauses in subject position:

- (i) For John to know French would surprise Bill.
- (ii) For John to know French might surprise Bill.
- (iii) *For John to know French always surprises Bill.
- (iv) For John to know a foreign language always surprises Bill.
- (v) For a Moroccan to know French always surprises Bill.
- (vi) For a Moroccan to speak French always surprises Bill.

Stowell (1982, 569) assigns “?” to *For John to kill his goldfish is wrong* and *For the prisoners to be released was a big surprise*. The second is indeed difficult, since it is neither modalized nor generic. The first is odd because it requires an adverbial like *always* or *generally*, but there is usually one spatio-temporal location for the death of any goldfish. If *his goldfish* is understood attributively, not referring to any individual fish, then the example seems fine.

75. Carstairs also notes, interestingly, that in irrealis environments a gerund may have the reading associated with a *for*-clause: *I would hate John's being more popular than me*. I will not explore gerunds in this work. Carstairs' observation, coupled with the theory presented here, raises important questions about the internal structure of gerunds, and the existence of C in these categories.

76. Pullum (1987) notes, for example that *It would be wonderful if unicorns existed* and *For unicorns to exist would be wonderful* are synonymous.

77. As Williams (1974, 92 example (90)) comes close to observing, indefinite objects are adjunct-fulfilling in a manner quite reminiscent of *for*-clauses. Thus Williams' example *a fire would be nice* does not require any contextually supplied conditional. We might imagine an analysis of indefinite NPs under which a generalized version of IC applied to them. This would presumably dovetail with the analyses of indefinite NPs as predicates (or open sentences) in Safir (1987) and perhaps Heim (1987).

78. Like *must* are *may* and *can*, though examples are somewhat hard to construct, due to the pragmatics of emotion verbs like *hate* and *like*.

79. In languages like German, inversion with a null *if* is not limited to counterfactuals. Whether this has resonances elsewhere in the system, e.g. with infinitival complementation, is an obvious question, which has not been investigated.

80. But cf. *John must just love people to know how smart he is*. There is no incompatibility between ECM and *must*, but rather an inability of the object clause to restrict *must* as it can restrict *would*. The ameliorating affect of the indefinite *people* shows that a default adverb of quantification is legitimating the structure.

81. I am not proposing that the elements into which *want* decomposes are morphemes, along the lines of my analysis of EO psychological predicates in section ???. I propose that the lexical semantics for *want* contains two parts, along the lines of (352), and the evidence seems to bear this supposition out.

82. The problem is the existence of verbs like *regret* which seem to violate the Factive Generalization, since object *it* is optional:

Mary regrets (it) that she has only \$5 on her.

Possibly, *regret* is not an exception to the Factive Generalization at all, but is optionally intransitive (or an optional case marker) in the manner of the adjectives discussed in the last section. In that case, the finite clause found with *regret* is an adjunct even when *it* is missing, a fact consistent with the impossibility of extracting adjuncts:

How_i does Mary regret (it) [that Bill fixed the bicycle t_i]?

83. With a *that*-complement, linked *it* is perhaps not as bad: ??*Bill wants it that Bill leave* is better than **Bill wants it for Bill to leave*. I have no account of this.

84. To bring out the judgments in (361), try an answer like *with a wrench*.

85. The intervention of an adverb between *want* and *for* that ameliorates *for* here slightly diminishes the availability of adjunct extraction, for unclear reasons.

86. As (348) makes clear, no phrase with the *semantics* of an *if*-clause may occupy an argument position by the time semantic interpretation applies. If a clause with the semantics of an *if*-clause occupies an argument position at LF (by (363) this is limited to *for*- and  $\emptyset_{for}$ -clauses), it must be “copied away” by IC, or else yield semantic gibberish.

87. Remember that [+finite] is a feature belonging to verbs in the lexicon. Thus, even though the factive presupposition takes narrow scope with respect to irrealis mode or adverbs of quantification in these examples, the matrix verbs behave as [+factive] for the purposes of the Factive Generalization in (357).

88. The issues are cloudier for simple factive infinitives:

- (i) ?How_i was he happy [to be greeted t_i]?
- (ii) ?the way_i he hated [to hear Mary had fixed the bicycle yesterday]

The analyses presented in this chapter predict extraction to be acceptable here. If it is not, then there is a problem to be solved.

89. Bach also displays example (i), which does not improve as (368b-c) do:

- (i) ?For John to have left work at 6 on the 28th of February, 1776, was common.
- (ii) ?For a man to have left work at 6 on the 28th of February, 1776, was common.
- (iii) ?For John to leave work at 6 on the 28th of February, 1776, was common.

Bach comments that “we think of the world in such a way that a single event-at-a-time can’t happen more than once (and hence can’t be common or uncommon”. This is probably true, and explains why (ii) and (iii) are impossible. However, a related paradigm displays the pattern we find elsewhere:

- (iv) ?For John to have left work early was common.
- (ii) For a man to have left work early was common.
- (iii) For John to leave work early was common.

90. Remember as well that there will have to be an explanation for the behavior of *manage* and of *hate* when it does not show the semantic properties enumerated above. Under those circumstances, ECM is absolutely impossible. Before moving to this next stage, we must still justify the existence and properties of  $\emptyset_{for}$ .

91. The same effect is found in subject position with overt *for*, as we expect. Carstairs (1973, 153 note 4) credits Howard Lasnik (personal communication) for the following contrast:

- (i) ?*For John to be here is amazing.
- (ii) For John to be here would be amazing.

In my judgment, (i) becomes better, as predicted, in a generic environment, with *be here* rigorously understood as stage-level:

- (iii) For John to be here is always amazing. Whenever he comes, I’m grateful.

92. A sentence parallel to (377c) like *PRO_{arb} to know French well is what John_i likes most* is impossible because of the obligatory control of *like*. PRO must be controlled by the subject of *like*.

93. How this will interact with the suggestion that the copying in IC has the “upward” property of movement, I cannot at present say.

94. The preposition is necessary as a Case marker of the A-bound trace. The fact that the preposition is impossible in the simple example *We assented (*to) to leave on time* (sic) is part of the general paradigm that prohibits the sequence *P CP* in English (cf. section 1.1, esp. (19)-(22)). The fact that the preposition may be omitted in simple cases suggests the need for some optionality in I-selection for P, or else a rule of P deletion, as suggested by Bresnan (1972) and others. This also provides an alternative analysis of the cases discussed in section 3.1.3 which

motivated Chomsky and Lasnik's (1977) *for for* filter in (209). These cases would be subsumed under a general **P CP* filter, with some general possibility for optionality of P.

95. I do not know why this example is worse than it should be.

96. My sense is that this is acceptable, but suffers from interference due to another sense of *try*, which is implicative, as in *Bill tried jumping over this hurdle*. The implicative sense predominates with nominal objects: *Bill tried the jump*. *What* is, of course, nominal.

97. Except in the sense of *refuse medicine* or *refuse a package*, meaning 'refuse to take'.

98. When the infinitives in (388) are placed after the copula, many of them improve:

- a. ??What we didn't bother *(about) was to leave on time.
- b. *What he condescended was to leave on time.
- c. ?What Mary dared was to contradict Bill.
- d. ?What he declined was to write the report.
- e. ?What he disdained was to leave on time.
- f. *What he helped was to leave.
- g. ?What he managed was to leave on time.
- h. ??What he neglected was to leave on time.
- i. ?What he omitted was to mention his guilt.
- j. *What he presumed was to talk rudely.
- k. ?What he remembered was to turn off the lights.
- l. *What he scorned was to leave on time.
- m. ?What he ventured was to leave on time.
- n. ??What he didn't care about was to leave on time.

Perhaps this is because C-to-V movement from a post-copular infinitive is marginally possible, with the copula acting like a main verb. The worse among the examples may be bad due to Case theory. The appropriate contrasts do seem to be found, e.g. *what did he bother about?* vs. **what did he condescend*. On the other hand,  $\emptyset_{that}$  seems fairly bad post-copularly:

- (ii)a. ?*What he thinks is Bill's about to come home.
- b. ?*What I believe is it will turn out all right.

Also relevant are examples like:

- (iii)a. To leave on time is what we won't bother to do.
- b. To leave on time is what he condescended to do.
- c. To contradict Bill is what Mary dared to do.
- d. To write the report is what he declined to do.
- e. To leave on time is what he disdained to do.

If the subjects here are CPs, then there is a real problem, since it seems unlikely that the object of *do* should be related to an infinitive with the semantics of *for*. On the other hand, if the subject here are IPs, then the status of C is irrelevant. IPs as arguments must be in general prohibited, or else the paradigms considered throughout this chapter would lose their explanation. On the other hand, in this one environment, we do seem to find clausal categories smaller than CP, for example VP:

- (iv)a. What we won't bother to do is (to) leave on time.  
b. What he condescended to do was (to) leave on time.
- (v)a. ?Leave on time is ??what/?something we won't bother to do.  
b. ?Leave on time is ??what/?something he condescended to do.

99. Examples of this sort raise a question concerning the status of the post-verbal extraposition position. If (391c) is acceptable, then head movement of factive null C from C of an extraposed clause must be possible, at least with adjectives like *stupid*.

100. Interestingly, *of me* or even *of someone* is impossible here, for some reason.

101. I am was here by the discussion of adjectival complementation in Quirk et al. pp.1228ff.

102. The adjective *stupid* in (407i) does not take finite complements, and is therefore irrelevant here.

103. As I noted in section 3.3.3, this resembles Stowell's (1982) idea that infinitives have tense, though for cases quite different from those considered by Stowell.

104. My discussion of Enç's paper is based on an unpublished and incomplete draft of January 1991.

105. Kratzer called "*l*" a position for "spatio-temporal location". The "spatio-" part is not crucial to anything discussed here, and is only marginally relevant to Kratzer (1989). A full treatment of this question would ask how, if at all, language treats time and place similarly. For this reason, Enç is cautious about positing the existence of a *spatio*-temporal argument slot, and stops short of describing her open place as Kratzer does hers. I gloss over these issues here, since the logic of my discussion follows regardless of the precise characterization of Kratzer's *l*-place.

106. Enç cites a similar proposal concerning progressive *be* by Vlach (1981).

107. Enç leaves the treatment of these cases open.

108. Enç assumes that existential closure is responsible for binding the *l*-place in these environments, with existential closure presumably triggered in some fashion by the tripartite logical form (quantificational term, restriction, nuclear scope; Heim (1982)) motivated by the presence of the modal.

109. This treatment is my own. Enç does not deal with irrealis conditionals.



110. Except by Stowell (1982), discussed in section 3.3.3 above.

111. An interesting case is Stowell's (1982) example *I expect John to win the race*. *Expect* is ambiguous between *believe*-type behavior, *want*-type behavior and *persuade*-type behavior, as was discussed in section 2.13. Examples like Stowell's are possible even when *expect* must be a *believe*-type predicate: *it is expected to rain*. We can only conclude that *expect* identifies the embedded clause as future tense, possibly with a "modal" use of *to* similar to that discussed below for factives and implicatives.

112. The semantic consequences of the proposal in (449) are uncomfortably fuzzy. I do not know, for example, what interpretation, if any, to accord to an *l*-place bound by *would* in the *that*-clause of (449c).

113. When a factive is found in such an environment,  $\emptyset_{for}$  and *for* is, of course possible. When an implicative is found in such an environment,  $\emptyset_{for}$  and *for* are not possible, since these will constitute complement *if*-clauses unless they undergo IC, which is only possible when a verb unpacks as factive.

114. In Chomsky's (1986b) system, IP is not an inherent barrier to government. However, being the complement of a non-lexical category (here C*), it is not "l-marked". The absence of l-marking makes it a "blocking category". Blocking categories transmit barrierhood to the next maximal projection up, here C*P.

115. Kempchinsky (p.286ff.) explicitly notes the parallel with *should*.

116. In this use, *remember* may take an infinitive, and behaves like a *believe*-class predicate. See section 15.

117. Some sort of obviation appears to obtain between matrix and embedded subject. *Bill somehow managed that he should get the prize* seems worse if *he* is *Bill*. Similarly for *Sue was careful that she should remain safe*.

118. There is nothing inherently wrong with progressive aspect in an implicative clause, though there is perhaps some awkwardness: *John managed to be talking to Mary when I entered*.

119. The familiar "*" vs. "?" indicators do not adequately capture the intuitions here. It is possible that (476b) is *less* acceptable than

120. INFL actually has more content than this. It means something like *plan*. In *Bill is playing a concert tomorrow*, Bill's performance is planned for tomorrow — most naturally, but not necessarily, by Bill himself. Similarly, in *The book is coming tomorrow*, or *The street is being dug up tomorrow*, someone has made plans for the book's arrival or for the digging up of the street. Thus, *#it is raining tomorrow* is anomalous, since weather cannot be planned. All this

may suggest that INFL functions as a modal of some sort in this idiom with progressive *be*, rather than as tense.

**121.** In multiple embeddings like *John managed to condescend to call Mary*, Tense in the intermediate clause takes its value from the matrix, and Tense in the lowest clause takes its value from the intermediate clause.

**122.** Similar mechanisms have been proposed for subjunctive complements by Picallo (1985) and others.

**123.** For simplicity, I am not assuming Pollock's hypothesis by which Tense and Agreement are split, but assume instead that they are both features of INFL (see Pesetsky 1989; in prep). Alternatively, I could assume Pollock's hypothesis, under which Tense is higher than Agr, as long as modals occupy Tense. If I accept Chomsky's (1989) proposal (following unpublished work by Belletti), under which Agr is higher than Tense, and presumably is the modal position, I lose the argument presented in the text.

**124.** This is not really a separate observation from (473), since we detected "binding" of tense by the use of downstairs adverbs that contradict those upstairs adverbs that would be compatible with past tense. The real point is simply that the two clauses must match in time reference. I explain this in two parts: first they must match in Tense, then, since this matching involves binding, the adverbial restrictions on the upstairs Tense are inherited by the downstairs clause.

**125.** Karttunen's examples are muddled by the interesting observation by Jackendoff (1985b) that implicative *remember* (and *forget*) carries a factive presupposition as well: *John remembered to turn off the light* presupposes something like *John was supposed to turn off the light*. This presupposition, like a proper factive presupposition, is maintained under main clause negation. *John didn't remember to turn off the light* still presupposes that John was supposed to turn off the light. Thus, (478a) and (478b) differ in whether the temporal *before he left* is part of the factive presupposition, as well as in the manner indicated in the text. A cleaner case would be:

- (i) **Before he left, John managed to call Mary.**
- (ii) **John managed [to call Mary before he left].**
- (iii) **John called Mary before he left.**

Both (i) and (ii) entail (iii), but the difference between (478a) and (478b) described in the text extends to these cases. In (i), the efforts denoted by *manage* are necessary and sufficient for calling Mary, while in (ii), they are necessary and sufficient for calling Mary before John left. Thus, in (i) it must be somewhat difficult for John to call Mary, but in (ii) the difficulties reside in part in the time of the phone call.

**126.** Whether *should* blocks government by C depends on whether it counts as "functional" under (464). Since there is no A-movement from the specifier of a modal (the modal position being the highest position below C), it is difficult to find relevant evidence. If Binding theory cares about the minimal IP containing an anaphor and a governor, then the impossibility of

**Mary regrets that herself should have won the prize* would argue against government of the subject by C here. This issue is open, as far as I can tell.

**127.** Exactly these properties could be pinned on two varieties of C*, if that should prove necessary.

**128.** Recall from section 2.15 that clauses with *toimpl* are selected only by agentive predicates. This presumably illuminates some deeper property of the semantics of implicative complements, but I cannot say what this may be.

**129.** On the other hand, the factive copy of  $\emptyset_{for}$ - and *for*-clauses produced by IC might well differ from the original in bearing *tofac*. Too little is known about this rule to rate this proposal as right or wrong, plausible or implausible.

**130.** At the same time there are languages, such as Kinyarwanda and Jacaltec, cited by Palmer (1986, 148-9) which distinguish between propositional and factive complementizers, which would lend plausibility to the C* hypothesis.

**131.** The idiom *can't believe* is factive, but does not l-select for an infinitive.

**132.** Double-object *dare* belongs in this class, but single-object *dare* (cf. (492c)) is implicative.

**133.** The embedded subject limited to *there* and meteorological *it* in (496) to exclude double-object uses of these verbs. There is an odd three-way contrast among these cases, (494) and examples discussed by Bresnan (1972, 158-159) and judged fully acceptable:

- (i) **She has ordered the bodies to be dragged away.**
- (ii) **She has commanded the prisoners to be shot.**

As Bresnan notes, the meaning of (i) and (ii) is only consistent with a single-object structure: the bodies and prisoners are not understood as interlocutors. Furthermore, passive is impossible, as we expect from examples with  $\emptyset_{for}$  (and as Bresnan expects on her hypothesis of a deleted *for*):

- (iii) ***The bodies have been ordered to be dragged away.**
- (iv) ***The prisoners have been commanded to be shot (without knowing it).**

If (i) and (ii) are fully acceptable, then they are more acceptable than predicted by the chart in (95). It is clear to me that (i) and (ii) are more acceptable than the examples with *there* and *it* in (496), and there is no obvious reason for this difference.

**134.** In Chomsky (1980), the adjacency requirement was built in to the definition of government. Government, however, was used only as a precondition for Case assignment in that work.

**135.** The trace of C in (501) is non-Case-marked, either because the Case assigned by *believe* is assigned to *Bill*, leaving no Case (or optional Case) for CP, or else because CP does not need Case (as argued in section 1), or else because Case assigned to CP is not shared by its head.

**136.** Examples like *It upset me [to VP]* involve an extraposed Cause subject, not a double object structure. Compare: *Nobody was happy to learn any of this*, which demonstrates the possibility of licensing a negative polarity item in a factive infinitive, with **It upset nobody to learn any of this*. The latter is presumably impossible due to lack of c-command between *nobody* and *any*. This is not the behavior of double-object structures: *John persuaded nobody to learn any of this*.

**137.** Karttunen does not in fact mention verbs of assisting such as *assist* and *help*, but these seem to fall into the relevant class, with one caveat. If John helps Mary to leave, John's efforts plus Mary's efforts (plus the efforts of other helpers) are presupposed to be sufficient conditions for Mary's leaving. The use of a verb of assisting therefore presupposes a sufficient condition for its complement to be true, but this condition is somewhat richer than just  $v(S)$ . In the text, I will ignore this complication.

**138.** Recall from section 2.6 that agentive verbs whose subjects are not obligatorily animate allow ECM. *Get* falls into that class: *The hot summer got us to take global warming seriously*. In turn, examples like *?John got there to be more time to do the problem* show that *get* allows ECM, albeit with some degree of marginality. This is unexpected behavior if *get* takes an infinitive whose INFL has semantic content; ECM should be entirely impossible, as it is with implicatives. Compare also *?John/the rain forced there to be a postponement of the game*, which raises the same problem,

**139.** As in note 118, progressive aspect is not intrinsically impossible, albeit with awkwardness: *Bill forced/helped Mary to be leaving when Sue arrived*.

**140.** *Satisfaction* also shows this behavior: cf. *Bill satisfied the committee that he was the best candidate* vs. **Bill's satisfaction of the committee that he was the best candidate*.

**141.** As discussed in Appendix ???, the second object must be regarded as [+Affected], or else it should not be able to occur. See the discussion in that chapter for further details.

**142.** There are probably other, lower traces A-bound by *t*, but I disregard them here, since only *t* is in a position where it might be Case-marked, and *t* is an A-position.

**143.** This tells us that *CAUS-*, like *MIDDLE-*, is not itself restricted from affixing to forms with previous zero affixation. Cf. *Bill persuades easily*, in which *MIDDLE-* is attached to *CAUS-*, as well as *Bill annoys easily*, noted in footnote ???.

**144.** See Déprez (1989) for criticism of Epstein's other arguments for this position.

**145.** Given the Adjacency Requirement as stated in (546), left-adjunction to the *higher* VP might also create an environment in which Adjacency is satisfied. Notice, however, that if the VP contains a subject position to the left of V, there will be no true adjacency between a trace left-adjointed to VP and V. Additionally, we might want to build into (546) the requirement that the Case licenser precede the intermediate trace in a VO language (and follow it in an OV language). Either way, adjunction to the higher VP will not satisfy (546).

**146.** *Promise* is an interesting case to consider. It can behave as a double-object verb (Larson (1991)), in which case it presumably selects a PP complement with a null P, as in chapter ????. This is the configuration in which it selects clausal objects: *promise NP that IP, promise NP PRO to VP*. When nominalized, it seems to allow the alternant with overt *to*, prohibited from the VP: *Bill's promise to Sue CP*, where I take CP to really be the first object. *?Bill, who I promise you to be the best* seems worse than comparable cases with *assure* and *persuade*, which may point to some limitation on this construction with PP small clauses. On the other hand, it is better than the cases in (552), which may point to the existence of a small clause headed by a [+affix] morpheme.

**147.** Complementizer *di*, being a non-governor, does not assign Case by itself to *me*, though its LF trace might in principle do so. The fact that (561b) is still impossible with Case licensed by *di* is due to the fact that *di* is not a Case-licenser at S-structure. The element that licenses Case at S-structure must be a licenser at S-structure. The fact that there is an available licenser at LF is evidently insufficient.

**148.** This means that for Agentive irrealis verbs like *agree*, the rule of P-deletion suggested in footnote 94 must not deprive the object of Case.

**149.** As N. Chomsky has pointed out in recent lectures, this fact is mysterious. It is not clear why our judgments reflect the best of all possible structural descriptions, and do not generally reflect a greater variety of possible analyses.

**150.** *??What do you need to be there* is worse, for unclear reasons.

**151.** In fairness, however, adjunct extraction is worse still with overt *it*, a fact the present account does not explain:

- (i) **How_i would John like it [for Bill to fix the bicycle t_i].**
- (ii) **When_i does Sue most hate it [for rain to fall t_i].**
- (iii) **The reason why_i [Mary would prefer it [for Sue to be writing her novels t_i] is out of some moral imperative.**

**152.** Below, we will see a second “exception” in the form of the null complementizer that accompanies WH-phrases.

**153.** One might wonder about the child who hears “slips” that might motivate a [+Affix] status for  $\emptyset_{for}$ , e.g. **Sue would be preferred to leave*, or who misparses utterances like *A workman is wanted to take care of our lawns* (acceptable with the infinitive interpreted as a purpose or relative clause). We must assume that the child prefers to take such an utterance as an ECP violation than as evidence for a [+Affix] feature on  $\emptyset_{for}$ . Why? The availability of PRO with  $\emptyset_{for}$  requires a [-Affix] specification in any case. Thus, for the child to conclude something from *Sue would be preferred to leave*, he would have to assume a dual specification of  $\emptyset_{for}$  as [ $\pm$ Affix]. One can offer any number of speculations as to why such an assumption would not be made by the child. If any of them were true, we would explain the robustness of the status of  $\emptyset_{for}$  as [-Affix].

**154.** These rules omit the fact that *if* is restricted to adjunct CPs (cf. (363)), which is another limitation on (590). Remember that the restriction of *if* to adjuncts is not matched by an inverse restriction on *for* and  $\emptyset_{for}$ . Compare (350) (*For this document to be acceptable to the committee, it must... etc.*) with *If this document is to be acceptable to the committee, it must...*. Of course, *for* and  $\emptyset_{for}$  are excluded from adjuncts modifying clauses without the proper deontic modal, as discussed in connection with (350). Perhaps when these issues are sorted out more carefully, something more intricate and interesting may be observed concerning the relation between *for*/ $\emptyset_{for}$  and *if*.

**155.** Alternatively, the dissimilarity in subcategorization frames might perhaps point to a difference in something attributable to semantics, if this difference is s-selection, as reference to N and V must be, given the theory of selection adopted here. By contrast, the difference between *for*/ $\emptyset_{for}$  and *if* is l-selectional.

**156.** In unpublished work, Ritter and Szabolcsi (1986) claim that there actually are subtle differences in meaning between *that* and  $\emptyset$  here (which they correlate with a structural distinction). If this is so, then we might sever the link between  $\emptyset$  and *that* after all, allowing us to maintain the simpler theory that makes reference only to synonymy. I find the differences difficult to detect, so I will not adopt this view in the text, even though it would allow us to maintain the more attractive theory.

**157.** I continue to leave open the reasons why English does not allow Aux-to-Comp.

**158.** In addition, it is best with a stressed pronoun as subject. Perhaps this is related to the fact that only pronouns display an overt nominative-accusative contrast in Italian. Independent of this, it is interesting to note that constructions with lexical subjects in infinitival complements to *believe*-class verbs are literary and stylistically marked in a number of languages, including English and Icelandic as well as Italian. We have no apparatus for dealing with the reasons for or implications of potential “stylistic universals” of this sort, which indicates an important gap in our understanding.

**159.** Indeed, (600) is essentially Rizzi’s structure as well, except for the affixation of C to V.

**160.** Structures like (606) cannot be ruled out as instances of “COMP-trace” phenomena like English examples (i) and (ii):

- (i) *How many people_i do you believe that t_i can pay the ransom.
- (ii) *How many people_i would you prefer for t_i to pay the ransom.

As has been known since Perlmutter (1971), languages like Italian do not show this phenomenon with overt movement. Kayne (1984, chapter 1; orig. 1980) and Rizzi (1982, chapter 4) showed that the behavior of Italian is due to the possibility of post-verbal subjects, which allow subjects to act like objects for ECP purposes. Such subjects are also available in AUX-to-C constructions, as Rizzi (p.140) shows for gerundive AUX-to-C. The null subject transmits nominative case to the post-verbal subject, just as it can in finite clauses. Example (iv) shows the corresponding infinitive:

(iii) [_{CP} [_C *Avendo*_i] [_{IP} e [_I, t_i [_{VP} [_{VP} *telefonato*] Mario]]...  
 'Mario having telephoned...'

(iv) *Suppongo* [_{CP} [_C *avere*_i] [_{IP} e [_I, t_i [_{VP} [_{VP} *telefonato*] Mario]]]]  
 I-suppose...

When extracting from the post-verbal position, one might still expect (606) to be acceptable. At S-structure, as in (606), Case adjacency is satisfied by the adjacency of the higher V to the SPEC,CP. At LF, movement of *di* to the higher verb places the embedded subject in a position to be governed by the higher V, and Case-licensed by it. We know from (iii) and (iv) that Case licensed on a null SPEC,IP can be licensed by transmission on a post-verbal subject, even in non-finite clauses. Therefore, the structure should be acceptable, and there is still a problem to discuss.

**161.** For the “subject-oriented” character of *qui*, *die* or Italian  $\emptyset$ , we might rely on Rizzi (1990), who suggests that forms like *qui* are reflexes of SPEC-Head agreement in CP. In unpublished work, Rizzi suggests that the limitation to short subject movement is a result of SPEC of *qui* qualifying as an A-position rather than as an A-bar position (an idea stemming from proposals of Déprez (1989)). Rizzi suggests that SPEC of an agreeing category is always an A-position, thus distinguishing *qui* from *que*. The obligatoriness of *qui* is presumably due to some other factor, as is the impossibility of movement through SPEC,CP to another A-position.

**162.** If the second alternative is taken, we must continue to allow C-to-V in cases like (599), which, as I noted, is fully and easily acceptable in a way that clear infinitival AUX-to-C is never acceptable. An obvious place to find an answer would be in a theory of register-switching. Even in a “marked register” text, a speaker must be allowed to switch from “acrolect” to “mesolect”, where (599) would be fully acceptable.

**163.** Certain restrictions on infinitival AUX-to-C suggest that we approach this conclusion with some caution. First, Aux-to-Comp assigning nominative Case is entirely impossible inside NP:

- (i) **la supposizione/dichiarazione aver io fatto il mio dovere*  
       the supposition/declaration to-have I done my duty

This cannot be a property of an empty C inside the infinitive, if AUX-to-C applies. Therefore, it must be a property of the nominative Case-marking on the subject. In addition, Aux-to-Comp with nominative Case is impossible in the complement to verbs like *sembrare* ‘seems’ (Rizzi (1982, chapter 4, p.141):

- (ii) *Sembra [esser loro arrivati in ritardo]  
it-seems to-be they arrived late

The environments “N___” and “*sembra*___” are both non-Case-licensing environments. This suggests that previous characterizations of AUX-to-C, mine and Rizzi’s, are too simple. In particular, it looks as if Aux-to-Comp in infinitives can only assign nominative Case in the environment of a Case-licenser. This condition is exactly that proposed by Raposo (1987) for the inflected infinitive in Portuguese, a connection which I will not pursue here. (Raposo also notes a connection between the two constructions.) Thus, contrary to what I proposed when first introducing this construction (cf. (156)), the trace of non-finite INFL cannot fully license nominative Case by itself, even though it does govern. This conclusion might undermine my account of the register distinctions in AUX-to-C, since it represents a difference between infinitival AUX-to-C and gerundive AUX-to-C (which does not seem to require outside licensing). Until this difference is understood, it is hard to reason from properties of the first construction to properties of the second.

**164.** Perhaps raising predicates that lack *di* fall into this category, e.g. *sembrare*: *Gianni sembra essere stanco* ‘G. seems to be tired’ (note the absence of *di*) vs. *Mi sembra di avere capito* ‘To-me seems *di* PRO to-have understood’ (Graffi (1981)).

**165.** Rizzi discusses cliticization of the embedded subject as well. Since this generally tracks the distribution of NP-trace, I will not discuss it, for simplicity’s sake.

**166.** The examples are chosen to exclude construals in which the matrix verb takes the following NP as a direct object, with the adjective some kind of secondary predicate.

**167.** Meteorological *it* is much worse: **Sue’s desire for it rainy*.

**168.** In English, the “normal” infinitival complementizer  $\emptyset$  found with *believe*-class verbs behaves just like Italian  $\emptyset_{sc}$ . This raises the possibility that the two are identical.

**169.** Intriguing in this context is Rizzi’s (1990, 58) report of work by Godard (1985), which presents a dialect of French in which the *que/qui* alternation is in fact limited (at least in natural usage) to *believe*- and *wager*-class verbs that also allow infinitival complementation. I have not consulted Godard’s work firsthand.

**170.** Example (632c) improves, according to Huot, if the right-dislocated infinitive is introduced by *de*. *De* appears to substitute for a phonologically zero complementizer only in non-subcategorized infinitives, such as the left- and right-dislocations in (631)-(632) and only when the complementizer is  $\emptyset_{for}$ . It is described as optional (except perhaps for the improvement on (632c)). There is an obvious similarity to the distribution of English *for*, except that *de* in this environment is never a Case-marker, and is mostly in free variation with  $\emptyset_{for}$ .

**171.** I am grateful to Viviane Déprez (personal communication) for supplying and discussing these facts.



**172.** *Douter* requires a genitive object when it selects NP. Since the clitic is nominal, *en* is required. Compare also: *Que Marie puisse comprendre ce problem, Jean en doute.* ‘That Mary could understand this problem, John doubts [of] it’.

*Oublier* ‘forget’ does not seem to allow this construction, nor are right-dislocations as acceptable as left-dislocations.

**173.** Interestingly, negative verbs uniformly exclude small clause complements. Thus, NP-movement from the embedded clause is impossible with *nier*, *douter* and similar verbs, as documented (implicitly) by Pollock (1984). Perhaps negative features are incompatible with  $\emptyset_{sc}$ .

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