Subjects and Complementizers

by

Philip Branigan

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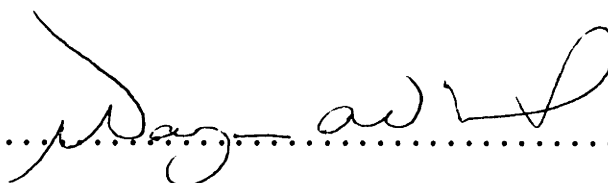
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Abstract

This thesis is concerned with the position that subject and objects occupy at LF. It
is demonstrated that objects must occupy a Case position outside of VP at LF in
order to account for the effects of objects in participle agreement configurations and
in configurations in which they interact with 'dependent' elements in VP adjuncts.
It is shown that subjects occupy a non-Case position located between CP and IP, a
position which can also be occupied by inverted locative phrases in English. The
A-bar status of this position leads to 'that-trace' effects and a greater sensitivity to
A-bar extraction of the subject from inside an island.

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Contents

Chapter 1

Goals, Framework and Assumptions

1.1 Goals

A central question in theories of grammar which include transformational derivations is: what principles force transformations to take place? Recent years have seen a partial answer to that question develop in the theory of abstract Case. Case theory imposes a requirement on transformational derivations that NPs (at least) must occupy a position in which their Case features are legitimated at some point in the derivation. This constraint forces NPs to be moved by a transformational operation to a Case position if they do not occupy a Case position to begin with.

An answer along these lines can be explanatory only to the extent that the notion of a 'Case position' can be defined in a principled fashion. If the set of Case positions is simply an arbitrary collection of positions in which we observe that NPs actually appear, then the explanation has no force. If, on the other hand, all NPs can be shown to occupy a position which is distinguished from other *possible* NP positions in some precise way, then we *do* have a partial answer to the question: why do NPs move?

The question I address in this thesis is how best to characterize the notion

'Case position'. I argue for a theory of Case based on the suggestion of Koopman (1987), Chomsky (1988) that structural Case is assigned only to an NP in the specifier position of a phrase the head of which is responsible for legitimating Case features. This theory differs substantially from the familiar Case theory developed by Vergnaud (1985), Rouveret and Vergnaud (1980), Chomsky (1981) and others. In the traditional Case theory, the Case features of NPs in direct object position are legitimated *in situ*, because the direct object position is a Case position. In the theory I argue for, NPs in direct object position must undergo A-movement to a Case position at some point in the derivation, although such movement is confined to the post-S-structure (LF) syntax for the most part.

This approach to Case theory has a several attractive consequences, discussed below. But it also raises a number of questions, both of implementation and of empirical coverage.

This thesis is concerned with problems of 'exceptional' Case and 'proper' government. I understand these terms to be (no more than) convenient pointers/mnemonics for a familiar array of problems involving movement of noun phrases to and from the 'subject position' of a clause.

This thesis has two goals. First, it offers a number of arguments in support of the idea that structural Case is assigned only to NPs in specifier position. Second, it makes the more technical claim that the exceptional properties of subjects should be explained as consequences of local movement of heads of phrases in the immediate vicinity of subject NPs. Two consequences of head movement in particular are important. Head movement can enlarge the domain in which a phrase can move without violating *Relativized Minimality* (sections ?? and ??), and head movement can produce a configuration in which a Case relation between a head and a relatively distant NP is legitimate (chapter ??).

In a variety of languages, an NP assigned objective Case can be shown to occupy in the surface string a position other than the position in which it receives its θ-role. This process, dubbed 'object shift' by Holmberg (1986) raises a number of questions for the theory of abstract Case, and the theory of movement. Chomsky

(1988, 1992), following Koopman (1987), proposes to account for such constructions by adopting a theory of structural Case (and agreement) in which Case is assigned to subjects and objects in the same way: under Spec-head agreement. He claims that 'shifted' objects are those which undergo movement in the overt syntax to a Case position, and that all other structurally Case-marked objects must undergo movement in covert syntax to the same position. In doing so, he intends to unify the theory of structural Case in a theory in which structural Case is always assigned to a specifier under the spec-head relation.

Chomsky's approach, though not justified on this basis alone, is lent some plausibility by arguments from languages which allow or require A-movement 'object shift' in the overt syntax. Holmberg (1986) shows that objects in Swedish and Icelandic may undergo A–movement out of VP in some contexts. Mahajan (1989) shows that there is an A-movement component to object scrambling in Hind, as well. Given the existence of this type of movement in overt syntax, the null hypothesis is that covert syntax should also allow such movement to take place.

This idea, if it can be maintained, has broad and important consequences for the theory of grammar. The arguments for a post-S-structure level of representation, *Logical Form*, have been primarily based on the interpretation of *in situ* operators of various types. But alongside the arguments that operators undergo covert movement to positions which determine their scope (Chomsky, 1976; May, 1977; Huang, 1982), there are arguments that such LF movement, if it exists, must have different properties from overt movement (Williams 1978, Watanabe 1991). The latter arguments tend to motivate an 'interpretive' theory of quantifier scope in place of a theory in which derivations procede past S-structure.

On the other hand, if structural Case can only be assigned to specifiers, and if it is shown that objects, for example, are not in specifier position at S-structure, then NP-movement must take place in the mapping to LF. This finding would force us to concede that 'real syntax' extends past the point at which syntactic structures are input to the PF component.

In chapter 1 (this chapter), I outline the framework I adopt in this work. In

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addition, I briefly review a number of arguments of a technical nature for some assumptions on which I rely in subsequent chapters. In chapters 2 and 3, I show that there is compelling empirical evidence in favor of the idea that objects must move to the specifier position of a functional category in order for objective Case to be checked, either in overt syntax or in covert syntax. The evidence for covert object shift concerns the ability of an (accusative) object to c-command and license elements in adjunct phrases in English. In chapter 2, I show that overt object shift does occur in French and English and what principles constrain its occurence. In chapter 2, I show that overt object shift does occur in French and English and what principles constrain its occurence. In this chapter, I also argue for a certain formulation of *Relativized Minimality* and the *Strict Cycle* condition. In chapter 3, I show object shift *always* takes place—in the LF syntax, if not in the overt syntax—for direct objects and their like. The evidence for covert object shift concerns the ability of an (accusative) 'object' to c-command and license elements in adjunct phrases in English. In chapter 4, I show that the position occupied by (pure) 'subjects' in English-like languages is an A-bar position located between CP and IP (=AgrP). In combination with the formulation of *Relativized Minimality* discussed in chapter 2, this hypothesis leads to an explanation of 'vacuous movement' effect, 'surprising asymmetries', and the '*that*-trace' effect.

1.2   Framework: the Minimalist Program

This thesis adopts as its theoretical foundation the Economy model of Chomsky (1988, 1992) and Chomsky's 1991–1992 class lectures. As this model of grammar is still largely unpublished, it is necessary before I begin to present a number of crucial innovations and suppositions which I will assume. (The reader is warned not to take this in any way as a definitive or authorized exegesis of the lectures in question.)

1.2.1 The Derivational Model

Unlike the (Extended) Standard Theory, the Economy model assumes only two levels of representation: PF and LF. The PF representation is the syntactic structure which is mapped onto articulatory/acousti phonetics. The LF representation is the syntactic contribution to 'mean. o . The role of a transformational derivation in this model is to generate syntactic structures which contain only 'legitimate objects' at both levels of representation. There are three types of operations involved in generating syntactic structures: lexical access, binary (generalized) transformations, and unary transformations. Lexical access supplies the atoms from the lexicon from which syntactic structures are built. Binary transformations construct a single syntactic structure from two separate structures. And unary transfornations—including in particular, move-α—affect the internal structure of a single syntactic object. Lexical access and binary transformations are allowed until the PF representation is reached. At this point, every lexical item and structure involved in the derivation must have been merged into one structure in order for the mapping of the PF representation onto the physical signal to be possible. Unary transformations are allowed both before and after the PF representation is generated, so that the internal structure of a phrase may continue to change until the LF representation is generated. A schematic representation of a derivation appears in (1).

Phonetic
Interpretation   (PF)

Meaning   (LF)
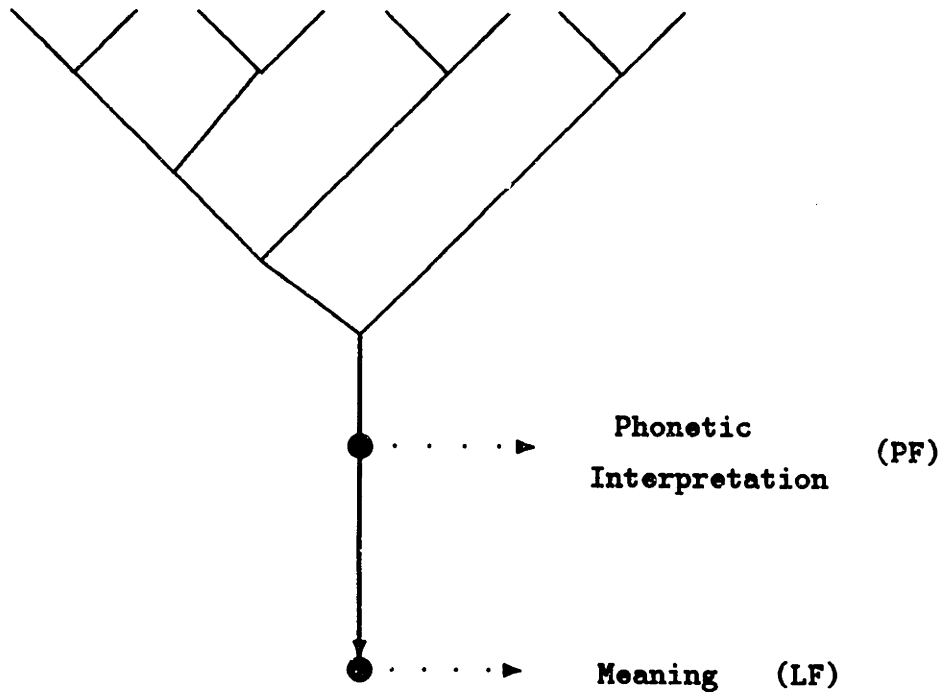
(The straight lines represent sequences of unary transformations; the junctions represent binary transformations. The circles are 'interface levels', where syntactic structures are interpreted by the PF module or the LF module.)

There is no 'deep structure' (or D-structure) in this model, so no constraints on representations can be defined which require reference to such a level. (The 'deep structure' of Chomsky (1965) corresponds approximately to LF in (1).) 'Surface structure' can be defined in this model as the level at which the derivation splits into separate branches, towards PF and LF, but Chomsky observes that there may not be sufficient motivation to ascribe any significant properties to *this* level of representation, either. PF and LF (sound and meaning) are evidently ineliminable from any theory of grammar.

Nothing in principle excludes the PF and LF branchings in (1) from being pointlike. They may include no transformational operations at all. It is entirely conceivable that the LF interface coincides with the PF interface, i.e., that meaning is read directly off the surface structure of a sentence. Nor does anything make this result *a priori* more likely than any other ordering of PF and LF.

1.2.2 Feature-checking (a generalized Case theory)

In the Extended Standard Theory (EST), (unary) transformations are driven primarily by morphological requirements of the components of a given structure. NP movement is driven by Case theory; head movement is driven primarily by affixal properties of heads. (Overt) wh-movement is often said to follow from an A-bar counterpart to Case theory, such as Pesetsky's (1982b) 'wh-criterion'.

In the Economy model too, unary transformations are driven by morphological requirements of the components of a structure. In Chomsky's terms, a derivation of a phrase is said to 'converge' if and only if it reaches a point at which each of the morphological units in the phrase have been rendered legitimate by virtue of having had all of their features 'checked' by an apropriate functional head. NPs must have their Case features checked. Verbs must have their *tensual* features checked. Adjectives and other predicates must have their φ-features checked.

It is important to keep in mind the difference between a convergent derivation and a derivation which generates a grammatical phrase. Only convergent derivations result in a grammatical phrase, but ungrammatical sentences can be generated by convergent derivations. The implication only goes one way. Grammatical phrases generated by convergent derivations can still turn out be phonetically or semantically ill-formed.

Chomsky proposes that Case theory be interpreted as a 'checking' theory, in which an NP is rendered legitimate if all of its morphological features are 'checked' under a specific relation with an appropriate head.

Features of a category can be checked only if the category enters into a specific structural relation with an appropriate functional head. The 'checking' relation is the complement of the head-complement relation within the maximal projection of the head. In other words, a head can check features on its specifier, or on another head adjoined to it. The two configurations in which checking is possible are illustrated in (2).

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(2)

```
        XP                      X'
       /  \                    /  \
      α    X'                 X
          /  \               / \
         X                  α   X
```

The canonical instantiation of the checking relation is 'nominative Case assignment'. Under Chomsky's account, nominative Case is checked on a NP in Spec-AgrP if Tense has been adjoined to Agr. The property of checking nominative Case is unique to Tense, but Agr also has features which it must check in this configuration, i.e. the pfeats. Unless both features are checked, the NP is not rendered licit at LF[1]

The checking of features on an NP is 'mirrored' by feature-checking of *heads*. Agr and Tense each have the property of checking both NP features and certain features on verbal heads. For example, the mirror operation of φ-feature –checking on an NP by Agr is φ-feature -checking of Tense. The φ-features of Tense are morphologically realized on the verb to which Tense is affixed. And Tense itself checks the *tense* features of the verb.

Aside from the notion of 'checking' and the definition of configurations in which checking can take place, there are a number of additional mechanisms which play a role in the theory. The role of functional heads is taken to be exclusively formal. Agr (and Tense too, perhaps) have no substantive component at LF and must therefore be deleted, under the principle of Full Interpretation. Chomsky proposes that deletion of a functional head must take place as soon as the head has done all of its work, i.e., as soon as it has checked all the features in its inventory. So Agr deletes as soon as it has checked φ-features on an NP and on Tense.

Like NPs and mobile heads, categories which undergo A-bar movement do so because they have features which must be checked in the position in which they end

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[1]There is another way to check φ-features in Chomsky's system: through the Control relation. PRO is a legitimate NP at LF because its Case feature is checked by (non-finite) Tense and its φ-features are checked by its controller.

up. In particular, wh-movement to Spec-CP is legitimate in this theory only if the wh-phrase has some feature checked by the complementizer. (This assumption requires us to assume as well that 'topics' in Germanic verb-second constructions also have an operator-like feature to be checked.)

Simply in order to have a concrete basis for the discussion, I will assume the following inventory of 'operator' features. All phrases moved to Spec-CP bear the feature [+O] (for Operator), which distinguishes them from categories which do not undergo such wh-movement. Interrogative pronouns, and relative pronouns with the same morphology, also bear the feature [+wh], while null operators bear the feature [−wh]. The feature [±wh] has no value in categories not specified as [+O].

The features [±O] and [±wh] partition the complementizer system as well. [+wh] features can be checked only by a zero complementizer. A non-zero complementizer can check only [−wh] categories, i.e. null operators, in Spec-CP. Both zero and non-zero complementizer check [+O] features on their specifier. Only the feature [+wh] is reflected in the English complementizer system; [−wh] constitutes the unmarked case.[2]

1.2.3 PF constraints and the 'strength' of morphological features

Given this machinery, Chomsky defines the notions 'weak' and 'strong' features of functional heads. A 'strong' feature is one which is visible to the PF interface, while a 'weak' feature is not. By definition, visible features which are not contained inside actual words are illegitimate objects at the PF interface, so 'strong' features must be deleted before the PF 'spell-out' is reached. For example, the verbal φ-features in French Agr are 'strong', Chomsky claims, so they must be deleted before PF. This has the consequence that the verb must raise to Agr in the overt syntax in French, so that Agr may lose its verbal φ-features by checking them. In English, on the other hand, the verbal φ-features of Agr are 'weak', so the verb need not raise

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[2]There may be deep reasons for the way these features partition the complementizers, or they may simply be accidental.

in the overt syntax.

As a rule, in wh-movement constructions in English, at least one category bearing [+O] features must move to Spec-CP in the overt syntax. This generalization can be expressed in the Minimalist model by asserting that the [±O] features of complementizers are always 'strong'. As strong features must be eliminated before PF is reached, the [+O] features of the complementizer must be discharged before PF. An operator must therefore be present in Spec-CP at some point in the derivation before PF so that the strong features can be discharged.

It is not a particular advantage of the Minimalist program that it enables wh-movement to be forced in this manner. Exactly the same mechanism has always been available in the Extended Standard theory. But the Minimalist model at least has a language with which to state a reason why overt movement should be forced in some circumstances and not in others, and why languages may differ in this respect.

1.2.4 The Definition of A and A-bar positions

Chomsky defines the A/A-bar distinction in terms of the notion 'L-related'. A position is L-related if it is in the domain of an L–head, where L-heads are lexical heads and heads which check the features of lexical heads. V,N,A,P are L-heads. T and Agr are L-heads. C is not an L-head. Neither is Neg. A positions are L-related; A-bar positions are not L-related.

1.2.5 Economy of Movement

The fundamental idea behind the Minimalist model is that derivations are constrained primarily by notions of *Economy*. Movement operations are constrained in a number of distinct ways in this model, all of which share the property of forcing a derivation to chose a more economical route over a less economical route.

Last Resort and Greed

The first constraint is the principle of *Last Resort*, which requires that every unary transformation be a necessary part of making the phrase convergent. Under *Last Resort*, a movement operation is allowed only if the resulting structure is one in which morphological features of some object can be checked which could not be checked in the input structure. Take NP movement to Spec–IP, for example. In a sentence like (??a), the verb *helped* is capable of Case–checking its object (by some means), so the object *John*

(3)   a. * John was believed [IP *t* had robbed the bank.]

        b.   John was believed [IP *t* to have robbed the bank.]

Relativized Minimality

The second economy constraint on movement is a *derivational* version of Rizzi's *Relativized Minimality*. The intuitive core of Chomsky's *Relativized Minimality* is that at LF, traces are well-formed if and only if they were created by a movement operation which takes the most economical route possible. *Relativized Minimality*, in this view, requires that movement operations not skip over any possible landing sites. As positions which are occupied by other objects of the same type, i.e., A, A-bar or X^0 elements, are *ipso facto* possible landing sites, it follows that any movement operation which moves an element over another element of the same type violates *Relativized Minimality*. Traces created by operations which did not satisfy this constraint bear a '*' mark which reflects the illegitimacy of their origin. If traces bearing '*' cannot be deleted before LF, the phrase violates the ECP. [3]

Like Rizzi's (1991) account, Chomsky's analysis rules out cases of super–raising and extraction from wh–islands directly. The former involves movement of an NP to an A–position by skipping over an intermediate A–position. The latter involves A–bar movement past a closer possible A–bar landing site. Most violations of the Head Movement Constraint follow as well.

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[3]Some '*'–marked traces which are deleted in the course of the derivation give rise to weaker subjacency violations, however.

There few obvious empirical differences of coverage between Chomsky's *Relativized Minimality* and Rizzi's. I adopt the former theory primarily because of the mechanism it offers to deal with the special problems raised by the conjunction of the VP-internal subject hypothesis with the idea that objects are Case-marked in a specifier position outside of VP. These issues will be discussed in some detail in section 2.1.

1.2.6 Bounding Theory

While *Relativized Minimality* does much of the work done by 'subjacency' and 'barriers' in other work (?; Chomsky, 1986; Lasnik & Saito, 1991), there remain a number of cases which cannot as yet be explained without some recourse to bounding theory. The contrast between (4a) and (4b) does not seem to be a *Relativized Minimality* violation (Frampton, 1991), for example.

(4)   a.   John is likely [*t* to win].

  b.   *   John is probable [*t* to win].

In neither sentence is there any position which is passed over by movement of the subject of the complement clause to its higher position(s), so *Relativized Minimality* is not violated in either case. Yet (4b) is ungrammatical.

A stripped down bounding theory is all we need to have the tools to characterize the contrast between these sentences. The theory requires the assumptions given in (5).

(5)   a. Lexical heads and L-related functional heads L-mark their complements.

  b. Non-L-marked categories are barriers.

  c. Adjunction to arguments is impossible.

  d. Movement which crosses a barrier results in an '*'-marked trace.

This suffices to allow A-movement in (4a) and to block it (4b). As C is not an L-related functional head, it will not L-mark its IP complement. Then NP-movement out of CP always produces a '*'-marked trace. violates the (5) bounding theory. So the contrast in (4) reduces to the observation that 'S-bar

deletion' takes place in (4a) and not in (4b). (It does not particularly matter here what the proper mechanism for 'S-bar deletion' is. Either an 'IP selection' theory or a theory in which the CP node is actually deleted are compatible with this bounding theory. In section ??, I will suggest that the latter approach is necessary, but this question will not matter until that point.)

The same bounding theory accounts for *'Condition on Extraction Domain'* (CED) effects (?), such as the fact that NP movement out of non-complements is impossible, as shown by (6).

(6)   * John seems [IP [CP [IP *t* to be intelligent
           ]] to be clear].

In this example, the CP and the IP of the subject sentence are both barriers because neither are L-marked. NP movement to the matrix clause thus violates the bounding theory twice, resulting in strong ungrammaticality. Note that, once again, *Relativized Minimality* does not block NP movement in this example because there is no A-position skipped over by movement of the subject of the complement clause into the matrix clause.

Other cases of CED violations, such as A-bar extraction from subjects and adjuncts, follow along similar lines. For many of these cases, though, it is unclear whether it is *Relativized Minimality* or a bounding theory or both which is most relevant to explaining the resulting ungrammaticality.

Several stipulations in the *Barriers* model are unnecessary, given *Relativized Minimality*. Clause-internal NP-movement is no longer problematic, because VP and the functional categories below IP are all L-marked, so they are not barriers. It is not necessary to block adjunction to IP now because such adjunction does not allow a phrase to escape a wh-island without violating *Relativized Minimality*. Nor is there any need to suppose that IP is a not a barrier in order to allow A-bar movement out of a clause to be possible. As adjunction to IP is no longer ruled out, a wh-phrase can reach Spec-CP by first adjoining to IP. (With this stipulation gone, it is no longer possible to analyse the *'that*-trace' effects as a failure of antecedent-government, as a Spec-IP trace should always be antecedent-governed by

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an IP-adjoined intermediate trace. This result is all to the good, as will be shown in section ??.) Finally, there is no reason to require that IP 'projects barrierhood' to an L-marked CP. As IP is itself a potential barrier, A-movement out of CP is always A-movement past an IP barrier, so the barrierhood of CP is irrelevant.

1.2.7 Global Economy and Form Chain

There is also a 'global' constraint on derivations, which I will call the principle of *Global Economy*. This principles compares possible derivations of the same structure. It requires that derivations with fewer steps be chosen over derivations with more steps.

Under the simplest interpretation, this should entail that non-cyclic derivations should be forced in preference to cyclic derivations (whether or not the result is grammatical). But the principle of *Global Economy* is accompanied by a revision in the way cyclic transformational operations are viewed. They are taken to count as a single complex operation, called *Form Chain*, which result in the creation of a single complex object: a chain. Each *Form Chain* operation counts as a single step with respect to *Global Economy*, so cyclic derivations are as cheap as non-cyclic ones. (cf. Collins (1992) for discussion.)

1.2.8 The Strict Cycle Condition

Given the 'derivational' version of *Relativized Minimality*, further machinery is required to ensure that the effects of *Relativized Minimality* cannot be escaped by counter-cyclic movements. Chomsky adopts a version of the *Strict Cycle* condition for this purpose. The intuitive formulation of this principle simply requires that every transformation makes phrases larger. As counter-cyclic movement moves an object into the middle of a phrase, the phrase is not made larger, so the *Strict Cycle* is violated.

As for cyclic movement, under the Form-Chain analysis, while intermediate positions are created which do not themselves enlarge the structure, the landing site

of the head of the chain does enlarge the structure. So it's the head which is relevant to the Cycle.

While the *Strict Cycle* is necessary in this theory in order to allow *Relativized Minimality* to do what it is intended to do, the *Strict Cycle* must not be so strong that *Relativized Minimality* blocks other grammatical cases of extraction. One thing *Relativized Minimality* must do is block A-bar movement past a filled Spec-CP. It does so because Spec-CP is an A-bar position, so movement past this position necessarily is movement past a closer possible landing site. But there are elements in A-bar positions which are apparently transparent to wh-movement.

(7)   How much does Peter occasionally insist that he weighs t ?

In (7), *how much* is extracted past the adverbial adjunct *occasionally* without violating *Relativized Minimality*. On the assumption that adverbial phrases occupy A-bar positions— at least when not contained in VP—this might be taken to be a flagrant counterexample to the formulation of *Relativized Minimality* I am adopting. But the theory actually offers a mechanism to allow (7) to be derived grammatically: generalized (binary) transformations. If *occasionally* is added to the sentence *after* the wh-phrase *how much* is extracted, *Relativized Minimality* is not violated.

In order to allow derivations of this type, we must assume that adjunction is not subject to the cycle, as the adverb must be adjoined inside a domain which the cycle has already passed. This assumption has intuitive plausibility. The cycle can be thought of as a principle which holds only of structure-building operations. Movement into a specifier of a phrase always adds structure to the phrase. Adjunction to a phrase does not. When a category is adjoined to another category, the result is not a larger number of categories. There is an extra *segment* present in the category adjoined to, but additional segments are do not count as more structure (May, 1985; Chomsky, 1986).

Note that allowing binary *adjunctions* to violate the cycle does not lead to any cases in which the effects of *Relativized Minimality* can be avoided in wh-islands. Sentences like (8) will still be caught.

(8)   * How much does Jerry know how often Peter
          insists he weighs *t* ?

While *how often* can indeed be adjoined inside the most embedded clause
after *how much* has moved, wh-movement of *how often* will still be blocked by the
Strict Cycle condition, as movement to Spec-CP is a structure-building operation.

Superiority

Superiority effects are also taken to be the consequence of Economy considerations.
In this case, it is not the number of steps which is at issue, but rather their 'size'.
Superiority violations take place when there are two objects which might be moved
into the same position to allow convergence to take place, and when the object
which is further away is moved. This violates *Global Economy*, because the shorter
movement is less costly.

(9)   a. What did Tony give *t* to whom?

       b. Who did Tony give what to *t* ?

       ...[4]

Procrastinate

The final Economy principle is *Procrastinate*, a principle which requires that covert
operations be preferred to overt operations. This principle is largely responsible for
explaining cross-linguistic variation, by blocking overt movement whenever a given
language does not *require* that movement to be overt.

The distinction between verb movement in French and English follows only
in part from the idea that French verbs have 'strong' features. This idea explains
why verbs *must* raise in French; it does not explain why non-auxiliary verbs *must
not* raise in English. *Procrastinate* fills in the gap—it forces movement to be covert
unless it is forced into the overt syntax by some principle. A failure to achieve PF
convergences is one thing which overrides *Procrastinate*. As French verbs have

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[4]Murasugi (1992) proposes that this condition will account for the movement absolutive Case-
marking on the subject in a transitive clause in ergative languages.

'strong' features, there is no PF convergence unless the verbs raise in overt syntax. In English, in contrast, convergence is possible without verb raising so *Procrastinate* applies. LF invisibility is like feature strength in causing *Procrastinate* to be ignored. English auxiliary verbs are invisible in covert syntax, Chomsky suggests, so they can only move in overt syntax if the phrase is to converge at LF. Howard Lasnik (p.c.) suggests that morphological defectiveness in English modals also leads them to disregard the strictures of *Procrastinate*.

Procrastinate is a weaker principle than the other Economy principles, it seems. *Last Resort*, *Relativized Minimality* and *Global Economy* are absolute constraints—if they are violated, the phrase thus derived is degraded, even if it is only by violating one of these principles that other principles of grammar may be satisfied. In contrast, *Procrastinate* can be ignored if this is necessary to allow some 'surface' principle to be satisfied, with no resulting decrease in the acceptability of the res.iting sentence.

1.2.9 Copy theory of Movement

I adopt as well the 'Copy' theory of movement of Chomsky (1992). In this theory, formation of an n–ary chain by movement is actually a transformation which copies the content of the tail of the chain into each of the positions occupied by members of the chain. The tail of the chain is not 'empty' as a result of movement—it contains the same material it had before the movement operation took place. However, it is not subject to phonetic interpretation, because the PF mapping interprets only the head of a chain.

The intent of the Copy theory is to provide an account of reconstruction facts.

1.3 Other Assumptions

1.3.1 Chain Uniformity and Complement-Adjunct Assymetries

Huang (1982) observed that not all traces are equally sensitive to island extraction violations. In general, if an argument in complement position is extracted from certain types of 'weak' islands, the sentence is only slightly degraded, as in (10). If an adjunct is extracted from a island however, the sentence is much worse, as in (11).

(10)   a. ?   What do you wonder who bought *t*?

        b. ?   What did they ask where to buy *t*?

        c. Who did you finish supper before calling *t*?

(11)   a. * How badly do you wonder who fixed the car *t*?

        b. * Why did they ask who to find *t*?   (with downstairs scope for *why*)

        c. How did you finish supper before you called *t* ?

Lasnik and Saito (1984) suggested that this assymetry follows from the following two principles: the ECP applies to intermediate traces, as well as to the traces at the end of a chain, and intermediate traces of extracted arguments may be deleted at LF, while intermediate traces of extracted adjuncts cannot. As intermediate argument traces can be deleted, they need not satisfy the ECP for a sentence to be (relatively) grammatical. Intermediate adjunct traces, on the other hand, must satisfy the ECP.

The idea that intermediate traces must satisfy the same conditions as the tails of chains is no more than the null hypothesis.

Chomsky (1990) suggests that a stronger position be taken: an intermediate trace *must* be deleted if it binds a argument trace. (cf. also Browning (1987) for a similar proposal.) In what follows, I assume that the strong position is correct, i.e., that intermediate traces must be deleted in wh-movement of arguments, and that intermediate traces cannot be deleted in wh- movement of adjuncts.

The *Uniformity Condition* interacts with *Relativized Minimality* to provide an account of complement-adjunct asymmetries in extraction from weak islands. The intermediate traces of adjuncts cannot be deleted, so if they are marked '*' because *Relativized Minimality* or the bounding theory is violated, the phrase cannot be rescued. The intermediate trace of an A-bar chain which binds a complement can be deleted, however.

1.3.2 VP–Internal Subjects

I assume that 'external' subject NPs originate inside VP, following (Koopman & Sportiche, 1984, 1991; Giusti, 1990).

1.3.3 Zero Syntax

I also make use of a number of claims put forward by Pesetsky (1991), more unpublished work, which it is therefore necessary to describe here.

Pesetsky claims that (many) zero morphemes are affixes, i.e. they require morphological support as a lexical property. The presence of such a zero affix in a word can be detected by the blocking of further morphological processes, such as nominalization, etc. ('Myer's Generalization'). The second object in a double object VP is shown by this diagnostic to be the complement of a zero morpheme, presumably a preposition.

(12)   a.   **We gave-P Mark** [$_{PP}$ *t* **a hand**]

        b. * **our gift (of) Mark (of) a hand**

The same diagnostic shows that English complementizer deletion in finite clauses involves a zero affixal complementizer.

(13)   a.   **We believe** [$_{CP}$ *t* [$_{IP}$ **John should retire**]]

        b. * **our belief John should retire**

Furthermore, English B-varb ECM involves a zero affixal complementizer.

(14)   a.   **We assumed John to have completed his thesis**

        b. * **our assumption John to have completed his thesis**

The zero affix analysis explains why a CP headed by an null complementizer cannot appear in subject position. There is no way to support the affix in this position. This excludes 'propositional', 'factive' and 'implicative' infinitives from subject position.

(15)   a.   The applicant claimed to have experience running a backhoe.

            b. *   To have experience running a backhoe was claimed by the applicant.

            c.   Sarah loves to go to the beach.

            d. *   To go to the beach is loved by everyone.

            e.   We managed to patch the hole in time to save the boat.

            f. *   To patch the hole in time to save the boat was managed.

The same principle blocks such complements to nominals.

1.4   Abbreviations

I will sometimes use the term OBJECT to refer to direct objects and the subjects of small clauses. I generally use the term 'IP' to refer to the AgrP projection associated with clausal subjects and Tense. For the most part, 'AgrP' will refer to the AgrP projection immediately above VP. 'S-structure' refers to the structure of a phrase at the PF interface—the conventional usage is convenient and familiar, although I do not assume that any principles distinguish this representation from other representations, beyond those forced by the interface. The 'Extended Projection Principle' refers to the fact that clauses must have subjects at S-structure, and not to the actual Projection Principle.

Chapter 2

Overt object shift

2.1   Introduction: issues

In the Scandinavian languages, the direct object or the subject of a small or
infinitival complement clause can sometimes be raised out of VP to a higher
position (Holmberg, 1986). The surface effect of 'object shift' operations is that the
object may precede an adverbial phrase adjoined to VP. Holmberg shows that
movement of an 'object' past an adverbial must be A-movement, because the shifted
object does not induce weak crossover effects on a pronoun contained in the
adverbial phrase it crosses. Thus (16a) contrasts with (16b).

(16)　　a. **Dom tilldelade** *honom* in *hans* **fränvaro priset**.
　　　　　they awarded him in his absence the price

　　　　b. 　? 　Vem tilldelade dom in hans fränvaro priset.
　　　　　who awarded they in his absence the price

In (16a), the pronoun *honom* has been extracted from VP past the adverbial phrase
in hans fränvaro, but the two pronouns may be coreferent. In (16b), the
interrogative pronoun *vem* has been extracted past the same adverbial phrase by
A-bar movement and coreference between *vem* and *hans* is blocked.

　　　　Such facts show that there is an A-position accessible to the object. In this
and the following chapter, I argue that this A-position is the only position to which
structural objective Case is assigned, and that objects which require structural Case

must therefore move to this position at some point in the derivation, either in overt syntax or in covert syntax.

Before anything, however, it is necessary to examine certain technical details of the Economy model to show how object shift is to be allowed at all. I do so in section 2.2.

2.2 The technical problem and Chomsky's solution

While overt object shift does appear to take place in some languages, the simplest account of word order in languages like English and French is one in which the object must remain in its original position in overt syntax.[1]. A non–clitic direct object always follows the verb in these languages, and in languages in which the verb does not raise out of VP in the overt syntax, the direct object must be adjacent to it (Emonds, 1978; Pollock, 1989). The first question which must be addressed in any theory of object shift is therefore: why is object shift so restricted in its occurence? If object shift is possible at all, then the fact that it is quite often *impossible* in overt syntax should follow from some general principle or principles of grammar.

As it happens, given the principles I have assumed, overt object shift is already expected to be impossible. The combination of *Relativized Minimality* and the *Strict Cycle* blocks overt object shift. (In fact, they render object shift in the covert syntax impossible, too, which necessitates a precise modification in the formulation of *Relativized Minimality*.) To illustrate why this is so, consider a sentence like (17).

(17)   John met Mary.

I have assumed that θ–marked subjects originate inside the VP, with the subjects of unergative verbs being θ–marked in the specifier position of VP. As *John*

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[1]But cf. Johnson (1991) for arguments to the contrary.

in (17) is in Spec-IP rather than in Spec–VP, NP movement of the subject must take place in the overt syntax. So sentence (17) must have roughly the structure in (18).

(18) $[_{IP}$ John ... $[_{VP}$ t met Mary $]]$

This structure can be derived without violating *Relativized Minimality*, the *Strict Cycle* or any other principles. As the sole instance of A-movement moves *John* past no other A-position, *Relativized Minimality* is satisfied. As movement of *John* to Spec–IP makes the phrase larger, *Strict Cycle* is satisfied.

Example (19) is a parallel sentence in which overt object shift takes place.

(19) * John Mary met.

Assuming again that both subject and object are assigned their θ–roles VP–internally, the structure of (19) could only be (20).

(20) $[_{IP}$ John$_i$ ...Mary$_j$ ... $[_{VP}$ t_i met t_j $]]$

As long as *Mary* in (20) occupies (or passes through) an A-position, there are no derivations of this structure which do not violate *Relativized Minimality*. If the direct object *Mary* undergoes NP–movement first, then *Relativized Minimality* is violated twice. It is violated once when *Mary* is moved past *John*, because the Spec–VP position occupied by *John* is an L–related position, so it is a closer possible landing site for A–movement than the position *Mary* actually moves to. It is violated again, for the same reason, when *John* moves past *Mary* to Spec–IP.

If *John* is extracted first, on the other hand, *Relativized Minimality* is violated once and *Strict Cycle* is violated once. In this derivation, extraction of *John* from VP satisfies *Relativized Minimality*, just as it does in the derivation of (18). But later NP–movement of *Mary* violates *Relativized Minimality* by bringing the object past the Spec–VP position. What is more, this particular derivation violates *Strict Cycle*, because NP-movement of the direct object to an A-position inside IP does not make the phrase larger.

Clearly, we already have a sufficiently general explanation for the absence of overt object shift to an A-position in general. But the explanation is actually too

general, as such object shift can take place in some circumstances. Holmberg's and Mahajan's arguments prove this for Swedish and Hindi, and the discussion below will show that such movement can take place in French and English as well. Some technical modification of the theory is necessary, therefore. Chomsky (class lectures, 1991) proposes a modification of the formulation of *Relativized Minimality* which allows object shift to A–positions to coexist with VP–internal subjects. His solution is as follows. What *Relativized Minimality* does is ensure that a trace not be separated from its antecedent by any closer element of the same type, where the notion 'closer' most naturally refers to the relative heights of phrases in the tree. He suggests that the definition of 'closer' be understood in the following way: (??). (See Chomsky (1992) for a more formal formulation.)

(21)   A constituent α is 'closer' to a trace τ than a phrase β
        is if there is an X^0 chain γ such that the domain of γ
        includes α and τ but does not include β.

Then everything comes down to the definition of a domain. Informally put, again, the domain of an X^0 chain is the most immediate maximal projection which dominates its head.

The consequence of this definition of 'closer' is that head–movement extends the domain in which *Relativized Minimality* can be satisfied. Head–movement forms a binary X^0 chain, the domain of which includes the immediate constituents of both XP and YP (cf. Chomsky (1992) for details). And if the tail of the head–chain has a specifier, that specifier will not be 'closer' to any trace than the specifier of the next phrase up.

(22)
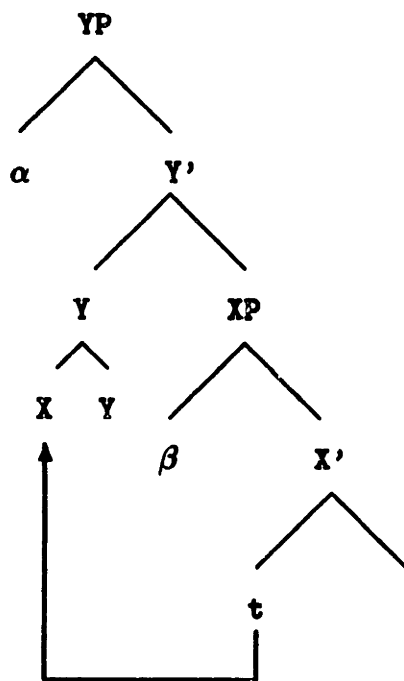
So in a structure of the form of (22), β is no closer to a trace in X' than α is. Thus, the trace left by movement of to YP will not be illegitimate. Now if X in 22 is a verb, and Y is the first functional head outside of VP to which it raises, then the domain of the verb is extended to YP. Consequently, an NP moved into Spec-YP remains in the domain of the verb, and *Relativized Minimality* is not violated even if there is a (trace of a) subject NP in Spec-VP.

Chomsky justifies this innovation on the basis of Holmberg's (1986) observation that in Swedish, object shift is possible only when the principle verb raises out of VP. Contrasting examples (from Holmberg (1986, p.176)) appear in (23).

(23)   a.   **Varför läste studenterna den inte alla *e***
              t?
              why read the students it not all

    b.   * Varför har studenterna den inte alla läst *t* ?
              why have the students not all read it

Under this analysis, in the grammatical (23a) sentence, the verb *läste* has raised out of VP and adjoined to Agr as a first step in verb movement to C^0. This extends the domain in which movement of the object pronoun can satisfy *Relativized Minimality*, so the object pronoun *den* can move to—or through–the

Spec–AgrP position. In the ungrammatical (23b), the verb does not raise out of VP (in overt syntax), so movement of the object pronoun *den* past the trace of the subject in Spec–VP violates *Relativized Minimality*.

Chomsky's account crucially relies on the idea that *Relativized Minimality* is a principle which constrains derivations, rather than a constraint on (LF) representations. If *Relativized Minimality* were a representational constraint, then no chain headed by an NP in Spec-IP would be well-formed if there were any 'shifted' NPs in A-positions outside of VP. It is only if the chain formed by moving the subject to Spec-IP satisfies *Relativized Minimality* *before* the object leaves VP that the derivation is possible. And as there are no levels of representation which precede S-structure and follow movement of the subject to Spec-IP, no representational formulation of *Relativized Minimality* can allow this.

Even with Chomsky's modification, *Relativized Minimality* still rules out both derivations of (19) in English, i.e., the derivation in which the subject escapes VP first, and the derivation in which the object escapes first. But this is the case only accidentally, because English non-auxiliary verbs do not raise out of VP in the overt syntax, so the domain of the verb remains VP. The same explanation does not therefore extend to English sentences like (24a), or French sentences like (24b).

(24)   a. * John has a fireman been.
         b. * Jean Marie attend.

It is now only the *combined* effects of *Relativized Minimality* and the *Strict Cycle* condition which blocks these sentences Again, there are two possible derivations to consider. In one, the subject NP raises to Spec–IP from its VP–internal position first, and then the object NP raises to Spec–AgrP. This derivation satisifies *Relativized Minimality* because as the verb has raised to Agr, the Spec–AgrP position is 'as close as' the Spec–VP position, so the object can pass the subject trace. The *Strict Cycle* is violated by this derivation, however, as movement of the object NP to Spec–AgrP does not make the sentence larger. The second derivation to consider is that in which the object leaves VP first, thus satisfying the *Strict Cycle* (and *Relativized Minimality*). But if the object occupies Spec–AgrP before

the subject raises to Spec–IP, then the movement of the subject NP must violate *Relativized Minimality*, because the Spec–AgrP position is still closer than Spec–IP.

One other possible derivation must be blocked in order to ensure that overt object shift is impossible in all cases. When the principle verb is a participle, the subject cannot escape VP if the object first raises to Spec-AgrP. When the principle verb is not participial, however, it raises further, opening a potential escape hatch for the subject. Consider a sentence like (25).

(25)   **Jean achete souvent** *Le Devoir*.

In (25), the verb *achete* raises to Agr, then the V-Agr complex raises to a higher position. The first movement extends the domain of the verb to AgrP, so that movement of an NP to Spec-AgrP would not violate *Relativized Minimality* by passing the VP-internal subject. In the same way, movement of the V-Agr complex to the next functional head, Tense, extends the domain of the V-Agr. I.e., in the tree (26), the domain of the verb includes both Spec-VP and Spec-AgrP, and the domain of the V-Agr complex includes both Spec-AgrP and Spec-TP.

(26)

```
              TP
             /  \
                T'
               / \
              /  AgrP
             /  / \
            /     Agr'
          T       / \
         / \     t  VP
       Agr   T      / \
       / \         V'
      V  Agr      / \
                   t
```
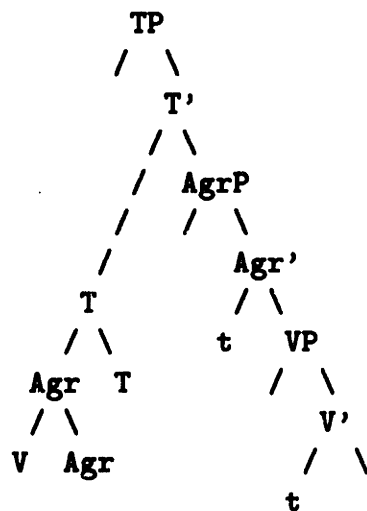
If the subject NP in Spec-VP moves to Spec-IP *through* Spec-TP, then *Relativized Minimality* will not be violated even if the object moves to Spec-AgrP first. (The *Strict Cycle* is satisfied by such a derivation, too.)

In order to block overt object shift in sentences of this type, we must assume that Spec-TP is not an accessible position for NPs. This seems plausible. Spec-TP

is neither a Case position nor a θ-position, so there is no need for an NP ever to appear there.

Cyclicity and ECM

A similar use of the *Strict Cycle* is independently necessary within the Minimalist model to account for the absence of overt object shift with ECM complements. Consider the sentences in (27).

(27)   a.   We had believed [$_{IP}$ Maxwell to have been fired].

       b.   *   We had believed [$_{IP}$ to have been fired Maxwell].

       c.   *   We had Maxwell believed [$_{IP}$ t have been fired].

In the grammatical (27a), the subject *Maxwell* occupies a non-θ position to which it has moved to satisfy the Extended Projection Principle.[2] If there is no movement to the subject position of the complement clause, the sentence is ungrammatical, as in (27b). If structural objective case is only assigned to the Spec-AgrP position (as I am about to argue), then the subject of the complement clause is not in a Case position either in (27a). It can only have its Case features checked by raising to Spec-AgrP in the covert syntax.

Here now is the problem. If covert NP-movement is necessary in (27a), then there are two *Form Chain* operations which affect the NP *Maxwell*. Given the principle of *Global Economy*, a derivation in which the same work could be done with a single *Form Chain* operation should be preferred. Such an operation should be available—the NP *Maxwell* would simply be transported *through* the subject position of the complement clause to the Spec-AgrP case position in overt syntax, satisfying both the Extended Projection Principle and Case theory with one operation. But the sentence produced by such a derivation, (27c), is ungrammatical. Note that *Procrastinate* cannot block movement in this case, although it might do so for cases of overt object shift of direct objects. One NP-movement operation is

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[2]cf. section ?? for a proposal on the nature of the Extended Projection Principle.

already necessary in overt syntax, and *Procrastinate* cannot interfere with this operation or the ungrammatical (27b) results. And *Procrastinate* cares only about whether an operation takes place in the overt syntax or not; this principle says nothing about what position the head of the resulting chain occupies.

Relativized Minimality and the *Strict Cycle* condition *do* block sentence (27c), in contrast, and in exactly the same way that they block overt object shift in (24). The subject of the matrix clause must raise to Spec-IP in overt syntax, as always. If the subject of the complement clause raises to Spec-AgrP before the subject of the matrix clause escapes VP, then movement of the matrix subject violates *Relativized Minimality*. If the subject of the complement clause raises to Spec-AgrP after the matrix subject moves, *Relativized Minimality* is satisfied, but the *Strict Cycle* condition is violated if this movement takes place in overt syntax. So the more economical derivation which produces (27c) is blocked, and the two-step derivation involved in (27a) is allowed.

The refined definition of 'closer' *vs.* a VP external subject analysis

An alternative account to the problem of reconciling VP-internal subjects with object shift exists in the literature. Kayne (1985), following ? (?), claims that the (VP-internal) subject receives its θ-role from the auxiliary verb *avoir* in past participle agreement sentences in French. Then structure involved in object shift might be (28) rather than (??).

(28)

```
                    IP
                   /  \
                 NP    I'
                      /  \
                     I    I'
                         /  \
                       AgrP
                      /  \
                     Agr'
                    /  \
                  Agr   VP
                       /  \
                      V    AgrP
                      |   /  \
                    have  Agr'
                         /  \
                       Agr   VP
                            /  \
                           V'
                          /  \
                         V    NP
```
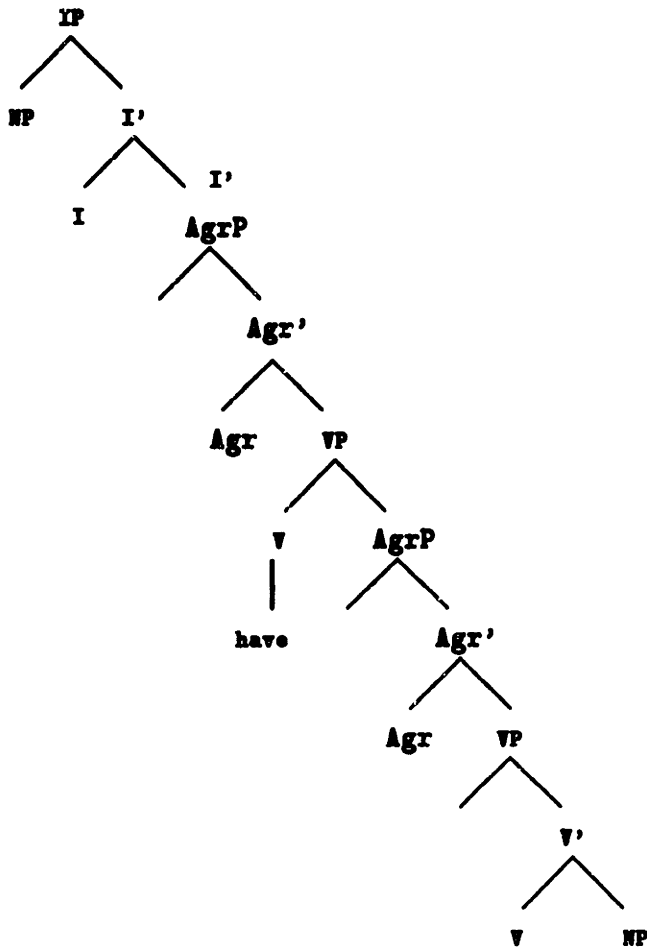
In (28), movement of the object to Spec–AgrP does not violate relativized minimality because there is no closer Spec–VP position crossed by the movement.

This solution is unconvincing on several counts. First, in order to ensure that the subject actually bears the θ–role assigned by the principle verb, an *ad hoc* mechanism must be developed to allow 'transmission' of the θ–assigning properties of the principle verb to the auxiliary verb *avoir*[3]. Second, the actual evidence for a VP–internal subject position suggests that the subject originates in a position lower than the specifier of *have* in a French perfective clause. As argued by Sportiche (1988), the position of a 'floated' quantifier associated with the subject can be explained if we assume that the quantifier remains in a position from which the subject has moved. The (29) examples show that a floated quantifier *tous* can follow

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[3]Pesetsky p.c. notes that the 'transmission' mechanism might be made less *ad hoc* by making it a case of Control. But then the problem for Relativised Minimality reappears, as the PRO in Spec–VP should itself block object shift

the auxiliary verb.

(29)   a. la lettre qu'ils ont tous écrite

        b. Cette lettre, ils l'ont tous écrite

2.3 Overt object shift in French and English

2.3.1 The French facts

In modern standard French, there are subtle conditions governing whether a past or passive participle agrees with an NP in its domain. A passive participle will always agree with its surface subject, as in (30).

(30)   a. Les livres de Jules Verne ont tous été
           imprimés/*imprimé.

        b. Il a été imprimé/*imprimées quelques éditions de cette
           livre.

In a regular passive clause like (30a), the participle will bear gender and number features of the surface subject; in an impersonal passive like (30b), the participle has no overt features, either because it agrees with the masculine singular expletive subject *il*, or because it agrees with nothing at all.

When the participle is the past participle of an unaccusative verb which takes auxiliary *être* 'to be', it again must agree with the surface subject. If the subject is an underlying object, the participle will share its number and gender features, as in (31a). If the subject is expletive, and the underlying object remains in place, the participle will again exhibit only the default masculine, singular features of the expletive subject.

(31)   a. Ils sont déja partis/*parti.

        b. Il est arrivé/arrivés quelques philosophes.

Intransitive (unergative) past participles never agree with the subject. They display only the default (masculine, singular) features. Examples appear in (32).

(32)   a. Ils ont rit(*s).

        b. Louise et Giselle y ont tous les deux dormi(*es), chez
           Vivianne.

The complications with participle agreement come primarily from the facts concerning transitive (active) participles. Such participles may optionally agree with an object (or small clause subject), but only if the object is extracted from VP by wh-movement or clitic placement.

(33)   a. * Josèphe a écrite cette lettre.

   b. Quelle lettre Josèphe a-t-il écrite?

   c. la lettre que Josèphe a écrite hier

   d. Cette lettre, Josèphe l'a écrite hier.

Only the direct object or the subject of a small clause complement can trigger agreement on a past participle, as in (34a,b). An NP extracted from a full complement clause by wh-movement never triggers agreement (Kayne, 1989a; Bouchard, 1987; Sportiche, 1990), as seen in (34c,d). Nor can the subject of the complement of causative *faire*, as in (35).

(34)   a. la lettre qu'il a écrite
      the letter that he has written-FEM-SING

   b. la lettre qu'il a dite mal écrite
      the letter that he has said-FEM-SING poorly written

   c. * la lettre qu'il a dite que Claire lui a envoyée
      the letter that he has said-FEM-SING that Claire had sent to him

   d. * la letter qu'il a dite être déja mise à la poste
      the letter that he has said-FEM-SING to be already mailed

(35)   a. * la femme qu'il a fait partir

   b. * Luc les a faites rire.

Not every kind of preposed object may trigger participle agreement. It is never triggered by a 'floated' bare quantifier associated with the object position.

(36)   a. * J'ai tous refaits.

   b. * L'étudiant a tous faits de ses devoirs.

Kayne (1985, 1989a) develops an attractive analysis of participial agreement in French and Italian. The problems with Kayne's analysis have been discussed extensively in recent years (Bouchard, 1987; Chomsky, 1988; Sportiche, 1990;

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Branigan, 1991; Deprez, 1989) , but the basic insight still appears sound. Kayne observes that agreement in other contexts is generally a reflex of a (local) Spec–head relation, so the null hypothesis about participial agreement is that this too is a reflex of a Spec–head relation. Under this assumption, the structure of a sentence like (30a) is (37). (For ease of exposition, I will refer to the maximal projection of the participle as AgrP. Kayne gives this phrase the label PartP. Nothing follows from the difference in labels.)

(37)   [$_{IP}$ les livres de Jules Verne ont tous été [$_{AgrP}$ t imprimés t]]

The subject *les livres de Jules Verne* in (37) raises to the Spec–IP position from its original object position in order to get Case. It passes through the SPEC position of the phrase headed by the participle—i.e. PartP in (37)—and a trace is left there[4]. The participle agrees with its specifier: the trace in Spec–PartP.

If participle agreement reflects the presence of a specifier in Spec–PartP in unaccusative/passive cases, the null hypothesis, again, is that participle agreement reflects the presence of a specifier in Spec–PartP in other cases. We are led then to assume that the cliticization and wh–movement operations may be fed by a transformation which moves the object to the specifier position of a phrase headed by the past participle, that is, by an object shift transformation. Then the structure of a phrase like (33c) will be (38).

(38)   la lettre [$_{CP}$ OP que [$_{IP}$ Josèphe a [$_{PartP}$ t écrite t hier]]]

The structure (38) is derived in two steps. First, the operator OP is moved to Spec–PartP; then wh–movement moves OP to Spec–CP. The trace of OP in Spec–PartP is what triggers participial agreement, under this analysis. Up to this point, Kayne's analysis is optimal, and I accept it. But Kayne has no mechanism available to block overt object shift, which forces him to complicate his analysis, and in fact, to undermine it. In French, as in English, a sentence like (39) is impossible.

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[4]The reasons why movement must take this route are not explained by Kayne; the implicit assumption seems to be that this is a bounding theory effect.

(39)   * **Pierre a ses lettres écrit/écrites.**

This fact leads Kayne to abandon the unified theory of participle agreement in favor of a more complex analysis. For passive participles and past participles of unaccusative verbs, he continues to analyse agreement as a consequence of movement through Spec–AgrP (his PartP). But in order to rule out (39), he concludes that the *head* of an A–chain must not occupy Spec–AgrP. This makes it impossible for him to characterize past participle agreement with the preposed objects as resulting from movement through Spec–AgrP, as such movement would, at least in the wh–movement case, leave a variable in Spec–AgrP, and variables are heads of A–chains. He then claims that the agreement triggered by wh–movement is a 'marked' option in which a participle may agree with an NP if it occupies a position *similar enough* to the position a specifier of the participle would occupy. Furthermore, adjunction to AgrP is enough like movement to Spec–AgrP for agreement to take place—in this position, the intermediate trace is contained in the maximal projection of the participle and is not dominated by the X' projection, properties which it shares with a specifier to the participle. Past participle agreement is then a reflex of adjunction of a trace to the participial phrase. Under Kayne's analysis, then, the structure of (33c) is (40).

(40)   **la lettre [$_{CP}$ OP que [$_{IP}$ Josèphe a [$_{PartP}$ t [$_{PartP}$ écrite t hier]]]]**

Kayne's analysis has several things in its favor. First, it relates the possibility of past participle agreement to agreement of a passive participle with its subject—a desirable move, as passive and past participles have the same form. Second, by making past participle agreement with wh–extracted objects a marked option, it sounds plausible that languages might differ in whether past participle agreement is possible. As Kayne notes, Italian differs from French in this respect—wh–extraction of an object does not trigger past participle agreement in Italian.

Unfortunately, Kayne's analysis makes precisely the wrong prediction with respect to phrases like (34c,d). As wh–extraction of NPs from inside a complement

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clause is A–bar movement, nothing should block adjunction of an intermediate trace to the participial phrase in a sentence like (34c). The structure will then be (41).

(41)   la lettre $[_{CP}$ OP$_i$ qu'il a $[_{PartP}$ t$_i$ $[_{PartP}$ dite que Claire lui a envoyé t$_i$]]]

In (41), the trace adjoined to PartP should be enough like a specifier to license agreement on the participle *dite*. It does not.

Deprez (1991) and Branigan (1991) try to get around this problem by making the object shift operation a part of the larger extraction transformation, and blocking object shift elsewhere by the Last Resort principle. According to these analysis, object shift in French is unnecessary in general because the object can be assigned Case in its base position. When extraction takes place, though, the object shift configuration can result, without any violation of Last Resort, if the first link in the chain is itself an A-chain. For Deprez, this is possible because wh-movement in general can involve A–positions; for Branigan, it is a consequence of the idea that 'Form Chain' operations make sub-parts of a movement transformation cost–free. Both approaches fail to explain why participles can agree with the extracted subjects of small clauses, however. Small clause subjects must bear *structural* Case, not inherent Case, so they cannot be Case-checked in their θ-position (especially in the case of passive small clauses). There is no way to avoid *some* A-movement of the subject of a small clause, so the problem re-arises that overt NP movement to Spec-AgrP must be blocked somehow.

2.3.2   Proposal

In the framework I have adopted, movement operations are allowed only if they are necessary in order to allow some morphological property of the moved constituent to be 'checked'. What is more, by Economy considerations, covert movement operations, i.e., operations which take place after Spell–Out, are preferred to overt movement operations, so that overt movement is illegitimate unless some element must be checked *before* Spell–Out in order to eliminate its 'strong' features.

Suppose now that direct objects can only be assigned Case in the specifier position of AgrP, as Chomsky suggests. Then all Case-marked objects must move to Spec–AgrP at some point in the derivation in order for their Case features to be checked. Given the combined effects of *Relativized Minimality* and the *Strict Cycle*, overt object shift will still be impossible, so sentences like (24) will not occur. (*Procrastinate* ensures the same thing, redundantly.)

Now consider the fact that French past participle agreement is an optional phenomenon, where it is possible at all. This fact seems to indicate that Agr may have either weak or strong features at the point at which it is inserted into phrase structure. Optionality is, in general, a property of lexical insertion, and not of syntactic processes. Suppose this to be the case, therefore. Agr can have either strong or weak features from the outset, freely. Then the effects of *Procrastinate* will not be a part of the explanation for the lack of overt object shift in French, but as there is already a reason why object shift cannot take place, *Procrastinate* is not needed for this case.

Now the absence of agreement in sentences with *in situ* objects is accounted for. If the Agr head of AgrP has strong features, they must be checked before Spell-Out. But the object cannot raise to Spec–AgrP in overt syntax, even though such movement would satisfy *Procrastinate*, so these features cannot be checked until LF. The only thing left to explain about French past participle agreement is why strong Agr features can be checked in overt syntax when the object is extracted by A–bar movement. The necessary answer is that there is some way for object shift to take place in such cases which is not blocked by the principles which otherwise block object shift. The effects of the *Relativized Minimality/Strict Cycle* conspiracy are still necessary, even if Spec-AgrP is only one of the positions to which Case can be assigned.

Consider example (42).

(42) la fenetre qu'on a [$_{AgrP}$ t cassée-Agr [$_{VP}$ t [$_{\overline{V}}$ t t]]]

Under certain assumptions, the following derivation of this sentence will be possible. The Agr head of AgrP is plucked from the lexicon with strong features.

The verb *casser* raises from its position as head of VP and adjoins to Agr. This movement satisfies the *Strict Cycle* because adjunction is not subject to this constraint. Then the subject *on* raises from Spec–VP to Spec–IP in order to have its Case features checked. This movement satisfies *Relativized Minimality* because there is no intervening A-position present at this point in the derivation. *Procrastinate* does not block this movement because Tense has strong features which will not be checked before the PF interface unless the subject raises to Spec-IP first. The *Strict Cycle* is satisfied as well because NP-movement to Spec–IP makes the phrase larger.

The next step is for the relative pronoun—a null operator, in this case—to undergo wh-movement to Spec–CP. This operation satisfies *Procrastinate* because C^0 always has strong features, if it has any features to check at all, so an operator must move to Spec–CP in overt syntax. *Relativized Minimality* is satisfied because there are no non-L-related positions in between the direct object and Spec–CP.[5] And the *Strict Cycle* is satisfied because the phrase is again made larger by moving a phrase into the specifier of the largest phrase which exists at this point. The Form–Chain operation which places the relative pronoun in its landing site in Spec–CP also creates a number of intermediate traces, one of which is in Spec–AgrP. *Relativized Minimality* is not violated by movement through Spec-AgrP because the verb raising operation which precedes this extends the domain of the verb to Spec-AgrP, so the Spec–VP trace is no longer a 'closer' landing site for the object. The Spec–AgrP trace bears Case and φ-features which can be checked by Agr, so Agr can now discharge its own strong features before Spell–Out. No principles are violated.

A technical question must be resolved at this point. Before Spell–Out applies in this derivation, the Spec–AgrP trace must necessarily have had its Case and φ-features checked by an Agr which checks verbal features as well. This entails that Spec-AgrP is an A–position, and that the Spec-AgrP trace is a variable, and the head of an A chain. So allowing this derivation requires that we allow A–bar chain

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[5]But see chapter 4, where this standard assumption will be modified. For the purpose of this chapter, the proposal to be made at that point are not important.

formation operations to form A chains as subparts of larger chains. And the question which must be asked is: is this legitimate?

We know that A-bar movement may, and sometimes must, leave intermediate traces between the place it originates and the place it terminates. The conventional assumption is that, as wh-movement forms an A-bar chain, all the intermediate traces occupy A-bar positions. Under this view, given a chain $C = (\alpha, t_1, \ldots, t_n)$, if the head of the chain α is in A-bar position and the tail t_n is in A-position, every intermediate trace from t_1 to t_{n-1} must be in A-bar position. But this assumption has no real foundation. While it is clear that A-bar movement cannot result in formation of a chain in which a trace in an A-position binds a trace in a A-bar position, this consequence need not follow from the way movement operations are formulated. 'Improper movement' violations can be derived from Principle C; no A-bar bound trace can be A-bound, and movement from a A-bar position to an A-position will always result in such binding. If in a chain $C = (\alpha, t_1, \ldots, t_n)$, there is an intermediate trace t_i in an A-position, then if there is any other trace t_j such that $j > i$, then if t_j occupies an A-bar position, then t_{j+1} will be variable A-bound by t_i, violating Principle C.

But if A-bar movement leaves a sequence of traces in A-positions, then Principle C is not automatically violated, as only the highest such trace will be subject to Principle C, and exactly that trace will not necessarily be bound by anything. So a chain $C = (\alpha, t_1, \ldots, t_n)$ will not violate Principle C if and only if, given a member of C t_i in an A-position, all members t_j of C such that $j > i$ are also in A-positions. As the problematic cases are excluded under Principle C, I propose that chain formation should be allowed to create chain with a head in A-bar position, a tail in A-position, and one or more intermediate traces in A-positions in between. Then the derivation proposed for (42) can be permitted.

Now consider an example with participle agreement triggered by cliticization of the direct object: (43).

(43)   Louise, Marie l'avait [$_{AgrP}$ t dite [$_{VP}$ t [$_{\overline{V}}$ t_V t sympathique]]]

A similar loophole in the *Strict Cycle* will allow the derivation of this

43

sentence. The *Strict Cycle* does not apply to adjunction operations. If clitic placement is an adjunction operation, as is generally assumed, then the *Strict Cycle* will not constrain clitic placement. As a consequence, clitic movement of a direct object can leave a trace in Spec-AgrP, just as wh-movement does. Then the derivation of (43) goes as follows. First, Agr is inserted in the phrase with strong features. Next, the participle *dite* raises to Agr to check its strong features. Then the subject *Marie* raises to Spec-IP. The clitic object *la* is then free to raise out of VP through Spec-AgrP to whatever position it adjoins to. The trace left in Spec-AgrP is checked by the V-Agr complex, thus discharging the strong features of Agr before Spell-Out. Under this analysis, participles will exhibit overt agreement only if a trace is left in Spec-AgrP in overt syntax. As Spec-AgrP is an A-position, it must not be filled by anything which binds a variable. The ungrammaticality of the following examples is therefore expected: (44). (These are equivalent to (34c,d).)

(44)   a. * la lettre qu'il a dite que Claire lui a envoyée *t*
           the letter that he has said that Claire to-him has sent

       b. * la lettre qu'il a dite *t* être déja mise à la poste
           the letter that he has said to be already put to the mail

Example (44a) involves wh-movement of the object of a finite complement clause; example (44b) involves wh-movement of the subject of an infinitival complement clause. In neither case is the participle allowed to agree with the extracted NP. In the (44a) case, the object in the complement clause must undergo A-bar movement to escape its clause. Simple A-movement of the operator to the matrix clause would violate *Relativized Minimality* by carrying it past the subject of the complement clause. So it cannot leave a trace in Spec-AgrP of the matrix clause, and it cannot thereby check the features of a strong Agr. Agr must therefore not have strong features.

Similarly in the case of (44b), the subject of the complement clause can only be Case-marked by moving through an A-bar position (Kayne (1984)). Again, no trace can be left in Spec-AgrP of the matrix clause without violating Principle C, so no strong Agr can have its features checked. In associating the presence of overt agreement morphology with 'strong' features of the head of AgrP, I do not in

principle exclude the possibility that in other languages overt agreement morphology might be 'weak'. There is apparently some flexibility in the association of feature 'strength' with actual morphological visibility. This is important, because there are languages which allow a verb to agree with its direct object which do not require object shift in overt syntax. So the explanation of the unacceptability of (39), for example, must not be so deep as to exclude sentences of this type universally.

(45)   * Jean a écrite cette livre.

Sentences of this type are not even ungrammatical in all Romance languages. Brown (1988) discusses cases in Catalan in which a direct object need not be preposed in order for participle agreement to be possible[6]. Dupuis (1989) presents a large number of examples from Old French texts in which agreement of this type takes place. Dupuis notes as well that agreement with *in situ* objects is occasionally encountered even in modern French texts. All such cases can be accomodated within the analysis developed here by simply assuming that the agreement morphology on the participle is associated with 'weak' features on Agr.

There are also configurations in which participle agreement is obligatory, and the analysis presented so far does nothing to *force* agreement morphology to appear. So some additional analysis is necessary.

Let us take up the issue of obligatory agreement configurations first. I take as a starting point here the traditional idea that the obligatory agreement found with unaccusative (and passive) participles appears only when the auxiliary verb is 'be', and not when it is 'have'.[7] In Italian, and French to a lesser extent, unaccusative verbs always appear with auxiliary 'be', so the unaccusativity might be mistaken as the underlying cause of agreement. In languages in which unaccusative participles co-occur with auxiliary 'have', however, the participle does not agree with the proposed object. Example languages include Spanish and Swedish. In French, too, participles of arguably unaccusative verbs with auxiliary *avoir* display no agreement with the subject. What is more, in certain slavic languages, in which even transitive

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[6]Although Eulalia Bonet tells me this is impossible in Barcelona Catalan.

[7]Thanks to Jon Bobaljik for observing the relevance of this observation.

and unergative past participles take auxiliary 'be', the participle obligatorily agrees with the subject (Jon Bobaljik, p.c.). All the evidence points to the conclusion that the obligatory agreement in participles is a consequence of their being selected by 'be', and not from any general property of unaccusative verbs.

The most direct way to capture this observation—in the absence of any more principled mechanism—is in terms of selectional properties of the auxiliary verb, as stated in (46).

(46)   Auxiliary *be* selects an AgrP with strong N-features on the head.

The consequence of (46) will be obligatory participle agreement when the auxiliary verb is 'be'. The raised subject will be forced to pass through Spec–AgrP not by bounding theory, but simply because any other route would not allow the strong features of Agr to be checked in overt syntax. The statement (46) does capture the differences and similarities in Spanish, French, and Italian (and Swedish and Serbo–Croatian).

2.3.3   Overt object shift in English

Deriving the adjacency constraint on objective Case

Chomsky (1981) and Stowell (1981) observed the following constraints on adverb placement in English. Adverbs may optionally appear between a verb and a PP complement, a verb and a CP complement, and a verb and an AP complement, but they can never appear between a non–auxiliary verb and an NP complement. Examples appear in (47).

(47)   a.   John depends implicitly on Mary.

        b.   Mary explained eagarly that she had been invited to
             Warsaw.

        c.   Lorrie became gradually disillusioned with her house
             guest.

        d. * Simon bought eagerly a loaf of bread.

Stowell proposed to account for these contrasts by imposing an adjacency constraint on assignment of objective Case by the verb. As NPs need Case assigned to them,

the ungrammaticality of (47d) is a consequence. As PPs, CPs and APs do not need Case, the adjacency constraint does not affect the status of (47a,b,c).

Such facts are potentially quite troublesome for a theory in which objective Case is assigned only to a specifier position. Consider what the (best possible) LF representation of (47d) would be: (48).

(48) Simon bought [$_{AgrP}$ a loaf of bread t_{Agr} [$_{VP}$ t [$_{V}$ t_V eagerly t]]]

In the structure (48), the position of the adverb *eagerly* is quite clearly irrelevant to the relation between the object NP *a loaf of bread* and the head of AgrP. Stowell's constraint cannot even be translated into this framework. So if any version of the adjacency constraint is the right way to explain the contrasts in (47), the idea that Case is assigned to the object after it raises to Spec–AgrP must be wrong.

Pesetsky (1988), building on the analyses of French adverb placement proposed by Emonds (1978) and Pollock (1989), develops an alternative to the Case adjacency analysis, however, which *is* in principle compatible with the approach proposed here. If adverbs are excluded from VP (or V') on θ-theoretic grounds, i.e. if only arguments are contained in VP, then the ungrammaticality of (47d) will follow from the immobility of the verb and the direct object. Under this approach, the grammaticality of the (47a,b,c) sentences is to be explained by supposing either that the complement (PP, CP, or AP) has been extraposed to the right past the adverb or that the verb has raised out of VP to the left past the adverb.

The main idea in Pesetsky's analysis is that a non-auxiliary verb in English can raise in overt syntax out of VP to the head of the next phrase up if there is no object NP that it must Case-mark. So a structure like (49) can be derived by overt movement if the complement to V is a PP, but not if the complement is an NP.

(49)

```
            AgrP
           /    \
              Agr'
             /    \
          Agr      VP
         /  \     /  \
        V  Agr  Adv   VP
        ↑            /   \
                    t     V'
                         /  \
                        t    NP
```
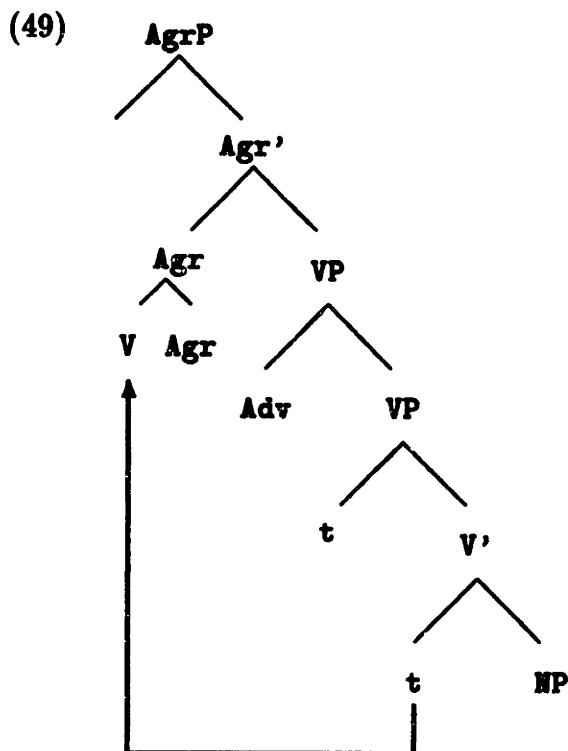
Pesetsky observes that the position of adverbs elsewhere in the verbal complex appears to require optional verb movement past adverbs to their left. With modal auxiliaries, for example, an adverb which modifies the modal can appear either to its right or to its left, as in (50).

(50)   a. Sarah clearly should seek help.
        b. Sarah should clearly seek help.
        c. Mike obviously can speak Norwegian.
        d. Mike can obviously speak Norwegian.

In (50a,b), *clearly* modifies *should seek help*. In (50c,d) *obviously* modifies *can speak Norwegian*. Under the conventional assumption that an adverb must not be attached lower than the phrase it modifies, the adverbs in (50) must be adjoined to some projection of the modal verb. And in that case, the only way to derive the word order in (50b) and (50d) is by moving the modal verbs past the adverbs. Pesetsky provides additional evidence of this type showing that auxiliary verbs also move past adverbs which modify them. As well as explaining the apparent adjacency effects, Pesetsky's verb raising idea offers a straightforward account of certain facts about polarity item licensing by adverbs. Polarity items like *any, at*

all, ever and the like are licensed only if c-commanded by a monotone decreasing phrase (Ladusaw, 1979; Linebarger, 1980). Certain adverbs are monotone decreasing and license polarity items they c–command, as shown in (51).

(51)   a.   John rarely buys any salt-water fish.

          b. * John buys any salt-water fish.

          c.   John never tries to help at all.

          d. * John tries to help at all.

          e.   John seldom offers to put up any visitors.

          f. * John offers to put up any visitors.

Besides polarity items contained in arguments in VP, a preverbal monotone decreasing adverb can also license polarity items inside postverbal adjuncts: (52).

(52)   a. John rarely eats fish at all happily.

          b. John never laughs with any enthusiasm.

          c. John seldom talks to strangers at all courteously.

The licensing relations between adjuncts adjoined to VP to the right are the following. A polarity item cannot be licensed by a monotone decreasing phrase which precedes it, but it can be licensed by a monotone decreasing phrase which follows it. (It should be acknowledged that these contrasts are extremely delicate.)

(53)   a.   John paints pictures at all well only rarely.

          b. ?? John paints pictures only rarely at all well.

          c.   Jay tells jokes with any gusto only occasionally.

          d. ?? Jay tells jokes only occasionally with any gusto.

This is as expected. As the second adjunct must be adjoined higher than the first adjunct, the second adjunct c–commands a polarity item contained in the first adjunct, while the first adjunct cannot c–command anything contained in the second adjunct.

But now consider the examples in (54).

(54)   a. Jay laughs rarely with any gusto.

          b. Jeff speaks rarely to visitors with any courtesy.

          c. Joe depends only occasionally on his brother for any help.

In these sentences, a postverbal adverb *does* license a polarity item contained in an adjunct to its right. The adverb to the left must c-command the other adjunct in order for this to be possible, and a c-command relation is possible only if the adverb to the left is left-adjoined to VP. In that case, the only way to explain the word order is if the verb has raised out of VP past the adverb.

In the next section, I show that a verb raising analysis can be formulated in the object shift framework with no stipulations, and that doing so allows us to account for the fact that NP variables are not subject to the Case adjacency effects (Epstein, 1987), in spite of the fact that they must have their Case features checked like any other NP. Consider the contrast between (47a) and (47d). Under the assumption that the adverb *implicitly* can be adjoined to VP, these sentences can be analyzed as (55a,b).

(55)   a.   John [$_{AgrP}$ depends-Agr [$_{VP}$ implicitly [$_{VP}$ t t_V on Mary]]]

b.   * Simon [$_{AgrP}$ bought-Agr [$_{VP}$ eagerly [$_{VP}$ t t_V a loaf of bread]]]

c.   John [$_{AgrP}$ Agr [$_{VP}$ implicitly [$_{VP}$ t depends on Mary]]]

d.   John [$_{AgrP}$ Agr [$_{VP}$ eagerly [$_{VP}$ t bought a loaf of bread]]]

The structure (55a) is well–formed; the derivation or some representation of (55b) violates some principle of grammar, which we have yet to formulate.

Recall that the principle of *Procrastinate* blocks any movement which is not driven by 'strong' morphological features, i.e. features which must be checked before Spell-Out. So the raising of the verb *depend* to Agr in (55a) must be driven by strong features of some sort, either in Agr or in the verb itself. Only then will *Procrastinate* not be violated. But the features in question must evidently have the option of being 'weak' features in other sentences, for the verb does not raise in the grammatical (55c,d) examples. I conclude that in English, as in French, there is some optionality in the strength of features at the point at which lexical items are drawn from the lexicon. When an Agr or verb with strong features is chosen, then overt movement will be forced (and allowed by *Procrastinate*). When an Agr or

verb with weak features is chosen, the overt movement will be disallowed by *Procrastinate*.

Adverb placement with extracted objects

For many speakers of English, examples like those in (56) contrast as indicated (Epstein (1987)).[8]

(56)   a.   *   We believe Gerry sincerely to be intelligent.

    b.   the guy who we believe sincerely to be intelligent

    c.   *   The evidence demonstrated this analysis conclusively to be misguided.

    d.   Which analysis did the evidence demonstrate conclusively to be misguided?

    e.   *   The king declared Thursday loudly to be National Bungee Jumping Day.

    f.   the day that the king declared loudly to be National Bungee Jumping Day.

Both the unacceptability of the (56a,c,e) examples and the grammaticality of the (56b,d,f) examples are expected under my analysis. Take sentence (56e), for example. The adverb *loudly* can only sensibly be predicated of the matrix 'declaring' event, so it should be adjoined to the matrix VP. Instead, it occupies some position inside the complement clause, where it cannot be assigned any sensible interpretation. Nothing in the syntax itself is violated by (56e)—it is simply semantic hash.

    The same would necessarily be true of (56f) if the only possible structure of this phrase were one in which the adverb was located inside the complement clause. The sentence can be given the structure (57), though.

(57)   the day that the king [$_{AgrP}$ *t* declared-Agr [$_{VP}$ loudly [$_{VP}$ t_{NP} t_V [$_{IP}$ *t* to be N.B.J. Day]]]]

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[8]I myself find only (56e) really bad.

In (57), the adverb *can* be predicated of the 'declaring' event, as it is adjoined to the matrix VP. The verb *declare* precedes the adverb because it raises over it in overt syntax. The verb raising operation is possible because the verb may have its strong features checked by doing so, which in turn is possible only because there is a trace in Spec-AgrP. The trace in Spec-AgrP is left there when the relative pronoun raises to Spec-CP.

Johnson's (1991) analysis

Johnson (1991) proposes a different account of some of the facts covered here. Johnson's account, although similar in some respects to the one proposed here, relies on overt syntactic movement of the object, and thereby loses a structural distinction between simple objects and the (ECM) subject of complement clauses. This distinction is necessary in accounting for certain limits on extraction from NP.

Bresnan (1972) (who cites a draft of Chomsky 1973) observes that extraction of the object of *picture*-nouns is possible with real object and not possible with the subject of infinitival complements

(58)   a.   Which one of us do you believe the agent has a
             picture of?

        b. ?? Which one of us do you believe a picture of to be
             on the agent's wall?

        c. ?? Which one of us do you want (very much for) a
             picture of to be on the agent's wall?

As wh-extraction takes place in overt syntax in such sentences, there must be a difference between objects and the subjects of ECM complements which persists throughout the overt stage of the derivation. Otherwise, extraction from the subject of an ECM complement could take place after the distinction had been neutralized.

Similarly, the weak surprising assymetries discussed by ? (?) and in section ?? are incompatible with an analysis in which both direct objects and ECM subjects occupy the same position at S-structure. So Johnson's account cannot hold.

2.3.4 Overt object shift and the Strict Cycle Condition

My analysis requires that Holmberg's (1986) description of object shift in Swedish and Icelandic be modified. The weak crossover evidence shows that the rule which extracts pronouns from VP must involve A-movement. But given the use I propose for the principles *Relativized Minimality* and the *Strict Cycle*, it cannot be the case that shifted pronouns are located in Spec-AgrP in Swedish, for the same reason that overt object shift is impossible in English and French. In fact, the shifted pronoun must not occupy any A-position at all, or the same problems arise.

The only analysis of Swedish pronoun shift which *is* compatible with *Relativized Minimality* and the *Strict Cycle* is one in which Swedish pronouns act like the French clitic pronouns. In other words, the pronoun *den* in (??) is *adjoined* to some maximal projection by the shifting operation. Movement carries the pronoun *through* the Spec-AgrP position, as it is allowed to do, and the chain formed by movement is construed as two separate chains: an A-bar chain, headed by the pronoun in adjoined position, and an A-chain, headed by the trace in Spec-AgrP. Under this analysis, it is the head of the A-chain which is responsible for the effects seen in (??). The *Strict Cycle* condition is satisfied by the pronoun shifting operation in the same way as it is in French—as the *Form Chain* operation adjoins the pronoun to something, it is not subject to the *Strict Cycle*. It does not matter that substitution takes place in the intermediate Spec-AgrP position, even though this position will be construed as the head of its own chain, because the *Strict Cycle* cares only about the landing site of the head of the chain.

It must not be the case that any pronoun can freely undergo A-bar movement directly to the position occupied by *den* in (??), however. Example (23b) must still be ruled out. Pronoun shift must be allowed only when the A-movement component is possible. Otherwise, the position of the verb would be irrelevant, because *Relativized Minimality* is not violated by A-bar movement of the object past the VP-internal subject trace.

This result can be obtained if we stipulate that the adjunction operation involved in pronoun shift is not necessary for the phrase to 'converge'. Then pure

A-bar movement to the adjoined position will violate *Last Resort*. On the other hand, movement *via* the Spec-AgrP position satisfies *Last Resort* because the A-movement component of the operation is necessary at some point in the derivation in order to check the Case features on the object. This means that the principle of *Last Resort*, unlike the *Strict Cycle*, does not care about the landing site of the head of the chain. It requires only that every *Form Chain* operation further the cause of convergence. The fact that the chain overshoots the mark in the pronoun shift operation is irrelevant to *Last Resort*, although it is crucial for the *Strict Cycle* condition.

Procrastinate will still be violated by the object shift operation unless we assume that Swedish, like French, allows the Case/ϕ features of a pronominal direct object to be optionally strong. When strong features are chosen, the object must be raised to Spec-AgrP in overt syntax, which is only possible as a subpart of an adjunction operation. This captures Holmberg's idea that only pronouns shift in Swedish because only pronouns have visible Case morphology. In my analysis, this apparent generalization can be expressed as (59).

(59)   In Scandinavian, the Case/ϕ features of an NP may be 'strong' w.r.t. the PF interface only if it has visible Case morphology.

The only difference between Swedish and Icelandic is that Icelandic non-pronominal objects also bear visible Case morphology, so they can be 'strong' freely, and will consequently undergo movement through Spec-AgrP to an adjoined position freely.

Overt object shift languages are fairly widely attested (cf. Dupuis (1989) for old French, etc.). My analysis predicts the general pattern (60) should hold of such languages.

(60)   If a a shifted object has the properties of an element in A-position, it must actually occupy an A-bar position which binds a trace in Spec-AgrP. No NPs should ever occupy Spec-AgrP in the overt syntax in a transitive sentence.

Further research will determine the validity of this prediction.

Chapter 3

Covert object shift

3.1 The issue: the syntactic prominence of direct objects

Certain VP adverbial phrases appear to be c–commanded by direct objects, according to standard tests (Anderson, 1979; Contreras, 1984; Stroik, 1990; Lasnik & Saito, 1991). Some examples appear in (??).

(61)   a.   John does no work at all quickly.

          b.   * John does the work that nobody likes at all quickly.

(62)   a.   John entertained *Willie* and *Sue* during *each other's* absences.

          b.   * John entertained *Willie and Sue's* aunt during *each other's* absences.

(63)   a.   The captain irritated *every crewman* by visiting *his* cabin with no warning.

          b.   * The captain irritated *every crewman's* wife by visiting *his* cabin with no warning.

(64)   a.   Our advocate refuted the accusations that Bob had made with one witness each.

          b. ?? Our attorney refuted Mark, Luke and John's testimony with one witness each.

(65)   a. * Mary visited *him* during *John's*
                incarceration.
         b.   Mary visited *his* mother during *John's*
                incarceration.

The (61)–(64) sentences test for negative polarity licensing (61a), reciprocal binding (61b), pronominal variable binding (61c), and binomial *each* licensing (64d). There is a considerable body of work which demonstrates that these tests show that the c-command relation obtains (cf. especially Reinhart (1976), ...). Judgments are quite sharp for the (61a) and (61c,d) cases. The data involving reciprocal binding is slightly less clear. The contrast in (65) confirms the results on the basis of Principle C. The object *him* must c-command the name *John* in (65a) in order to block coreference, and when it cannot c-command, as in (65b), coreference is possible.

Now if c-command does obtain in these cases, there are two different lines of analysis which might account for the facts. One is Larson's way—by stipulating that adjunct phrases always be contained in VP, with sufficient structure to ensure that objects are always higher within VP than adverbial phrases (cf. Stroik (1990) for details of such an analysis). The other possibility is that the adverbial phrases are adjoined to VP or higher, and objects move out of VP to a position high enough to c-command the adverbial phrases at whatever level of representation the different conditions apply. The second possibility must involve object shift in the covert syntax, as the object appears to be inside VP in the surface string (but cf. (Johnson, 1991)). The 'object shift' analysis requires, as well, that the binding theory and licensing of negative polarity items, etc., must apply at LF. Under the 'shell' theory, the structure of (61a) will be (66a). Under an object shift approach, the structure of the same sentence (at LF) will be (66b).

56

(66)   a.   VP
            /\
           / \
          /   V'
          /   /\
         /   / \
        V   VP
           /\
          / \
         NP   V'
             /\
            / \
           V   AdvP

       b.   AgrP
            /\
           / \
          NP   Agr'
              /\
             / \
            /   VP
                /\
               / \
              VP   AdvP
             /\
            / \
           VP   V'
               /\
              / \
             V   t
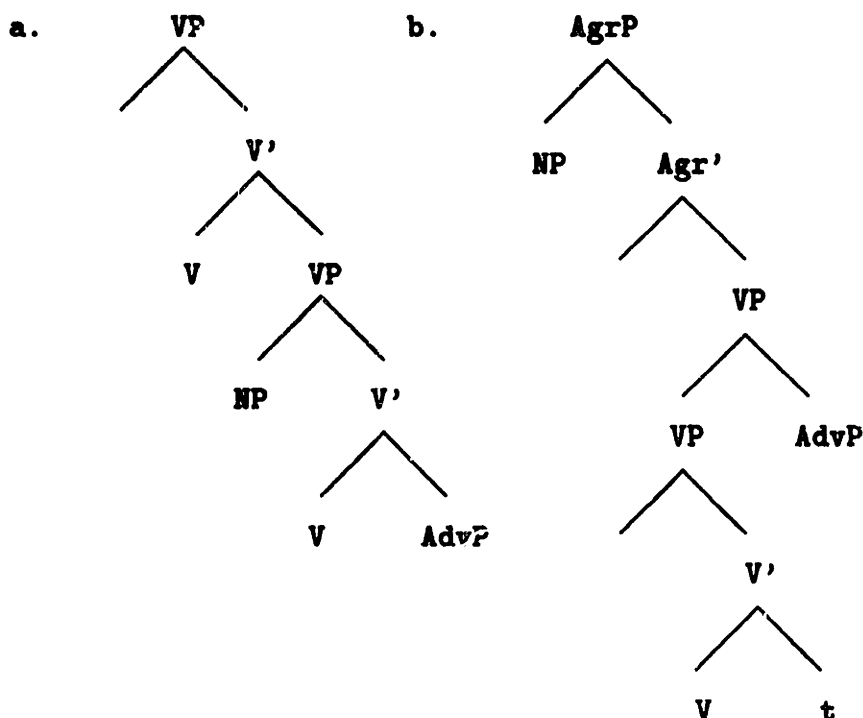
The next few sections are dedicated to presenting evidence that the LF object shift approach is superior to a 'shell' approach[1] They involve a number of cases in which an NP contained in VP cannot be said to c-command any complement of the verb, including any adverbial phrases in a Larson shell, and in which facts similar to those in (61)-(64) are found.

3.2   Polarity item licensing of direct objects

The first argument involves licensing of polarity items by verbs with negative context. I show that the fact that direct objects are ineligible for such licensing follows from the fact that they must raise to Spec-AgrP in covert syntax.

Polarity items can be licensed under c-command by two distinct classes of elements (Ladusaw, 1979; Lineberger, 1980): monotone decreasing NPs and adverbial phrases, and verbs with negative content.

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[1]The evidence will not show that Larsonian VP shells are cannot be motivated on other grounds—only that this particular argument for VP-internal adjunct phrases fails. It may still be the case that Larson shells are the best way to explain facts about the compositional semantics of ditransitive VPs and verb-particle constructions, for example.

(67)　　a. * John conveniently assumed that anything untoward had
　　　　　　happened.

　　　　b.　John conveniently forgot that anything untoward had
　　　　　　happened.

　　　　c. * Mary claims that John ever sold cars.

　　　　d.　Mary denies that John ever sold cars.

Laka (1990) and Progovac (1992) claim that polarity items in complement
position are not licensed by negative verbs, and that only polarity items contained
in a complement clause selected by negative verbs are licensed in this manner. They
argue that negative verbs are able to license polarity items only indirectly, by
suggesting a complementizer which *does* license polarity items. The contrasts in
(68) then follow from the presence or absence of a negative complementizer.

(68)　　a.　　John conveniently forgot that anyone had
　　　　　　　called.

　　　　b. *　John conveniently forgot anything.

　　　　c.　　John denied that Sarah had ever been
　　　　　　　offered a promotion.

　　　　d. *　John denied any employee a raise.

　　　　e. *　John denied cousins of any employees a
　　　　　　　job.

But the generalization Laka and Progovac capture with this theory is too
broad. While it does seem to be true that polarity items in direct objects position,
or contained inside direct objects, cannot be licensed by a negative verb, it is false
that *all* (non-clausal) complements share this property. As the examples in (69)
show, polarity items may be licensed by a negative verb if they are not direct
objects.

(69)　　a. *　John gave his secretary any raise.

　　　　b.　　John denied his secretary any raise.

　　　　c. *　Her guardian granted Winifred her
　　　　　　　permission to ever see Bertram again.

　　　　d.　　Her guardian refused Winifred her
　　　　　　　permission to ever see Bertram again.

In (69a) and ((69)c) the polarity items *any* and *ever* cannot be licensed by any c-commanding negative element, so the sentences are ungrammatical. In (69b) and (??d), however, the negative verbs *deny* and *refuse* do license these polarity items. (There is little reason to believe that any negative complementizer appears in complement position in any of the (69) sentences.)

Such counterexamples to Laka/Progovac do not show that there are no negative complementizers with the properties they ascribe to them, of coures. There may indeed be a negative complementizer involved in licensing polarity items in some cases. Laka observes that polarity items can be licensed inside a preposed CP, which follows from the idea that the complementizer is responsible for polarity licensing. Linebarger (1980) observes that the predicate *be surprised (that)* licenses polarity items in a complement clause, which might be taken as another case in which a complementizer with the requisite properties licenses polarity items in its domain.

What the (69) data does show is that an explanation for the ungrammaticality of sentences like (68b), in which a negative verb fails to license a polarity iten in direct object position must focus on direct objects alone, rather than on complements in general. This immediately suggests an 'object shift' account. If objects must raise out of VP to a Case position, then they are not c-commanded at LF by the verb whose object they are. Example (68b), for example, will have the structure in (70) after object shift takes place.

(70)   John [$_{AgrP}$ anything [$_{Agr}$ ' forgot-Agr [$_{VP}$ conveniently [$_{VP}$
         t_V t_{NP}]]]]

In this structure *forgot* does not c-command its object *anything*, assuming a narrow definition of c-command, i.e., that c-command is not m-command. There is nothing which can license *anything* as a polarity item, in fact, so the ungrammaticality of the sentence follows, with no stipulation whatsoever.

The verb must raise to Tense at some point, of course, in the theory I have assumed, so we might wonder why it does not license the shifted direct object when it moves further. But it will not c-command the Spec-AgrP position from the higher

position either. It is not simply the verb which raises from the Agr-O position, but the V-Agr complex. And the V-Agr complex adjoins to Tense, so the verb itself does not c-command anything at that point.

As the verb does not c-command its direct object at LF, we need not assume that a negative verb cannot license polarity items which it c-commands at LF. The polarity items in (69b) and (69d) are no longer anomalous. They are licensed by the negative verb, the trace of which continues to c-command them at LF.

3.3 The height of Exceptionally Case-Marked Subjects

Lasnik and Saito (1991) point out a number of facts which indicate that the 'exceptionally Case–marked' subject of infinitival complements to *believe*-type verbs is high enough in the tree (at some level of representation) to c-command certain adverbial phrases. The subject of a finite complement clause is never high enough to do the same thing. Examples appear in (71) (The (a) and (b) examples are taken from Lasnik and Saito (1991); the (71) sentences are based on some of Postal (1974); the (c) examples are my own.).

(71)   a. ?* Joan believes *him* to be a genius even more fervently than *Bob's* mother does.

b. Joan believes that *he* is a genius even more fervently than *Bob's* mother does.

c. Joan believes *his* brother to be a genius even more fervently than *Bob's* mother does.

(72)   a. ? The DA proved *the defendants* to be guilty during *each other's* trials.

b. ?* The DA proved that *the defendants* were guilty during *each other's* trials

c. * The DA proved *the defendant's* mothers to be guilty during *each other's* trials.

(73)   a. ? The DA proved none of the defendants to be guilty
           during *any* of the trials.

        b. ?* The DA proved that *none of the defendants* were guilty
           during *any* of the trials.

In (71a), the subject of the infinitive *him* cannot corefer with the
R-expression *Bob* in the comparative clause. In (71b), in contrast, the subject of the
finite complement clause *he* freely corefers with *Bob*. Evidently principle C is
violated in the (71a) and not in (71b). For principle C to be violated in (71a), the
pronoun *him* must c-command the R-expression at the relevant point in the
derivation. Example (71c) is further confirmation of the assumption that the
c–command relation underlies the principle C violation in (71b)—as *his* does not
c–command the R–expression *Bob* in this case, coreference is once again possible. In
(72a) and (73a), the reciprocal *each other* and the negative polarity item *any* are
licensed by the ECM subjects *the defendants* and *none of the defendants*,
respectively. Such licensing again requires that the licensing phrase c-command the
phrase licensed.

Before I proceed, some observations concerning the strength of these
judgements are in order. While the contrasts are quite clearly in the direction
indicated, the (72a) and (73a) sentences are not as good as they should be. Nor are
the (72b) and (73b) sentences as bad as they should be. I take the fact that the (b)
sentences are not sufficiently bad as evidence that there is some form of noise
interfering with our judgments here. Under virtually any theory, the subject of a
finite clause should be unable to bind outside of its clause. To the extent that it
does so here, we must attribute it to an error in processing the sentences. Pesetsky
(p.c.) suggests the that Frazier's (?) notion of a *'minimal attachment'* principle in
the parser applies here. If we assume that the parser always attempts to attach
adjunct modifiers to the smallest VP which precedes it in the string, then given a
string like (72b), the parser will first try to attach the modifier to the VP in the
complement clause, as in (74).

(74)   The DA proved that [$_{CP}$ the defendants [$_{VP}$ [$_{VP}$ were guilty
        ] during each other's trials]]

In the structure (74) produced by the initial parse, the subject of the complement clause *the defendants* does c-command the reciprocal phrase *each other's*. We can then explain the weakness of the judgement by holding the initial parse responsible for licensing the reciprocal phrase. In a sense, the sentence is rescued by a garden path parsing. The parser does not leave the structure like this, however. At some point, it must decide that the initial attachment site of the adjunct phrase was wrong so that the sentence can have the intended meaning. The correct structure is built at this point, and the subject of the complement clause no longer c–commands the adjunct. In the correct and final parse, the reciprocal cannot be licensed as it is not c–commanded by its antecedent, so the sentence is finally ungrammatical. But some effect of the earlier parse remains, leaving the listener with the impression that the sentence almost works.

If we ensure that c-command will fail even in the initial parse, then the reciprocal phrase will never be licensed and the judgement of ungrammaticality should be sharp. As (75) shows, this is true.

(75)   * The DA proved that *the defendants'* mothers
         were guilty during *each other's* trials.

Another factor which seems to interfere with the judgements in the ECM cases is the extent to which the complement clause denotes a proposition which is not the result of the event to which the matrix clause refers. A factive ECM verb like *understand* seems not to take a complement with the properties we are interested in. Sentences which require a c-commanding antecedent to something inside a matrix VP adjunct become more acceptable as the matrix verb becomes more causative/performative: (76)–(77).

(76)   a. * We understood nobody to have found the body after
        hearing any testimony.

        b. ?* The audience believed Bill and Mary to have
         committed the crime during each other's speeches.

        c. ?* The jury imagined every defendant to have killed
         the parson during his initial appearance on the stand.

(77)   a. The DA demonstrated nothing to be certain during any
            of his speeches

         b. The DA proved Bill and Mary to be guilty during each
            other's interrogations.

         c. The jury declared every defendant to be guilty during
            his final appearance.

And judgements involving Principle C violations become sharper as well
when the matrix verb becomes 'affective'.

(78)
    a.   *? The king declared *him* to be an outlaw
            even more eagerly than *Marcel's* own squire
            had.
    b.   The king declared that *he* was a outlaw
            even more eagerly than *Marcel's* own squire
            had.

Similar contrasts to those in (71)–(73) are found in the complements to
perception verbs.

(79)   a.   I watched *Peter and Mary* laugh out of the
                 corner of my eye at *each other's* party.

         b.   * I saw
                 Peter and Mary's daughter laugh out of the
                 corner of my eye at *each other's* party.

         c.   Mary heard *every   child* giggle by standing
                 outside *his* door.

         d.   * Mary heard *every   child's* radio play by
                 standing outside *his* door.

         e.   Tom helps *no INS agent* find anyone for *any*
                 amount of money.

         f.   *? Leon let *her* work the room when *Sally* held
                 a fundraiser.

         g.   Leon let *her* associates work the room
                 when *Sally* held a fundraiser.

The complements to perception verbs differ from the B-verb complements in
the inflection of highest verb of the complement clause. In B-verb complements, the
inflection is infinitival. In perception verb complements, the inflection appears
rather to be subjunctive.[2]

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[2]I suspect this is the result of a morphological rule, rather than any deep syntactic process. Note
that the subjunctive inflection disappears when the subject is extracted by NP movement.

As in the B-verb complements, the height effects of the subject in causative/perception verb complements are clearest when the matrix verb is more performative.

(80)   a.   **Mary helped Tom and Jerry pick pockets by causing a distraction at each other's parties.**

        b. ?? **Mary saw Tom and Jerry pick pockets from the other side of the room at each other's parties.**

The data in these sentences shows that in these constructions, the Exceptionally Case-marked subject of a complement clause is able to license or bind a phrase contained in an adjunct *outside* the complement clause. The subjects in question show no signs of having moved out of their clause in overt syntax. Quite the contrary, in fact, as the subject of the complement clause must be adjacent to the matrix verb in all these cases, unless it is extracted by wh-movement, as discussed above. The success of the licensing/binding relations must therefore result from a structural change in covert syntax which places the subject of the complement clause in a position where it c-commands the adjunct phrase. In other words, the subject must raise in covert syntax to a higher position. And the licensing of dependent phrases, like reciprocals, polarity items, etc., must be determined at LF, after the subject raises. (This is entirely natural, as LF is the level at which semantic interpretation takes place.)

Note that it is not enough to simply *allow* movement of the subject in covert syntax. Optional movement would suffice to account for the cases in which an element inside an adjunct must be licensed by a c-commanding antecedent, but it could not explain the Principle C violations. These can be explained only if the subject of the complement *must* raise out of its clause in covert syntax. Otherwise, a derivation would always be possible in which the subject did not c-command a coreferent name at LF, and the sentences should therefore allow coreference. The only mechanism we possess to *ensure* that A-movement takes place (at LF or at any other time) is Case theory, so we must conclude that objects can only have their Case features checked by moving to Spec-AgrP in covert syntax.

3.3.1 Alternative analyses (Lasnik and Saito)

Lasnik and Saito suggest, somewhat tentatively, that the apparent height of the subject of ECM complements is the result of NP movement in *overt* syntax to a position high enough to c-command the adjunct phrases. They offer a number of arguments that the various licensing/binding principles apply at S-structure rather than at LF. However, their arguments are not compelling.

One argument comes from Japanese, and purports to show that Principle C must apply at S-structure. Lasnik and Saito observe that Principle C effects can be avoided by scrambling a phrase which contains an R-expression outside the c-command domain of a coreferent pronoun. They then point out that the same effects hold of scrambled wh-phrases, i.e., an R-expression contained inside a scrambled wh-phrase is also immune to Principle C effects. Under the assumption that scrambled wh-phrases must be 'reconstructed' at LF in order to undergo covert wh-movement, this seems to indicate that Principle C must only be active at S-structure.

Their assumption that scrambled wh-phrases are reconstructed at LF can be challenged, however. Watanable (1991) argues convincingly that there is no covert wh-movement in Japanese, and that overt movement of an invisible element instead is what results in the formation of questions. In that case, the scrambled 'wh-phrase' need not be reconstructed at LF, and Principle C may hold at that level.

The second argument involves anaphor binding. Following Barss (1986) and ? (?), they suggest that anaphors must be licensed in overt syntax (at S-structure) in order to account for the contrasts in (81) (from Lasnik and Saito (1991, p. 10)).

(81)   a.   *John* wonders which picture of *himself* Mary showed to Susan.

           b.   * *John* wonders who showed which picture of *himself* to Susan.

They assume that formation of multiple questions are formed by covert movement of the *in situ* wh-phrase to Spec-CP, so that at least one possible LF representation of (81b) will be (82).

(82) *John* wonders [$_{CP}$ which picture of himself--who [$_{IP}$ t showed t to Susan.

If the anaphor *himself* is carried into the same position at LF as it occupies at Spell–Out in (81a), the fact that *himself* is not licensed in (81b) shows that anaphors must be licensed in overt syntax. If this is the case, then the examples above in which an ECM subject licenses an anaphor in an adjunct must be taken to show that overt movement of the subject has taken place.

But Lasnik and Saito's assumption about how multiple questions are formed at LF has no real motivation in the framework I have assumed. There is no evidence that multiple questions involve LF movement rather than an interpretive procedure. And there is certainly no evidence that pied-piping is possible with covert A-bar operations in any case. If there is no pied-piping in covert syntax, then *himself* never raises out of its clause to a position where it can be bound, even at LF.

Argument from expletive replacement

The next argument of Lasnik and Saito involves sentences with *there* expletive subjects. They assume, with Chomsky (1986), that *there* is 'replaced' by its associate NP in the covert syntax. And their observation is that the associate NP cannot bind an anaphor which it does not c-command at S-structure, as shown by (83).

(83) a. The DA proved [two men to have been at the scene] during each other's trials.

     b. * The DA proved [there to have been two men at the scene] during each other's trials

This argument is also unconvincing. If expletive replacement does take place, it does so without altering the scope relations established at S-structure, as is well known. This observation tells us that expletive replacement has properties different from simple NP movement, so we cannot conclude anything from the (83) data.

Polarity item argument

Much the same criticism can be made of Lasnik and Saito's last argument. They observe that the polarity item *anyone* can be licensed under c-command by a the higher negative predicate *unlikely*. They observe as well that this licensing is impossible if *anyone* raises into a higher clause, where it is not c-commanded at S-structure by its licenser. And they point out that the polarity item *should* be licensed at LF, if it undergoes 'quantifier lowering', if polarity item licensing is possible at LF. They conclude that such licensing is possible only at S-structure.

(84)   a.   It is unlikely that anyone will address the rally.

           b. * Anyone is unlikely to address the rally.

           c. ?* Someone is unlikely to address the rally. (with narrow scope for someone.)

But this argument relies on the idea that scope is established through a quantifier lowering operation. This is a problematic and controversial assumption. In particular, the question of the *trace* of a lowered quantifier has never been given a clean answer.

3.3.2   Alternative analyses (Larson's)

The evidence shows that the subject of an ECM infinitive c-commands elements in VP adverbials at some point. As the subject is clearly contained in the VP in overt syntax, there are only two possible conclusions to draw. Either there is an object shift operation which elevates the subject to a higher position in covert syntax, or the apparent subject of the infinitival complement is actually the object of the verb[3] *and* VP adverbials are contained inside the VP in a lower Larson shell. In class lectures at MIT in 1988, Larson suggested an analysis in which this is the case. He suggested that the real subject of the infinitival complement is an empty operator which is bound by the direct object of the verb. The two hypotheses are illustrated in (85). Larson's structure is (85a); an object shift structure is (85b).

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[3]I assume that 'raising-to-object' operations are excluded in general. Nor would a raising-to-object operation actually explain the licensing properties of these construction, as Lasnik and Saito (1991) show.

(85)

a.

```
            VP
            |
            V'
           /  \
          V    VP
              /  \
            NP    V'
                 /  \
                V    VP
                    /  \
                  CP    V'
                 /  \   / \
               Op   C' V  AdvP
                    |
                    IP
                   /  \
                  t    I'
```

b.

```
           AgrP
          /    \
        NP     Agr'
                |
                VF
               /  \
              VP   AdvP
              |
              V'
             /  \
            V    IP
                /  \
               t    I'
```
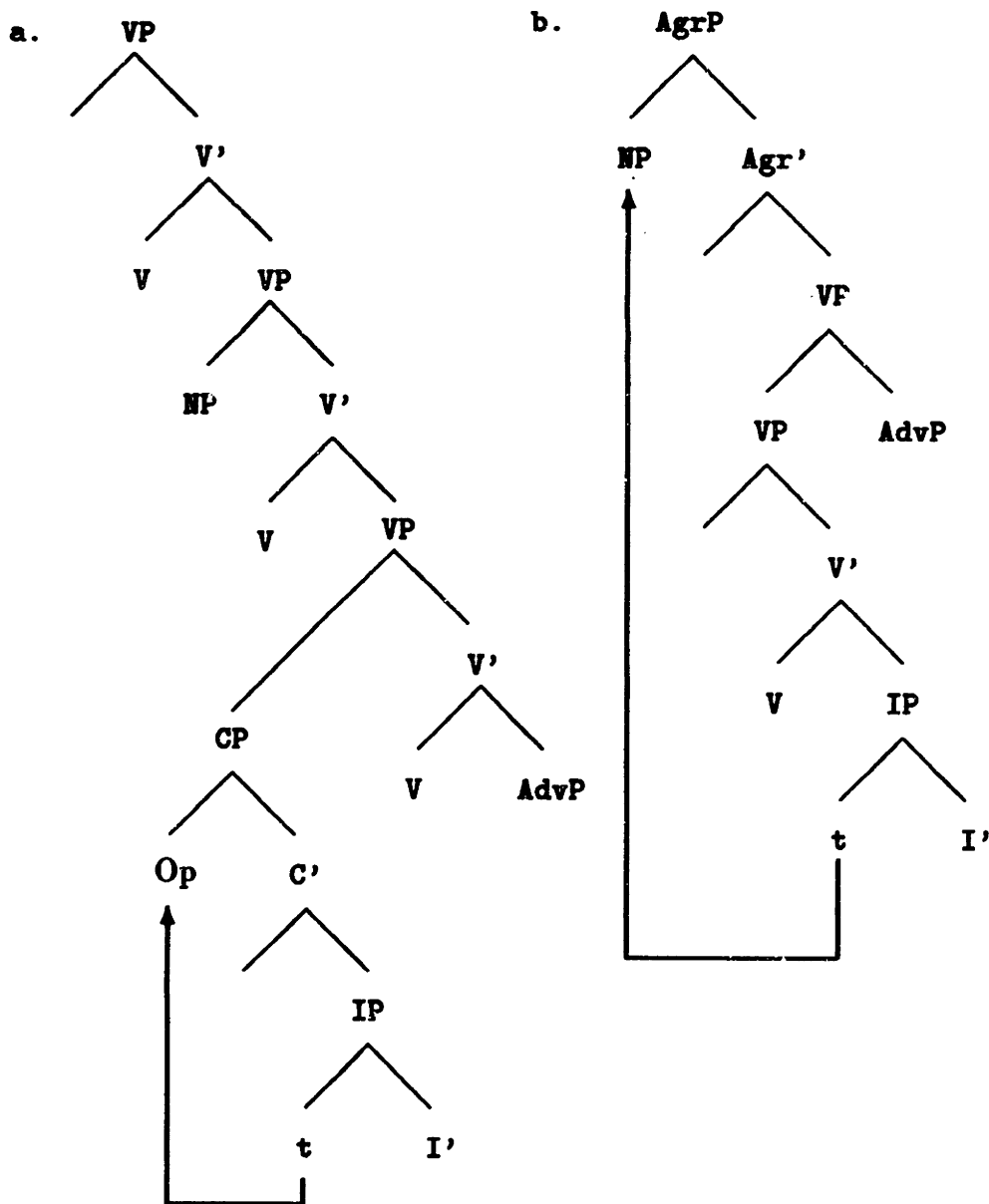
In Larson's analysis, the CP argument is predicated of the direct object NP, just as the PP *on the table* is predicated of *the book* in (86). Like the infinitival predicates in infinitival relatives and *tough* constructions, the predicate CP is has an empty operator in SPEC–CP.

(86)   John put the book on the table.

Larson's analysis is not unattractive[4]. It captures what may be a valid intuition: the feeling that the subject of an ECM complement to non-stative verbs

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[4]In chapter 4, I propose a structure very similar to this to account for certain properties of the complements to perception verbs in French.

like *prove* is somehow 'affected' by the event in question.[5] But there are two fatal drawbacks to the analysis.

One problem is that the complement CP can only contain a gap in subject position.

(87)   a.   *   The attorney proved his client [CP O
                 [IP PRO to have framed t]] with only one
                 witness.

       b.   *   The witness proved this technique [CP O
                 [IP PRO to have defended himself]].

Other infinitival predicates are not constrained in this way. The gap can be anywhere in an infinitival relative or *tough* complement.

(88)   a. This violin is easy to play sonatas on.

       b. This weather is tough to change your oil in.

       c. I found a good book to write a review of.

Under the standard analysis of ECM complement, in which the apparent subject really is the subject, there is no such problem, and the same is true of an LF object shift analysis, for the same reason.

The second and more serious problem with Larson's analysis is that the infinitival complement allows extraction freely, i.e. it is not an island to wh-movement, as seen in preflars-isl. If there is an operator in SPEC-CP, though, wh–extraction should be impossible.

(89)   a.   What did the DA prove the accused to be
                 guilty of t ?

       b.   How did the DA prove the miscreants to
                 have broken in t ?

       c.   *   Which violin are these sonatas [CP O
                 [IP PRO easy to play t on t]]

       d.   *   With how much feeling is this violin [CP
                 O [IP PRO easy to play sonatas on t t]]?

Under the standard analysis and the LF object shift analysis, the infinitival complement has no operator in SPEC–CP (if it has a CP projection at all), so

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[5]The fact that ECM subjects may be expletive is a problem for this idea, however (Lasnik p.c.).

nothing is expected to block wh-extraction from the clause. I conclude that the shell approach cannot be extended as Larson suggests, and that the shell theory cannot in itself explain how the subject of an ECM complement may c-command an adjunct phrase.

3.3.3 'Late' covert object shift and complements to *believe* and *see*

As observed above, the subject of the complement clause clearly displays the property of surprising 'height' only when the matrix verb is 'affective' in some way. Thus, an example like (90a) is more acceptable than (90b) or (90c), because *prove* is more 'affective' than *believe* or *want* are.

(90)   a.   The evidence proved no attorney to have
               lied during any review of his conduct.

      b. ?? The judges believed no attorney to have
               lied during any review of his conduct.

      c. ?? Their client wanted no attorney to have
               lied during any review of his conduct.

For the same reason, Principle C effects are more clearly in evidence in (91a) than in (91b) or (91c).

(91)   a. * His critics admitted *him* to have been
               innovative after *Stravinsky*'s death.

      b. ? His critics assumed him to have been
               innovative after *Stravinsky*'s death.

      c.   His critics wished *him* to have been
               innovative after *Stravinsky*'s death.

    Other tests give similar results, as seen in (92)–(??).

(92)   a.   Penelope acknowledged *ev-
               ery participant* to have cited Marx when she
               was asked about *him* afterwards.

      b. ?? Penelope believed *ev-
               ery participant* to have cited Marx when she
               was asked about *him* afterwards.

      c. ? Penelope would have prefered *ev-
               ery participant* to have cited Marx when she
               was asked about *him* afterwards.

Although the data is fuzzy in the extreme[6], the best initial characterization of the facts seems to be the following. Only when the complement clause expresses a proposition the truth of which is 'affected' by the event to which the matrix predicate refers is the subject of the complement clause Case-checked by undergoing covert movement to Spec-AgrP in the matrix clause. A 'object-shifted' subject gives rise to the effects discussed in sectionsec:LFOS. When the matrix predicate does not affect the truth of the complement clause, the subject of the complement clause is frozen inside its clause, so it does not c-command anything in the matrix clause at LF, with all the consequences that entails.

Epistemic datives and LF licensing

There is evidence that this 'affectedness' effect in covert object shift is not peculiar to *Exceptional Case Marking* constructions. ? (?) observed certain interesting binding-theoretic properties of the *epistemic dative* construction in French. Verbs of 'giving', like *donner 'give'*, *prêter 'lend'*, *attribuer 'attribute'* select two complements: a direct object and a indirect object, the latter marked by the (dative) preposition *à*. For the most part, the syntactic and thematic behavior of such verbs and their complements is what we would expect. The verb denotes a 'giving' event of which the direct object is interpreted as the *Theme* and the indirect object is interpreted as the em Goal. If the indirect object is anaphoric, it may be bound either by the direct object or by the subject, as in (93).

(93) a. Je leur ai prêté des livres l'un pour l'autre.
         I to-them lent books the one for the other

      b. Ils m'ont prêté des livres l'un pour autre.
         They to-me lent books the one for the other

There is another way to interpret some sentences involving the e verbs in which the syntactic and thematic behaviour is quite different. Given the appropriate context, a verb like *prêter* or *donner* can refer to a mental act of 'prediction' or 'admission' in which the indirect object and direct objects play no part in the matrix

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[6]Fuzzy data is the unfortunate norm in studies of ECM, as noted and lamented by Bresnan (1972), ? (?), Pesetsky (1991)

event, but rather play a role in the proposition being 'predicted' or 'admitted'.[7] The indirect object appears then to be the semantic subject of the proposition, and the direct object denotes some quality which the subject possesses. When this 'epistemic' meaning is found, the indirect object induces opacity effects, so that an anaphor contained in the direct object can no longer be bound by the subject of the clause, but only by the indirect object. Examples (from Ruwet) appear in (94).

(94) a. * Ils me prêtent de mauvaises intentions
            l'un envers l'autre.
      b.   Je leur prête de mauvaises intentions
            l'un envers l'autre.
      c. * Elles m'attribuent des aventures l'une
            avec l'autre.
      d.   Je leur attribue des aventures
            (sapphiques) l'une avec l'autre.

Similar contrasts are found with some English double object VPs, although the number of verbs which allow an 'epistemic' interpretation is smaller than in French. *Grant* and *give* do so. Consider now the (??) examples. When *grant* and *give* refer to simple 'giving' events, as in (95), an anaphor contained in the second object can be bound by the clausal subject. When the 'epistemic' interpretation is present, in contrast, the an anaphor contained in the second object can only be bound by the first object, as in (96).

(95) a. The king and queen granted him an audience with each
          other.
      b. They gave me pictures of each other.

(96) a.   I grant them a certain affection for each other.
      b. * We grant him a certain affection for each other.
      c.   I give them six weeks with each other.
      d. * They give me six weeks with each other. (under   the
          'prediction' reading.)

---

[7]Object/indirect object pairs with a similar interpretation can be constructed with many 'epistemic' verbs like *croire, imaginer, soupçonner, prédire* as well. As the relevant minimal pairs are not available for such verbs, I do not discuss them in the text.

The relevance of 'epistemic datives' to the problem of Case ECM complements becomes apparent when we compare the height of the first object in epistemic datives with the height of the same object when the simple 'give' event interpretation is present. Like the subject of the complement to an ECM verb like *prove*, the first object in a 'give' events has the properties of a object-shifted NP: it cannot be coreferent with a name in a VP adjunct, and it can license dependent phrases in VP adjuncts.

(97)   a. ?* Mary gave *him* six dollars to buy a pizza with when
          she visited *Mike*.

       b.   The critic granted *every*   soprano a second audition
          when he listened to *her* singing.

       c.   You can't deny *Sue and Betty* their Christmas bonuses
          in each other's presence.

In contrast, when the *epistemic* interpretation is forced, the first object does not trigger principle C effects or license dependent phrases in VP adjuncts.

(98)   a.   Mary gave *him* six months to get fed up with academic
          life when she visited *Mike*.

       b. * The critic granted *every*   soprano a certain flair for
          spectacle when he listened to *her* singing.

       c. *? You can't deny *Sue and Betty* a talent for
          practical jokes in *each other's* presence.

       d.   You can't deny Sue and Betty a talent for practical
          jokes in their mother's presence.

The conclusion I think should be drawn from the (98) contrasts is that the 'affectedness' effect, however it is to be expressed, is not unique to Exceptional Case Marking constructions. It can affect real direct objects, too.

3.4   The height of complements to prepositions

Under any standard definition, the object of a preposition cannot c-command something outside of the prepositional phrase which contains it. Yet Anderson (1979) notes that standard tests for c-command give the unexpected result that the

complement of a preposition inside a VP appears sometimes to c–command other elements contained in the VP, and even elements in an adverbial phrase outside of the VP. Examples appear in (99) (from Anderson (1979)) and (100).

(99)   a. I refer to very few authors with any enthusiasm.

      b. He spoke to very few people about anything important.

      c. She arrived at very few parties with any friends.

      d. We prepare for few finals with any enthusiasm.

In each of the (99) examples, a polarity item in an adjunct phrase is licensed by the object of a preposition contained inside the VP.

(100)   a. Bill speaks to *his* employees regularly about *each other's* work.

      b. Jake likes to talk to *his daughter* about *herself*.

      c. The shift boss talked to *every blaster* before *he* left the job.

      d. The union depends on *each worker* for *his* contribution.

      e. Mary wrote to her in-laws on one occasion each.

      f. Cecil is relying on his cousins for one invitation each.

In (100a), *his employees* binds the reciprocal expression *each other*. The reflexive pronoun *herself* in (100b) is be bound by *her daughter*. The pronouns *he* and *his* in (100c,d) can be interpreted as variables bound by the quantificational expression *every blaster* and *each worker*, respectively. In (100e,f), binomial *each* is licensed by the NPs *her in-laws* and *his cousins*. In each case, the relation between the complement of *to* and the thing which it binds/licenses is normally possible only if the former c-commands the latter.

Principle C tests give the same result, as evidenced by the (101) examples.

(101)   a. ?* Bill likes to talk to *her* during *Maria's* break.

        b.   Bill likes to talk to *her* mother during *Maria's* break.

        c. ?* Sarah wrote to *him* about *Cliff's* smoking nabit.

        d.   Sarah wrote to *his* wife about *Cliff's* smoking habit.

        e. ?* His mother is counting on *him* for *Tom* to be admitted to the seminary.

        f.   His mother is counting on *his* tutor for *Tom* to be admitted to the seminary.

Not all NPs contained in a complement PP share the property of apparently c-commanding out of the PP. NPs contained in non-thematic or non-argumental PPs behave quite differently, as (102) illustrates.

(102)   a. ?* Fred based his conclusions on several assumptions justified with one example eacu.

        b.   * Will's experiment forced his subjects to no unexpected reactions at any point.

Analysis

The explanation I propose, like that of Anderson (1979), relies on the fact that English allows preposition stranding in certain environments. At LF, I propose, the same is true, so the object of a preposition may raise to Spec-AgrP to have Case features checked. In that position, it c-commands VP adjuncts.

Examples of preposition stranding under A–movement appear in (103).

(103)   a. No course of action has yet been decided on.

        b. Marjorie herself was taken advantage of.

        c. Peter appreciates being talked with.

        d. The deputy was shot at this afternoon.

Preposition stranding under A–movement is possible only if the stranded preposition can be 'reanalyzed' (Anderson, 1979; Hornstein & Weinberg, 1981), i.e. if the stranded preposition heads a PP complement of V and if it is adjacent to the verb. Anderson's own analysis involves a reanalysis operation which I assume to be illegitimate—one in which the structure associated with PP disappears entirely,

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allowing the NP complement to P to c-command other VP-internal elements directly. I require a less radical theory of reanalysis.

Baker (1988) offers a more principled account of reanalysis by assimilating it to incorporation of the head of PP. According to Baker, in a sentence like (103a), the preposition *on* is incorporated into the verb *decide*, producing the structure in (104).

(104)

```
        VP
       /  \
           V'
          /  \
         V    PP
        /\   /  \
       P  V /    \
       ↑   t      NP
       |___|
```
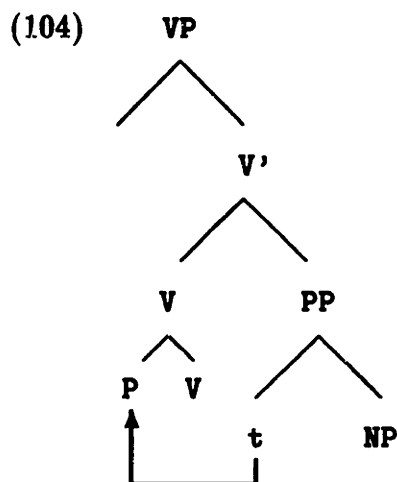
Under this analysis, reanalysis cannot extend to adjunct PPs for the same reason extraction is in general impossible from out of adjunct PPs: because movement out of an adjunct phrase violates general constraints on movement, i.e., the ECP or subjacency.

Baker's analysis offers an explanation for the limits to 'reanalysis', but in itself, it offers no explanation for the fact that the object of the incorporated preposition appears to c-command into an adjunct phrase. The height of the NP in (104) is no different from that of any other PP-contained NP.

Apparently prepositional phrases in English, like the normal run of PPs cross-linguistically, are barriers to NP movement. I'll return to the question of barrierhood in Chapter 4. For the moment, all we need note is that PP barrierhood is voided when the preposition is incorporated into a verb. After P-incorporation, then, there is no barrier to block A-movement of the object of a preposition. I propose that LF object shift then takes place in sentences like (100), raising the object of the preposition to an A-position outside of VP, as in (105),

(105)
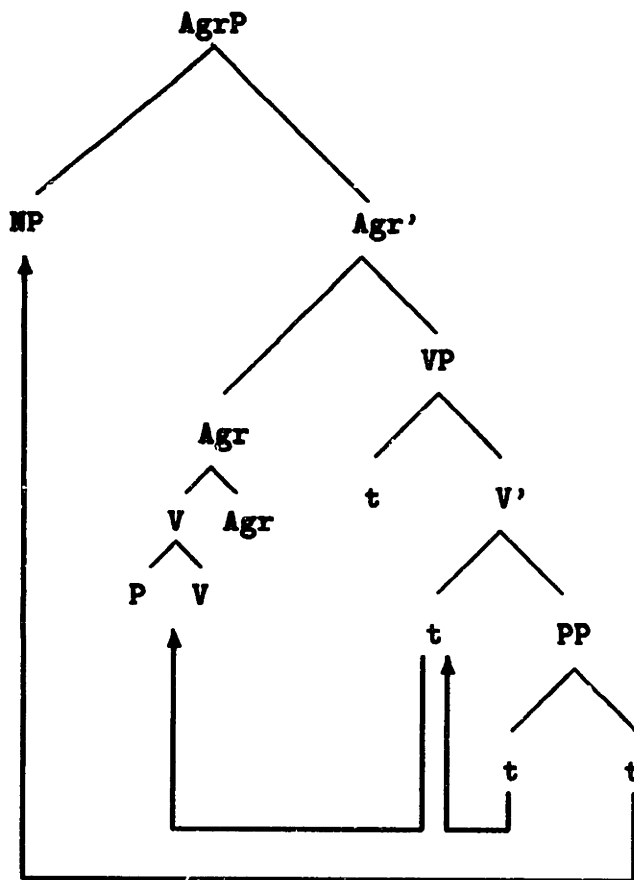
In the shifted position, the object c–commands everything inside VP, as well as anything adjoined to VP.

3.4.1 The height of a second internal argument

Lasnik (p.c.) points out that the fact that an internal argument can c–command certain adjuncts does not apply to direct objects alone. Similar results obtain if we consider the second object in double object construction, as in (106) or the object of a preposition in an argumental PP, as in (107).

(106)   a. We gave Peter no help before any exam.

       b. When Mary complained that she was understaffed, her boss promised Mary Bill and Harry during each other's vacation.

       c. The adjudicator awarded Lou every benefit ...

(107)   a. Marcel gives aid to nobody during any exam.

        b. Herman passed the salt to Bill and Harry for each
           other's use.

        c. ...

At the same time, the Barss/Lasnik facts (?) remain constant: the direct object can bind an indirect object or something inside a PP complement, but the indirect object cannot bind the direct object (108).

(108)   a. INSERT BARSS/LASNIK TYPE EXAMPLES HERE.

I have argued in the preceding section that the binding properties of direct objects should be explained by assuming that direct object NPs undergo object shift at LF, and that the various licensing conditions apply to LF representations. Under this analysis, VP adverbial modifiers are adjoined to VP, and the object shift landing site is high enough to c-command all segments of VP. The facts in (106)-(107) indicate that either the object shift analysis must be extended somehow, or that VP adverbs *do* occupy a position inside VP after all.

In this section, I show that the analysis can, in fact, be naturally extended to cover these facts.

It is worth pointing out first some evidence that the Larsonian analysis cannot work for these cases either. If the adverbial phrase were contained inside VP, then the preceding internal arguments in VP would always c-command the adjunct. Now consider the (109) examples. (Italics indicate coreference.)

(109)   a. Seeing that Mary needed an assistant, her boss gave
          her *Sean* during *his* temporary transfer to our
          department.

        b. ?? Seeing that Mary needed an assistant, her boss
          gave her *him* during *Sean's* temporary transfer to our
          department.

In (109a) and (109b), *Sean* can refer to the same person as the italicised pronoun. Evidently, Principle C is not violated by coreference in either sentence. (Example (109b) is awkward, but no more so, to my ear, than any other sentence in which the indirect object is an personal pronoun.) I conclude that the indirect

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object *need not* c–command the adverbial phrase at the point at which Principle C applies.

Under an analysis in which the adverbial phrase is attached inside the shell at a lower point than the indirect object, the indirect object must always c–command the adverbial phrase.[8] So Principle C should be violated if the shell analysis is correct. The fact that Principle C is not violated in (109b) is thus a serious problem for this approach.

Note that it will not help to supplement a shell analysis with the idea (Pesetsky, 1991) that there is invisible material--a null preposition, say—contained in the second object position, and that the second object NP does not c–command the R–expression *Sean's* because it is dominated by a lower branching node. If that were the case, then the indirect object could not c–command anything else. But in the (106) cases, the indirect object must c–command material in the adverbial phrase in order to license it. One way or another, the shell analysis comes out wrong.

Similar facts obtain when the second argument is a PP. The preceding discussion demonstrated that the object of a PP which serves as the sole internal argument of a verb must be said to c–command VP adverbs, in order to account for the Principle C violations in (??). But when a PP argument is the second internal argument, Principle C is never violated, as is shown by the (110) examples.

(110)   a. We gave a book to *Seamus* at *his* birthday party.

      b. We gave a book to *him* at *Seamus'* birthday party.

      c. Because she had observed her to be a hard--working housekeeper, my uncrupulous aunt robbed me of *Ludmilla* by offering *her* a longer vacation.

      d. Because she had observed her to be hard--working housekeeper, my uncrupulous aunt robbed me of *her* by offering *Ludmilla* a longer vacation.

I take the following to be the generalizations to be explained. First, the
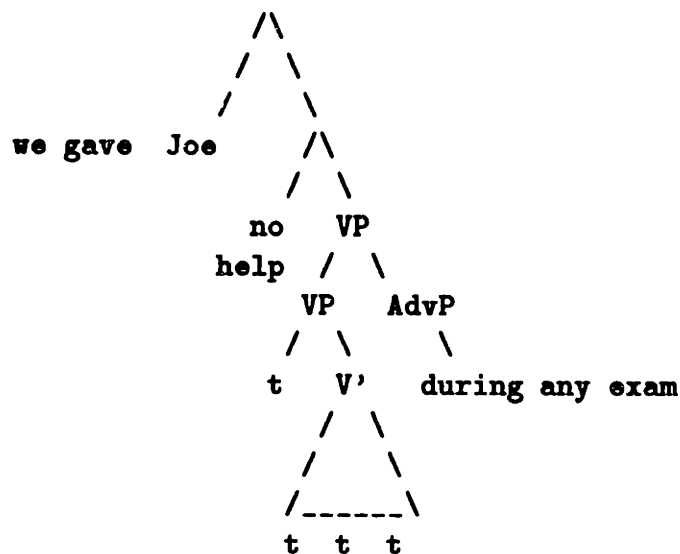
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[8]The specific details of Larson's analysis of double objects make no difference here. Both the Larson (1988) analysis and the ? (?) analysis have the indirect object in a high enough position to c–command anything lower down inside the VP.

direct object always behaves as if it c-commands both VP adverbial phrases and other internal arguments. Second, the second internal argument—by which I mean an indirect object or the object of a preposition in complement position—if there is one, may behave as if it c-commands VP adverbials, but it need not. Third, the second internal argument never behaves as if it c-commands the direct object.

The only analysis consistent with my earlier conclusions is one in which there is covert object shift not only of the direct object, but also of the second internal argument. In short, the LF structure of a phrase like (106a) must be (roughly) that in (111).

(111)

```
                    /\
                   /  \
                  /    \
         we gave Joe    /\
                       /  \
                      no   VP
                   help   /  \
                        VP    AdvP
                       /  \      \
                      t    V'    during any exam
                          /  \
                         /    \
                        /_____\
                        t  t  t
```

In this configuration, the negative NP *no help* c-command the negative polarity item *any*, as required. And the direct object asymmetrically c-commands the indirect object, so the Barss and Lasnik facts are accounted for as well.

The fact that Principle C is never violated when the second object is the antecedent follows if we assume that movement of the second object is an optional operation. So alongside of (111), the structure sean:struc must be possible.

(112)

```
                    /\
                   /  \
       her boss gave  her   \
                          VP
                        /  \
                      VP    AdvP
                     /  \     \
                    t   V'    during his temporary tranfer ...
                       /  \
                      /    \
                     /_____\
                     t   t  Sean
```
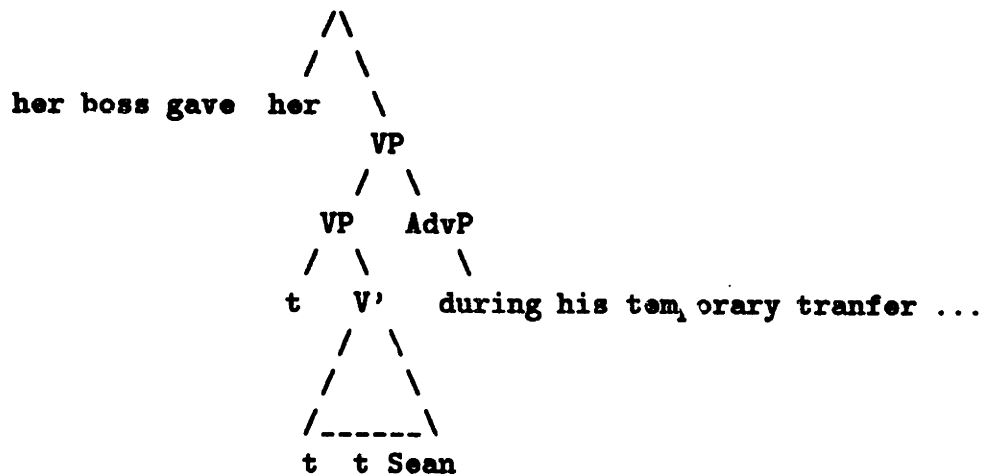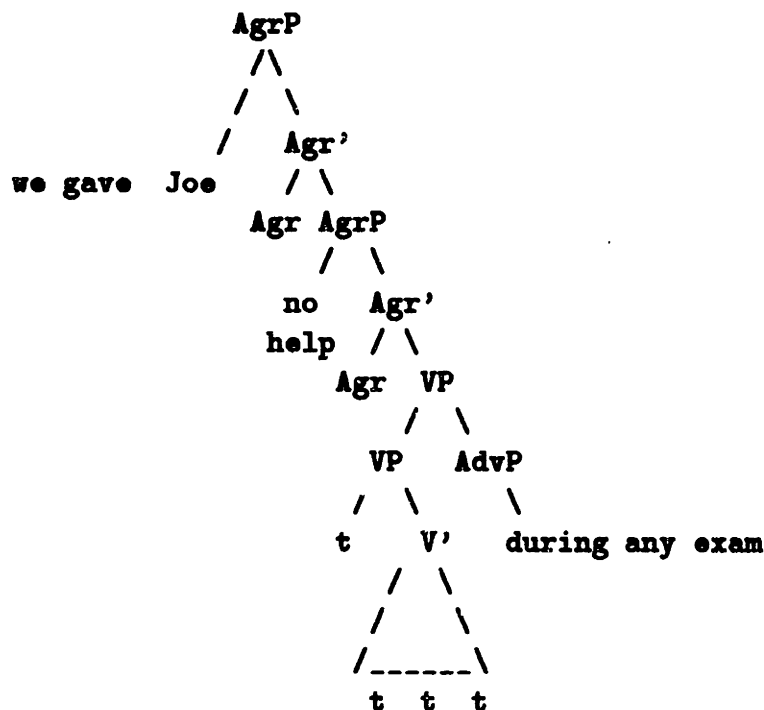
It remains to be shown that these two structures can be derived in a principled fashion.

Much of what is necessary follows automatically from what would seen to be the null hypothesis concerning the distribution of agreement phrases, i.e., that they may be freely generated in phrase structure, as long as their presence does not result in violations of general principles. In particular, AgrP must not violate Full Interpretation. As Agr makes no substantive contribution to meaning, Agr can only satisfy Full Interpretation by being deleted.

If Agr phrases can be freely generated, then nothing prevents the generation of two (2) such AgrPs immediately above VP. Two AgrPs means two SPEC-AgrP positions are available as potential landing sites for A-movement of NP. So the structure in (111) is possible with no further stipulations, in the form (113).

(113)

```
                              AgrP
                              /\
                             /  \
                            /   Agr'
          we gave  Joe       / \
                           Agr AgrP
                            / \
                          no    Agr'
                         help  / \
                             Agr  VP
                              /  \
                            VP    AdvP
                           /  \     \
                          t    V'    during any exam
                              /  \
                             /    \
                            /_____\
                            t  t  t
```

The higher object must be Case–checked in the usual manner; the verb *give* adjoins to (the highest) Agr and Agr matches the Case features of the verb with the Case features of its own specifier. Matters are complicated in this case by the presence of the intervening lower Agr. The verb cannot raise directly to the higher Agr without violating Relativized Minimality[9], so it must move *via* the lower Agr. Moreover, as the verb must be a sister to the higher Agr in order to be checked, the verb cannot be carried along by movement of the lower Agr—it must be real movement of the verb which takes it where it needs to go.

The required derivation is possible only in one way. First, the verb adjoins to the lower Agr. Then the lower Agr must be deleted, leaving only the verb in its place. Then the verb can raise to adjoin to the higher Agr.

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[9]In its Head Movement Constraint manifestation.

Chapter 4

Subject Extraction

4.1 Introduction

4.1.1 The problem

The idea that case is assigned to OBJECTS in the Spec-AgrP position faces a potentially serious problem if we consider certain relatively well established generalizations about A-bar movement. A substantial literature attests to the fact that overt A-bar extraction of NPs from subject position, or from inside an NP in subject position, is constrained in a way that extraction of OBJECTS is not (cf.Ross (1967), Chomsky (1973, 1981), Pesetsky (1982a), Koster (1987), Rizzi (1991), ? (?), to mention just a few.). But if both subjects and OBJECTS occupy a Spec-AgrP position at LF, extraction from each might be expected to be equally constrained. In particular, if universal grammar imposes a requirement that certain empty categories be 'properly governed' by a lexical head at LF (Chomsky, 1981; Kayne, 1984; Rizzi, 1991), then both subjects and OBJECTS should have the same status with respect to this principle. Any convincing analysis based on this principle might therefore be taken to contradict the object shift analysis. This chapter anticipates such an argument, which I consider a potentially strong one. I show that subjects and OBJECTS *do* in fact occupy positions of different types at LF, as well as at S-structure so that the different constraints on extraction can be explained in

structural terms. Unlike previous accounts, however, I claim that the difference between subjects and OBJECTS is that the former *do not* occupy a Spec-AgrP position at LF, while the latter do occupy such a position. Subjects occupy an A-bar position instead.

Sections 4.2 and 4.3 provide evidence that there is a phrasal category between CP and IP to which non-operator and operator subjects of finite clauses move.

4.2 Evidence for an A-bar position between IP and CP

4.2.1 Locative/quotative inversion

In order to avoid the confusion of speaking of 'subject positions', I will simply invent a new name for the position in which subjects appear in most finite clauses. I will refer to the category in which the 'subject' of a finite clause is the specifer in normal clauses as IIP, a neutral term with no other role in linguistic terminology[1]. This terminology has no *a priori* theoretical significance, i.e., it might be the case that IIP is identical to AgrP or TP, although I will argue that in fact it is distinct from both these categories.

Spec-IIP has the following properties in finite clauses. The position must be occupied at S-structure (the 'extension' of Chomsky's (1981) Extended Projection Principle). A-bar extraction from Spec-IIP is impossible with overt complementizers like *that* or *que*. *Long* A-bar extraction from this position—even when *that*-trace effects are not relevant—is 'surprisingly' sensitive to islands.

For the most part, Spec-IIP is filled at S-structure when the highest NP in VP moves there, either the Spec-VP 'logical subject' or the NP OBJECT of the verb in passive/unaccusative VPs. In sentences with impersonal or expletive subjects, the subject is inserted in a non-θ position—possibly Spec-IIP. In the locative inversion construction, however, the 'subject' position is occupied by a PP,

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[1]Thanks to David Pesetsky for this suggestion.

and the 'subject' NP remains in a lower position.

(114)   a. **Every Thursday at noon, into the saloon wander three drunken stevadores.**

        b. **In the distance was heard a plaintive howling.**

        c. **To Gillian was left the bulk of her aunt's estate.**

The same properties hold of Spec-IIP when it is occupied by PP as when it is occupied by NP. It must be filled at S-structure. A-bar extraction of the PP past an overt complementizer is impossible Bresnan (1977), as seen in (115). And surprising assymetries are found, as discussed below.

(115)   a.   *   **Into which bar did you say that sauntered the sheriff?**

        b.   **Into which bar did you say sauntered the sheriff?**

The simple existence of locative inversion sentences is enough to show that Spec-IIP is not the position in which nominative Case is checked, and that II is not the head which agrees with the nominative NP. In sentences of this type, as in other sentences, the tensed verb agrees with the 'subject' of the clause, and not with the preposed PP. Compare (114a) with (116).

(116)   * **Every Thursday at noon, into the saloon warders three drunken sailors.**

In (114a), the verb *wander* agrees with the subject *three drunken stevadores*. In (116), the verb does not, and the consequence is the ungrammaticality of the sentence.

What is more, the postverbal subject can be shown to be nominative. even though pronouns appear only marginally in this construction. The constraints in (117) are quite clear.

(117)   a.   **Into the bar strolled he.**

        b.   * **Into the bar strolled him.**

A similar argument can be constructed on the basis of 'quotative inversion' sentences.

(118)   a. "Where can I buy film?" ask tourists of us at least
        three times a day.

        b. Rosa lurched to the microphone. "Never let the city
        fall!" cried she with her last breath. Then she
        collapsed.

In both the locative inversion examples and the quotative inversion examples, the inflected verb agrees with the subject NP which follows it, indicating that the subject must occupy the Spec-IP position at some point in the derivation. The subject clearly does not occupy Spec-IP at S-structure as it follows the verb. The subject apparently remains in Spec-VP in these inversion structures, presumably because the Extended Projection Principle is satisfied by the inverted PP or the fronted quotation.

The structure of sentence (114a) must apparently be that shown in (119).

(119)   every Thursday at noon, [$_{IIP}$ into the saloon ... [$_{IP}$ ...wander
        [$_{VP}$ three drunken stevadores t t]]]

Given this structure, all that is necessary to ensure that the sentence converges at LF is for the VP-internal subject to raise to Spec-IP in the covert syntax. Then the verb will agree with the subject NP and the subject NP will have nominative Case features checked.

These inversion constructions differ from the 'verb raising' inversion constructions found in Germanic Verb-second clauses or French complex inversion. The latter alway involve movement of the inflected verb to C over the Spec-IP position. In the locative/quotative inversion cases, however, the subject follows even participial verbs which cannot raise to C, as in (114b,c). The *only* way to account for the word order in the English inversion is by allowing the verb to raise out of VP and the subject NP to remain behind (in overt syntax).

If the structure (119) is necessary in the inversion constructions, then the same structure must be present in simple non-inverted clauses in English as well, as the same properties hold of the Spec-IIP position in both cases. I conclude that the structure of a simple sentence like (120) must be (121).

(120)   John admires Mary.

(121)   [_IIP John ... [_IP t ... [_VP   t loves Mary]]]

In (121), the Extended Projection Principle is satisfied because there is a phrase
John in Spec-IIP. The Case and φ-features of the subject are checked not in
Spec-IIP, but in Spec-IP, on the trace of *John*.

4.2.2   Adverb placement in English

In a restrictive X-bar theory, adjunction is allowed only to minimal and maximal
projections of a head, i.e., to X^0 or to XP. As Kayne (1989b), observes such an
X-bar theory has immediate consequences for the analysis of simple English
sentences like (122).

(122)   a. Sarah undoubtedly has taken her dog for a walk.

        b. Kate certainly can walk well.

        c. Emma probably is ready to go to bed.

In English, adverbs can appear between the subject and an auxiliary verb.[2] This is
only possible if the auxiliary verb *need not* raise to the head of the phrase
dominating the subject. Yet English auxiliary verbs must raise to some extent, for
they precede negative *not* and *n't*.

(123)   a. Sarah undoubtedly has not taken her dog for a walk for
           several days.

        b. Sarah has undoubtedly not taken her dog for a walk for
           several days.

        c. Kate certainly can't go to school when it's this cold.

        d. (?) Kate can certainly not go to school when it's
           this cold.

        e. Emma probably isn't ready to go to bed yet.

        f. Emma is probably not ready to go to bed yet.

So there must be at least two phrasal categories above negation, as Kayne points
out. Then a sentence like (123a) is possible if the auxiliary *have* raises only to the

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[2]cf. Belletti (1990, p. 44 *ff*) for discussion of similar adverb placement facts in Italian; also
Barbosa (1992) for Portuguese

lower head above negation and the adverb *undoubtedly* adjoins to the maximal projection of the lower head.

Given the conclusions I draw from English locative/quotative inversion constructions, it is not surprising that the inflected verb does not raise to the head of the highest category in the clause. The verb need only raise to the head of IP in order for all its features to be checked. And the head of IP need not raise at all, as it checks its Case features on its specifier and its verbal features on the verb. By *Last Resort*, then it may not raise to the head of IIP.

4.2.3 Agreeing complementizers

As noted by Bennis and Haegeman (1984), in certain Dutch dialects, the complementizer agrees with the subject of the clause it heads. Examples (from Zwart (1991)) appear in (124).

(124)
    a. **dat-e wij speul-t** (East Netherlandic)
        that-1PL we play-1PL

    b. **dat-de gullie kom--t** (Brabants)
        that-2PL you come-2PL

    c. **dat-∅-j gie werk gao-t een** West Flemish)
        that-2SG-scl you work go-2SG have

Complementizer agreement differs from the other types of agreement I have discussed here in that it cannot be treated as a reflex of any obvious Spec-head relation. The subject is clearly not the specifier of the complementizer in overt syntax—word order alone is enough to show this. And there is reason to conclude that the subject cannot be the specifier at LF either. In these languages, the verb can move to Comp in main clauses, i.e., these are typical verb second languages. And in certain dialects, the raised verb then bears the inflection characteristic of complementizer agreement, rather than the inflection it would bear in another context. More examples from Zwart (1991) appear as (125).

(125)   a. **Wat speul-e/*speul-t wij?**
         what play-1PL we

         b. **Wanneer kom-de/*kom-t gullie**
         when come-2PL you

         c. **Morgen goa-∅-j/*goa-t-j gie werk een**
         tomorrow you are going to have a job

It is therefore clear that the verbal inflection in the (125) cases results from movement to C^0, and that complementizer agreement takes place even in verb second clauses.

But in the (125) cases, the C^0 element (the raised verb) does have a specifier in overt syntax. So subject cannot raise to SPEC–CP in covert syntax in these cases, and complementizer agreement cannot be a consequence of the SPEC-head relation in CP. Zwart (1991) argues that this agreement pattern can be derived if we assume that the Agr head of IP raises to Comp in these languages. As the subject of the clause occupies the SPEC–IP position, it agrees with Agr. If Agr then raises to C^0, the complementizer can then agree with the subject in exactly the same fashion as an agreeing inflected verb does. Under this analysis, (124a) will have the structure (126)).

(126) $[_{CP}\ [_{C^0}[_{C^0}\text{dat}]\ [_{Agr}\ \bullet]]\ [_{IP}\ \text{wij}\ t_{Agr}\ \text{speul-t}\ ]]$

Complementizer agreement with the subject is obligatory in the languages in which it takes place. Zwart takes this as evidence that Agr must adjoin to a head with phonological content in the overt syntax. But if this is the case, he notes, then there is an explanation for verb movement in subject-initial verb-second root clauses which does not require that the verb move to C^0. The verb may be forced to move to Agr in order to support it, as the complementizer, if there is one in root clauses, has no phonological content. Zwart provides evidence that the verb does not move to C^0 in subject-initial clauses. In subject-initial root clauses, the agreement inflection on the finite verb differs from the inflection seen on the verb when some other XP phrase is clause-initial. In the former case, the inflection on the verb is the same as the inflection on a finite verb in an embedded clause. The verbs in (127) bear this type of inflection.

(127) a. ...· dat jij naar huis gaat/*ga
       that you to house go

    b. Jij gaat/*ga naar huis.
       You go to house.

In contrast, when some other phrase is clause-initial, the verb in second position bears the inflection borne by the complementizer in embedded clauses, as seen in (124)–(125). This can be attributed under Zwart's account to the fact that the verb moves to C^0 in the latter case, and is inflected like the complementizer only when it does so.

Zwart offers additional evidence from clitic placement facts, as well, which I leave to the reader to examine. I will assume that Zwart's account as I have presented it is correct and turn to some consequences of this analysis.
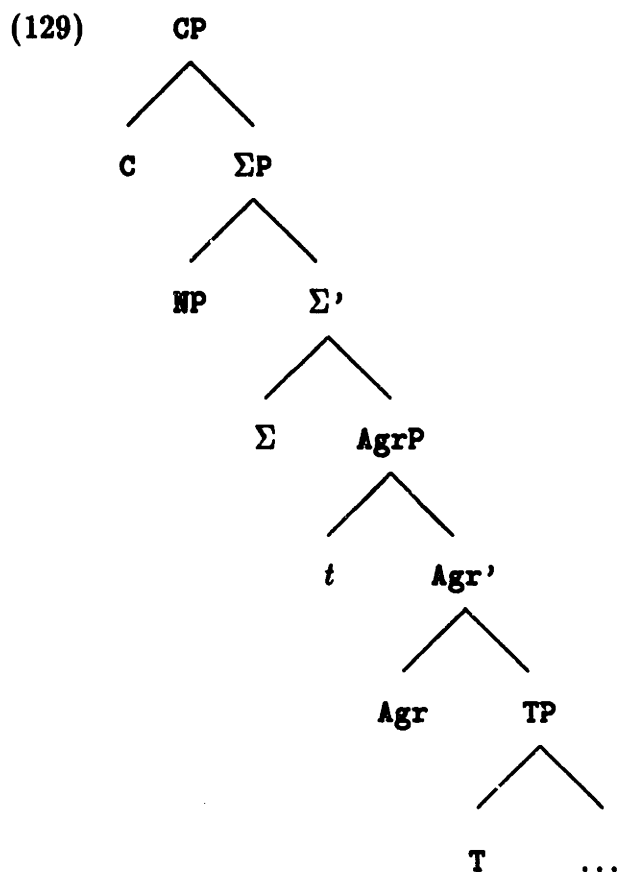
In explaining how the complementizer agrees with the subject, Zwart raises a new question: how now does the *inflected verb* agree with the subject in non-verb-second clauses? In order to satisfy *Last Resort*, movement of Agr to C must be necessary in order for Agr to enter into some checking relation. The features found on the complementizer are φ-features , so the only plausible checking relation here involves φ-feature checking. But then there is no way to force the verb *speult* to raise to Agr (even if such movement does not violate any locality principles). As a rule, functional heads license inflectional morphology on only one substantive head. If Agr has already discharged its φ-features , it should be unable to check the φ-features on the verb.

We can solve this problem readily by positing more structure for a clause like (124a) than Zwart assumes. In place of the structure (126), I propose the structure: (128).

(128) [$_{CP}$ [$_{C0}$[$_{C0}$date] Π] [wij$_i$ t$_\Pi$ [$_{IP}$ t$_i$ Agr ... [$_{VP}$ t$_i$ speul-t]]]]

In (128), the subject raises from SPEC–VP *through* the intermediate SPEC-AgrP to Spec-ΠP. Both Π and Agr are in the configuration in which agreement with NP takes place. Both Π and Agr are therefore able to check the φ-features on their specifier with the φ-features on another head. Π does so by

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raising to C; Agr does so when the verb *speult* adjoins to it. We maintain a one-to-one correspondence categories which are checked and categories which do the checking.

(129)

```
            CP
           /  \
          C    ΣP
              /  \
            NP    Σ'
                 /  \
                Σ    AgrP
                    /  \
                   t    Agr'
                       /  \
                     Agr   TP
                          /  \
                         T   ...
```

Polarity item licensing by *only* NPs

Further evidence that a subject can occupy an A-bar position below CP comes from certain facts about polarity licensing *only* NPs. Progovac (1992) observes that *only* phrases originating in complement or adjunct positions can license polarity items only if they move to Spec-CP.[3]

(130) a. Only his girlfried does John give any
           flowers.
       b. *? John gives only his girlfried any
           flowers.

---

[3]It should be noted that individuals differ on the force of the judgments reported in (130). For some speakers, (130b) appears to be fully acceptable. My own judgments accord with those Progovac reports.

Whatever checking relation legitimates movement of an *only* phrase to Spec-CP appears to strengthen the polarity licensing qualities of the phrase.

The exception to this generalization is an *only* NP in *subject* position.

(131) *Only Mary showed any respect for the visitors.*

Following Chomsky's vacuous movement analysis, Progovac suggests that subjects are only exceptional in this respect in the surface syntax, and that at LF an *only* NP in subject position can license a polarity item if it moves to Spec-CP. There is evidence, however, which shows that such a subject must not occupy Spec-CP at any level of representation. Progovac credits an anonymous LI reviewer with pointing out that wh-movement can target the Spec-CP of a clause in which negative inversion has also taken place, as in (132).

(132) **He is the man to whom under no circumstances would I give flowers** *t* (from Progovac (1992, p. 345))

If the Spec-CP position is filled by some other phrase, as it is in (132a) then it cannot be filled at LF by the subject. So the 'strength' of the subject NP with respect to the polarity item it licenses must be explained in some other manner.

If the subject occupies Spec-IIP, then it *does* occupy an A-bar position, like the inverted phrase *only his girlfriend* in (130a). Then the same 'strengthening' process may take place, enabling the subject to license a polarity phrase without movement to Spec-CP at any point in the derivation.

4.3 Evidence that *operator* subjects remain in Spec-IIP

4.3.1 'Vacuous movement' effects

The first argument for a different landing site for subject operators comes from consideration of constructions in which the prohibition against 'string vacuous' movement of subject has been said to be necessary (George, 1980; ?). First I show

that the idea that there is a different landing site for subjects allows a simple account of the properties of these constructions. Then I show that the 'vacuous movement' account is inferior.

The issue

Chung and McCloskey's (1983) observed that relative clauses and questions formed by subject extraction are weaker islands than relative clauses or questions formed by extraction of any other type of NP. Examples (from Chung and McCloskey (1983)) appear in (133)

(133)
  a. That's one trick that I've known a lot of people who've been taken in by t.

  b. Isn't that the song that Paul and Stevie were the only ones who wanted to record t?

  c. What kinds of gifts are there rules about who can give t to whom?

Such sentences compare favorably with sentences in which the operator comes from somewhere else, as seen in (134)

(134)
  a. ?? That's one trick that I've known a lot of people who John has suckered t with t.

  b. ?? Isn't that the song writer that ballads were the only things that Paul would write t for t?

  c. ?? What kinds of gifts are there rules about who we can give t t?

  Similar contrasts appear with parasitic gaps located inside relative clauses.

(135)
  a. ? Which car does [everyone who t chats with you about t] revile t?

  b. *? Which car does [everyone who you chat with t about t] revile t?

  c. ? That was the fellow who [$_{NP}$ every horse that t was seen to carry t] kicked t.

  d. *? That was the fellow who [$_{NP}$ every horse that we saw t carry t] kicked t.

In indirect questions in complement position, the contrast is not readily apparent, although Chomsky (1986) finds some slight effect even here.

The ungrammaticality of the phrases is unsurprising. Extraction of the wh-phrase which ends up highest violates both *Relativized Minimality* and the bounding theory. The odd fact is that the (133) sentences are better than the (134) sentences, and the (135a,c) sentences are better than the (135b,d) sentences. If all relative pronouns in such sentences are moved to Spec–CP (in overt syntax), then extraction of the other operators from the relative clauses should violate *Relativized Minimality* (any version).

Suppose, however, that the (subject) relative pronouns in (133) are specifiers of a category immediately below CP. Then (a first approximation of) the structure of (133a) is (136).

(136) ... one trick [CP 0 that [IP I've known [NP a lot of people
       [CP [ΣP who ... [IP t 've been taken in by t]]]]]]

Wh-movement must be licensed under Last Resort by the need to check morphological features of the operator. Typically, it is the complementizer which checks such features on its specifier. In (136), however, the operator *who* in Spec-IIP cannot be checked directly by the complementizer. It can be checked *indirectly*, though, if the II head of IIP raises to C^0. If II raises, then it can *mediate* the checking relation between C^0 and the operator *who*, just as II mediates the φ-feature checking in West Flemish, and just as Agr mediates the Case checking relation between its specifier and the Tense or verb adjoined to it. So Last Resort and the checking theory require that the structure be modified to: (137)

(137) ... one trick [CP 0 that [IP I've known [NP a lot of people
       [CP Σ--C [ΣP who t [IP t 've been taken in by t]]]]]]

,   Now recall the way the notion of *Relativized Minimality* is implemented in this model. In order to accomodate both VP-internal subjects and the possibility of A-movement of an NP to Spec-AgrP, it is necessary to adopt the definition of a 'closer' position as given in (21), repeated here as (138)

(138) A constituent α is 'closer' to a trace τ than a phrase β
       is if there is an X^0 chain γ such that the domain of γ
       includes α and τ but does not include β.

In (137), the domain of II includes both Spec-IIP and Spec-CP, as II has adjoined to C^0. By definition (138), the Spec-IIP position is no closer to anything contained in IP than the Spec-CP position is, so A-bar movement to Spec-CP does not violate *Relativized Minimality*. That being the case, Spec-CP may serves as an escape hatch for the null operator extracted from the relative clause. Long extraction in (137) does not then violate *Relativized Minimality*. It still violates the bounding theory, however, because the relative clause CP is not L-marked, so it is a barrier. The contrast between the (133) sentences and the (134) sentences now reduces to a difference in the number of principles violated. The former violate only the bounding theory; the latter violate both the bounding theory and *Relativized Minimality*.

What about A-bar extraction from indirect questions? Take the sentence (139), for example.

(139)　　? What did they ask who had bought *t*?

Sentence (139) has the status of a subjacency violation.

4.3.2　ATB extraction

The analysis captures as well some facts noted by Williams (1978), who notes that subjects cannot be extracted 'across the board' in parallel with non–subjects. Examples appear in (140).

(140)　a.　　I wonder who *t* likes Jan and *t* impresses Sue.
　　　　b.　　I wonder who Jan likes *t* and Sue counts on *t*.
　　　　c. * I wonder who Jan likes *t* and *t* impresses Sue.
　　　　d. * I wonder who *t* likes Jan and Sue impresses *t*.

Only local extraction of subjects is constrained in this manner. When subjects are extracted from an embedded clause, they may be extracted in parallel with a non–subject.

(141) a. I wonder who Jan likes *t* and Sue believes/wants *t* to
be dependable.

b. ? I wonder who Jan likes *t* and Sue thinks *t* is
dependable.

c. I wonder who Sue thinks *t* is dependable and Jan   ikes
t.

If operators which (locally) bind subject variables are located in
Spec–AgrP^{TOP} rather than in Spec–CP, then the data of (140) is expected, as the
operator *who* would have to be in two places at once—in Spec–CP to bind the
traces in complement position, and in Spec–AgrP^{TOP} to bind the subject traces.
The acceptability of the sentences in (141) is expected as well, as the wh–phrase
which binds a subject in a lower clause cannot be in Spec–AgrP^{TOP}.

4.3.3   Relative pronoun deletion and the 'anti–*that*–trace' effect

Additional evidence for the idea that subject operators occupy a position different
from Spec–CP is found by considering the distribution of complementizers in
English restrictive relative clauses. Both null and overt complementizers are
possible in restrictive relative clauses, but their distribution is limited by the type of
operator which moves to 'COMP'. In this section, I show that the distribution of
null complementizers in relative clauses can be explained simply if subject operators
have a different landing site from non–subject operators. In particular, the so–called
'anti–*that*–trace' effect can be derived if this hypothesis is correct. The relevant
paradigm appears in (142).

(142) a. * the fellow [CP who that called]

b.   the fellow [CP who called]

c.   the fellow [CP that called]

d. * the fellow [CP called]

e. * the fellow [CP who that we called]

f.   the fellow [CP who we called]

g.   the fellow [CP that we called]

h.   the fellow [CP we called]

i. * the fellow [CP with whom that we spoke]

j.   the fellow [CP with whom we spoke]

k. * the fellow [CP (with) that we spoke]

l. * the fellow [CP (with) we spoke]

The bulk of the paradigm (142) follows from the assumptions I began with. I assume that English relative clauses always require wh–movement of some constituent containing a relative pronoun. English has both [+wh] and [–wh] relative pronouns. In (142a), (142e) and (142i), a clause–initial wh–phrase cooccurs with an overt complementizer. As overt complementizers are [–wh], the complementizer cannot properly check the features of the wh–phrase, and both the complementizer *that* and the wh–phrase are illegitimate objects at LF. In contrast, in (142b), (142f) and (142j), the null complementizer is [+wh], so it successfully checks the wh–features of the wh–phrase, and both complementizer and wh–phrase are well–formed at LF. Similarly, the (142c) and (142g) examples are grammatical because the overt [–wh] complementizer is able to check the [–wh] features of the null operator. Again, both complementizer and wh–phrase are therefore legitimate objects at LF. As for the (142k,l) examples, I will simply exclude them, as usual, by stipulating that pied-piping is impossible with null operators.

We can remove these simple cases from consideration, therefore, as their grammatical status already has an explanation. This leaves the cases in (143).

(143) a. * the fellow [CP *t* called]

b.   the fellow [CP we called *t*]

Example (143b) is the unexpected case under our assumptions. Apart from this

construction, English null finite complementizers appear only in two environments: in complement clauses, where the verb which selects the clause may incorporate its C^0 head (cf. section 1.3.3 for discussion), and in clauses where wh–movement places a non–null constituent in 'COMP'. The former results when the complementizer is incorporated into a higher verb (Pesetsky (1991). The latter follows from the checking theory. The ungrammaticality of (143a) is expected, as there is no reason for the complementizer to be absent. The absence of a complementizer in example (143) has no explanation.

Following ? (?), I shall assume that there is a deletion rule active in the derivation of (143b). This rule simply deletes bare wh-phrases in Spec-CP, subject to Recoverability. Recoverability is satisfied only when the wh-phrase in question occupies Spec-CP of a restrictive relative clause, so the effects of the deletion rule can be seen only there.

Subject wh–phrases immune to deletion rule because they aren't in Spec–CP. Only empty [–wh] operators are 'null' therefore if they come from subject position. So the complementizer must be the overt [−wh] complementizer to license null subject relative pronouns.

4.3.4 West Flemish resumptive *die*

Bennis and Haegeman (1984) discuss a construction in West Flemish which provides further support for the idea that subject 'operators' are in a position other than Spec–CP. They observe that when relative clauses are formed by subject extraction, the relative pronoun *die* may optionally surface, while if objects are extracted, the relative pronoun is obligatorily deleted (or null). Examples appear in (144).

(144)   a.   den vent da *t* gekommen is
        the man that come is

        b.   den vent die *t* gekommen is
        the man who come is

        c.   den vent da Pol *t* getrokken heet
        the man that Pol painted has

        d. * den vent die Pol *t* getrokken heet the   man   who   Pol
        painted has

If the landing sites of subject and object relative pronouns are different, then this generalization is easy to express. Relative pronouns in Spec–CP are obligatorily null in West Flemish, while relative pronouns in Spec–AT are not. Null relative pronouns in Spec–IIP are evidently licensed in Spec–AgrP as well, as must be the case in (144a).

Bennis and Haegeman note as well that *die* may show up in an complement clause embedded inside a relative clause if the subject is extracted, but not if the object is extracted. Examples are in (145).

(145)   a.   den vent da Pol peinst die *t* gekommen is]]]
        the man that Pol thinks who come is

        b. * den vent da Pol peinst die Marie *t* getrokken heet
        the man that Pol thinks who Marie painted has

This too makes some sense if the landing site of subject operators is not Spec–CP, but Spec–IIP. Then (145a) can have the structure (??). It is derived from the (146b) structure.[4]

(146)   a. den vent [CP   OP da Pol peinst [CP   *t* C⁰ [AgrP die Agr
        [IP *t* gekommen is]]]]

        b. den vent [CP   da Pol peinst [CP   OP C⁰ [AgrP Agr [IP die
        gekommen is]]]]

In the derived structure (146a), the relative pronoun in Spec–IIP is locally bound by the trace of the operator in the upper Spec–CP. Although the relevant example is missing from Bennis and Haegeman's discussion, their own analysis requires that examples like (147) be ungrammatical.

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[4]cf. ? (?) for a similar analysis of clitic dislocated constructions in Modern Greek.

(147)   a. den vent da Pol peinst da die gekommen is

         b. den vent da Pol peinst die da gekommen is

My analysis predicts the unacceptability of (147b) directly. The word order is simply wrong, as *die* occupies a position in the complement of the complementizer. Example (147a) must be ruled out in a more interesting manner, as the word order is seemingly possible, and as no 'doubly-filled Comp filter' is violated here.

The unacceptability of (147a) follows from checking theory. Movement of a wh–phrase or other monotone decreasing phrase to Spec–CP must be driven by the need for some feature to be checked in this position in the overt syntax. For some reason, the feature checked on an overt operator in Spec–CP can normally be checked only by a complementizer with no phonological content. (This supposition is no more and no less stipulative than other accounts of the 'doubly-filled Comp' effect.) Like other operators, the relative pronoun *die* in (145a) must have the appropriate feature checked somehow. In Spec–IIP, this can take place only if Agr raises to C^0. If Agr raises, then it can mediate the checking relation, just as Agr–to–Comp movement mediates Case checking in the constructions examined in chapter ??. Example (147a) will then be ungrammatical for the same reason that 'doubly-filled Comps' are ungrammatical in general—because the complementizer is not the proper type to check the operator features.

Note that the same machinery will allow the Spec–CP operator to escape Spec–CP, even though the complementizer may have operator checking features. As the null complementizer in the embedded clause may discharge its features by checking the *die* relative pronoun in Spec–IIP, it will have no features left to check its own specifier.[5] By positing the structure (146a) for the (145a) sentence I predict that relative clauses of this type should be sensitive to the usual island constraints for wh–movement, as the operator which originates in Spec–CP must undergo normal wh–movement. As yet I have no data to test this prediction.

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[5]Moreover, if we assume that derivations are subject to strict cyclicity and that checking takes place as soon as the necessary configuration for checking is established, the features of *die* will be checked before anything is ever introduced into Spec–CP.

4.3.5 Qui

The problem

When subjects are extracted from finite clauses in French, the normal
complementizer *que* disappears, and a morpheme *qui* appears in its place. Kayne
(1972) argued that the *qui* which appears in such circumstances is also a
complementizer. Much subsequent work has aimed at explaining the restricted
distribution of the *qui* complementizer. Typically, its distribution has been said to
follow from the ECP. The claim is that traces in Spec-IP of a finite clause will not
be properly governed unless the complementizer can do so, and only
complementizers with this special form are proper governors (?, ?; Rizzi, 1990). So
qui must appear whenever the subject is extracted from a finite clause. But this
idea, even to the extent that it has been made to work, provides only half an
answer. It might be possible to develop an account like this for the fact that the
signature complementizers must appear when the subject is extracted. But the
ECP—a constraint on empty categories—says nothing about the equally salient
generalization that *qui cannot* appear *unless* the subject is extracted (?).

Suppose instead that the *qui* associated with subject extraction is not a
complementizer, but rather the [+wh] operator the traditional grammarians took it
to be (?, ?; unknown,). Under the hypothesis that subjects have a different A-bar
landing site than other operators, the distribution of *qui* can probably be
characterized quite readily, along similar lines to the West Flemish *die*. Then we
would not need to torture the ECP to ensure that *qui* does not stray from its place.

Let us therefore take a second look at the evidence that *qui* is a
complementizer. Kayne offers four arguments, which I examine in turn. I will show
that the evidence supports the idea that the *qui* associated with subjects occupies a
position below CP, and cannot be a complementizer.

The first argument involves restrictive relative clauses. Kayne observes that
object wh-phrases can never appear in 'Comp' in restrictive relatives in French if

they are NPs, while PP wh-phrases may do so.[6] Examples are given in (148).

(148) a. * le policier qui nous avons rencontré

      b. le policier que nous avons rencontré

      c. le policier avec qui nous avons parlé

      d. * le policier le fils de qui nous avons
         rencontré

      e. * l'article quoi Luc a écrit

      f. l'article que Luc a écrit

      g. l'article avec quoi Luc nous a tant
         impressionés

      h. * le livre la préface de quoi Luc a écrite

In (148a) and (148e), the wh-phrase in Spec-CP are the NPs *qui* and *quoi* and the phrases are ungrammatical; the same relative pronouns may appear in Spec-CP if they are contained inside a PP, as in (148c) and (148g). But if even the phrase which *contains* the relative pronoun is an NP, as in (148d) and (148h), the phrase is once again ungrammatical.

Kayne observes that the appropriate descriptive generalization is that (overt) bare NPs cannot occupy Spec-CP in restrictive relatives. This generalization extends to relative clauses with gaps in subject position as well, as the unacceptability of the (149) examples demonstrates.

(149) a. * le policier le fils de qui est mon voisin

      b. * l'article quoi nous a tant impressionnés

      c. * le livre l'auteur de quoi est venu nous
         visiter

But *qui can* (and in fact must) appear without a PP to shield it, as in (150).

(150) le policier qui est mon voisin

Kayne concludes that the *qui* appearing in (150) cannot be an NP. To assume otherwise would require us to explain the ungrammaticality of the (149) with some

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[6]cf. also Cinque (1982) for discussion. (Levin, 1983) discusses a similar restriction found in English infinitival relative clauses.

other mechanism, when they could be covered by the constraint which bars object NPs from Spec-CP in restrictive relatives. It is, of course, better to explain as many things with as few stipulations as possible. As *qui* cannot be an NP, and as *qui* seems to occupy some position in 'COMP', it must be the complementizer.

This argument is a very strong one if the landing site of subjects and object operators is the same position. It is less compelling, though, if subject operators do not move to Spec-CP, as I claim. In that case, the grammaticality of (150) does not contradict the idea that overt NPs cannot appear in Spec-CP. *Qui* is in Spec-IIP in (150), not in Spec-CP, so its categorial status is of no consequence.

As for the (149) examples, it turns out that their ungrammaticality can be explained without submitting them to whatever principle blocks overt NPs from Spec-CP in restrictive relative clauses. The way to do this is by excluding everthing other than *qui* from Spec-IIP. First, note that there is no contrast between NPs and PPs when we are concerned with wh-phrases which are subjects—only NPs are subjects. (As there is no locative inversion in French, only NPs ever reach Spec-IIP.) The targets therefore fall into two classes: the inanimate relative pronoun *quoi*, and NPs which are 'pied-piped' into Spec-IIP because they contain a relative pronoun.

It is well known that the inanimate relative pronoun *quoi* cannot appear in subject position in any case (?; Koopman, 198x; unknown,). Thus (151a), with *quoi* in subject position, contrast with (151b,c), in which *in situ* the subject wh-phrase is something else.

(151)   a.   * Qui a dit que quoi a surpris qui?

          b.   Qui a dit que qui a surpris qui?

          c.   Qui a dit que quel bruit a surpris qui?

As the subject position is always Spec-IIP, whether or not the subject is to be checked by a [+wh] complementizer, the ungrammaticality of *quoi* is (149b) can be ascribed to the more general constraint on *quoi* seen in (151a). (I have nothing to contribute on this question.)

What remains of the (149) cases are relative clauses formed by pied-piping a larger NP which contains a relative pronoun. My claim here is that the principle of

Global Economy is violated by such movement, as there is a more economical derivation available by other means. Pied-piping entails reconstruction, which always involves an extra operation, either Chomsky's interpretive rule or movement of something downwards and/or upwards. If the relative pronoun *dont* is used, though, then no reconstruction operations are necessary, so the derivation is cheaper.

(152)   a. le policier [$_{CP}$ dont [$_{\Pi P}$[$_{NP}$ le fils e] est mon voisin]]

   b. le livre [$_{CP}$ dont [$_{\Pi P}$[$_{NP}$ l'auteur e] est venu nous visiter]]

Dont is always a possibility with subjects, since an empty category is licensed inside NP in Spec-ΠP; *dont* binds the empty category left by clitic pronouns in other constructions (Elliott 86).

The second of Kayne's arguments concerns the *animacy* of *qui*. The interrogative pronoun *qui* can only refer to animate objects, and the relative pronoun *qui* has the same property when it is contained in a PP in Spec-CP. *Quoi* is the inamimate relative pronoun opposed to *qui*. The *qui* which appears when the subject is extracted is not limited to animate subjects, in contrast. It must therefore be a different word, Kayne concludes.

The conclusion is unwarranted. Neutralization of contrasts like *animacy* is a common linguistic phenomenon, and it takes place elsewhere in the French pronominal system.[7] As the inanimate relative pronoun *quoi* cannot be used in Spec-ΠP, it is quite natural that the animate *qui* should acquire the ability to refer to inanimate referents as well.

Kayne's third argument comes from Quebec French dialects in which the 'doubly filled Comp' effects appear to be absent. The relevant data appears in (153).

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[7]cf. (Bonet, 1991) for examination of neutralization in Romance clitic morphology.

(153)   a.   **Ils m'ont demandé qui que Marc a cross-checké *t*?**

        b.   * **Ils m'ont demandé qui qui Marc a cross-checké *t*?**

        c.   **Ils m'ont demandé qui qui a cross-checké Messier?**

        d.   * **Ils m'ont demandé qui qu'a cross-checké Messier?** (with *Messier* construed as the object, not the stylistically inverted subject)

Kayne notes that the second *qui* in (153c) can't be a wh-phrase in Comp, and concludes that it must be the complementizer. But Lefebvre (1988) notes that in this dialect, the two *qui*s can be interrupted with a left-dislocated NP and a single *qui* can't be immediately followed by such an NP.

(154)   a.   **Qui Marie qui lui a parlé de cette problème?**

        b.   * **Qui Marie lui a parlé de cette problème?**

In fact, Lefebvre's observation gives us an argument that *qui* must occupy a position *below* the complementizer. In general, in embedded clauses, left-dislocated phrases in French are located in a position between the complementizer and the subject (Hirschbuhler, 1975). Examples (from Hirschbuhler) appear in (155).

(155)   a. **Je pense qu'un espion, on peut le reconnaitre rien qu'à son chapeau.**

        b. **Je peux prouver que la chasse à l'étudiant, la police a toujours considéré cette activité comme un sport très agréable.**

        c. **J'sais bien que ma soeur, Jean s'est toujours disputé avec cette idiote.**

What is more, when the embedded clause is a relative clause or question with an overt wh-phrase in Spec-CP, a left-dislocated phrase must *follow* the wh-phrase, as shown in (156).

(156)   a. **Le jour où votre pétrole, on en aura plus besoin, tout sentira bien meilleur.**

        b. **Je me demande bien pourquoi Pierre aussi il fallait que tu l'embrasses.**

(157) a. * **Le garçon qui, des pommes, en a volé**
              beaucoup vient de se faire arrêter.

       b. * **Les pommes que Pierre, Marie lui a**
              données étaient vertes.

I conclude that the two *quis* must occupy different projections. The second *qui* can be a specifier of ΠP; adverb placement shows that the second *qui* in fact occupies the position of other subjects, and not a higher position, even when there is only one *qui*

The arguments that *qui* is a complementizer are not persuasive, I find, and we can therefore entertain the hypothesis that subject *qui* is in fact a wh-phrase which occupies Spec-ΠP, like other subject wh-phrases. Certain advantages are immediately evident. The problem of restricting the distribution of *qui* to those contexts in which subject extraction takes place evaporates. As *qui is* the subject, it naturally cannot appear when there is another subject in place in the same clause. (The *qui* which appears when long-extraction of the subject takes place will be dealt with shortly.) Nor is the case of *in situ* subject wh-phrases a problem, as there is still no position that *qui* might occupy.

As for the complementary distribution of the complementizer *que* and *qui*, the machinery is already in place which ensures this. As *qui* is a wh-phrase, its [wh] features must be checked in overt syntax, which can only be done if Σ raises to a [+wh] complementizer. The [+wh] complementizer is null. If the complementizer *que* were chosen to accompany *qui*, the derivation could never converge, unless, of course, *qui* were to merge with a higher wh-phrase at LF in a multiple question.

4.3.6   A Consequence: Comp-to-Comp movement

There is an interesting consequence of this approach to 'vacuous movement' effects. If subjects of finite clauses are *always* in Spec-ΠP, as I am arguing, and if A-bar movement of some phrase *past* Spec-ΠP satisfies *Relativized Minimality* only if it passes through Spec-CP, A-bar movement must always be 'cyclic', or at least it must always be cyclic in languages in which Spec-ΠP must be filled in overt syntax. As subjects of finite clauses are always A-bar elements, non-cyclic extraction of

something else would violate *Relativized Minimality* by moving a wh-phrase *too far* past a potential landing site. The consequence is that wh-movement of island sensitive material, i.e., subjects and adjuncts, must always be cyclic (at least in languages in which Spec-IIP must be filled in overt syntax). Any step which skips a Spec-CP will violate *Relativized Minimality* and produce a *.

4.4 Spec-ΠP and 'surprising assymetries'

4.4.1 Consequences of the preceding sections

The evidence of the sections 4.2 and 4.3 shows that subject of finite clauses move to the same position in overt syntax: the specifier of a category located between CP and IP. It was assumed that this position is an A-bar position for two reasons. It is the position occupied by wh-subjects, and it is the position occupied by locative PPs in the 'locative inversion' sentences. But such considerations show only that the Spec-ΠP position must *sometimes* be an A-bar position. It is entirely conceivable that Spec-ΠP might have a split personality, acting sometimes like an A-position and other times like an A-bar position. Similar suggestions have been made periodically in the literature about Spec-IP (Bonet, 1990; ?, ?).

If that were to turn out to be the case, the argument that Spec-ΠP is a position distinct from Spec-IP would be weakened substantially. It might then be argued that the properties I have associated with Spec-ΠP, i.e., *only* strengthening, wh-feature checking of subjects, the Projection Principle Extension, etc., are properties of Spec-AgrP when this position is construed as an A-bar position. 'Normal' subjects would then continue to occupy an A position.

What is needed to show that this alternative line of analysis is wrong is evidence that the position of clausal subjects is *always* an A-bar position. In this section, I show that that 'surprising subject/object assymetries' are a direct consequence of the A-bar status of Spec-ΠP.

4.4.2 Surprising Assymetries in Finite Clauses

Pesetsky (1982b), ? (?), Koopman and Sportiche (1984), Browning (1987), ? (?) and others have shown that long A-bar extraction of subjects is generally more sensitive to the presence of intervening islands than is long extraction of objects and other complements. Extraction of objects from within islands results in mild ungrammaticality. Extraction of subjects from the same contexts gives results

ranging from slightly worse than object extraction to strongly ungrammatical. This subject-complement assymetry is difficult to explain in a theory in which subjects and complements both occupy similar positions, especially if the only mechanism available to characterize trace illegitimacy is the ECP. I will show that the contrasts, and to a large extent the gradations of ungrammaticality in subject extraction, are a natural consequence of the fact that subjects occupy an A-bar position at S-structure.

A quick sketch of the relevant data follows. Extraction of subjects of finite clauses from a wh-island results in fairly strong ungrammaticality. Extraction of objects or complement PPs results in weaker violations.

(158)　　a.　*?　Who do those guys know why Peter thinks t would be a good choice for the job?

　　　　b.　?　What job do those guys know why Peter thinks Sue would be a good choice for t ?

　　　　c.　?　For what job do those guys know why Peter thinks Sue would be a good choice t ?

Subject extraction from a finite clause contained within an adjunct or a relative clause is also worse than object extraction (Pesetsky, 1982b).

(159)　　a.　*?　Who did you visit Naomi without knowing t had sold her house to Kate?

　　　　b.　?　What house did you visit Naomi without knowing Sheila had sold t to Kate?

　　　　c.　??　To whom did you visit Naomi without knowing Sheila had sold her house t ?

(160)　　a.　?　Who did they hear the rumor that Tony thought Louise had married?

　　　　b.　*　Who did they hear the rumor that Tony thought had married Louise?

Traces in object position can be licensed as parasitic gaps and as free variables in *tough*-constructions. The subject of a finite clause cannot (Chomsky, 1973; ?; Browning, 1987).

(161) a. Which book did you insist that Tony read t without Helen thinking (that) he would understand t ?

b. * Which book did you insist that Tony read t without Helen thinking t would enlighten him?

c. ? Which controversy did the man who said Jean initiated t suffer from t?

d. * Which controversy did the man who said t interested Jean suffer from t?

(162) a. ? Josephine is tough for anyone to believe Henry was fond of t.

b. ?* Josephine is tough for anyone to believe t was fond of Henry.

In general, at least in langauges like English, in which the subject must fill the Spec-IIP position at some point in the derivation, long wh-movement of the subject results in three linked chains. The lowest chain is a uniform A-chain, with all the properties of A-chains. The middle chain is a two-membered 'operator-variable' chain, with its head in A-bar position and its tail in A-position.[8] The highest chain is a uniform A-bar chain.

(163) a. $(\alpha_1, \ldots, t_i)$

b. (t_i, t_j)

c. $(t_j, \ldots, t_n)$

The uppermost (A–bar) chain is not exactly comparable to chains formed by extraction of adjuncts. When an adjunct is extracted, the tail of the chain is 'broadly L–related', because it is dominated by a segment of a lexical projection. The tail of the uppermost chain in a structure like (??) is neither 'narrowly' nor 'broadly' L–related—it is excluded from the system of lexical projections altogether.

In contrast, long wh-extraction of an object or other complement results in a very different set of chains being formed. The tail of the A-bar chain always remains in an A-position. (Nothing is affected in this respect by the possibility that a trace may be left in Spec-AgrP by object extraction.) The resulting set of chains is ??.

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[8]This means that the trace in the middle chain must also be an operator.

(164)
    a. $(\alpha_1, \ldots, t_i)$

    b. $(t_j, \ldots, t_n)$

The A-bar chain (164a) is non-uniform, as its tail occupies an A-position. The other chain (164b) is a uniform A-chain—possibly a singleton chain.

The *Uniformity Condition* affects the (??a) chain and the (164b) differently. The intermediate traces in the latter may and must be deleted; the intermediate traces in the former are inviolate. The immediate consequence is that long-extraction of subjects should be sensitive to the presence of islands in a way that long-extraction of complements is not. Extraction out of an island violates either *Relativized Minimality* or the bounding theory. The result is an illegitimate trace somewhere in the chain. If this trace can be deleted, the phrase is only mildly degraded. If it cannot, the phrase is more strongly degraded. If there is an illegitimate trace contained in a chain (??a), then the result must be a strong violation.

As we expect, by now, similar 'surprising' effects are found in clauses in which locative inversion has taken place. CED effects are found with such clauses, as in (165).

(165)
    a. ? Which sheriff did you say that the bandits left town without John saying into the bar might stroll a cousin of t?

    b. *? Into which bar did you say that the bandits left town without John saying t might stroll a cousin of the sheriff?

Relatively strong effects are found in extraction of an inverted locative from a wh-island, too.

(166)
    a. ? Which film star does Oscar know why they say in this bed had slept a cousin of t ?

    b. ?? In which bed does Oscar know why they say had slept a cousin of Mae West?

And assymetries are found when we construct parasitic gap examples based on inverted locatives, although the judgments here become rather delicate.

(167)   a. ?? the privateer whose treasure anyone who
says on that island is buried a cache of
t dreams about t

          b. *? the privateer on whose island anyone who
says t is buried a cache of treasure
likes to spend time t

The explanation is as before. Extraction of inverted locatives, like extraction of other Spec-IIP occupants, results in a uniform A-bar chain, which is sensitive to islands in the same way other uniform chains are.

4.4.3 Weaker surprising assymetries

As Pesetsky (?) notes, subject-object assymetries are found in non-finite complement clauses as well.

(168)   a.   Who does Peter know that Perry proved t
to have killed the butler?

          b.   Who does Peter know that Perry proved the
gardenei to have killed t?

          c. ?? Who does Peter know how Perry proved t to
have killed the butler?

          d. ? Who does Peter know how Perry proved the
gardener to have killed t?

Immediately, therefore, we can conclude that the subject occupies Spec-IIP in ECM infinitives as well. Only then should the subject of the complement clause behave differently from an object NP.

Two questions must be answered concerning these cases. If the subject of the complement clause occupies an A-bar position, then how is A-movement to Spec-AgrP of the matrix clause possible. (Recall that such movement is necessary in order to check accusative Case features.) The second question involves the *weakness* of the subject-object assymetry in non-finite clauses. If extraction of the subject from Spec-IIP always results in formation of a uniform chain, then the effects should be as strong in these cases as elsewhere.

First, we make the problem more general. Raising to Spec-IP in overt syntax is also possible from an infinitival complement to B/P verbs.

If IP were not potentially a barrier to A-movement, then the subject of an infinitival complement would always be able to raise out of its clause to a Case position. As has been noted several times in the literature (Kayne, 1984; Pesetsky, 1991), the most natural theory of complementation is one in which all full (non–small) clausal complements are CPs. Then NP movement out of a complement clause should be always impossible. There are only two ways around this conclusion (one of which must be taken). One way is to settle for a less natural theory of complementation, in which IP complements can occasionally be selected by certain verbs, as in Chomsky (1981), etc. As Pesetsky (1991) notes, this choice is unattractive because it fails to capture the generalization that the clauses are otherwise always CP. In particular, finite clauses can never be selected as IP—if they could, we would expect to find nominative anaphors in sentences like (169).

(169)   * Bill and Larry say each other is a skillful cook.

I take this to be an overwhelming drawback of the IP-selection approach.

A-movement is possible only if all the maximal projections crossed by A-movement are L-marked. Given an initial structure (170),

(170)   ...V [$_{CP}$ [$_{IIP}$ [$_{IP}$ ...NP ...]]] ...

there must be a mechanism to L-mark CP, IIP, and IP, if the NP is to raise into the higher clause.

I have assumed that the complementizer in ECM complement clauses must incorporate into the matrix verb. Assume further that the trace of this complementizer can be deleted once all its features are checked. Then the following derivation is possible. II raises to C, and its trace deletes. Then II-C raises to V in non-irrealis infinitives. In the complement to epistemic verbs, the trace of C deletes. Then V can L-mark IP, as there are no other phrases in the way. No barriers are left to block A-movement into the matrix clause.

There is one apparent wrinkle which must be ironed out. In ECM structures, the subject of the embedded clause must move to Spec-IIP in overt syntax. While

there are no barrier problems once C and Π are incorporated into the matrix verb, there should be an improper movement problem.

The solution is the following. The S-structure is (171).

(171)   ...Σ-C-V $[_{eP}$ $[_{eP}$ NP • $[_{AgrP}$ t Agr ...]]]

Under the Copy theory, the trace has all the content of its antecedant. (Any reconstruction theory requires the same.) So covert object shift in (171) involves A-movement of the *trace* bound by the Spec-ΠP 'operator'. The trace *substitutes* for the NP in Spec-ΠP on its way to Spec-AgrP in the matrix clause. The chain formed is then a uniform A-chain. The final structure is (172).

(172)   ... $[_{AgrP}$ NP Σ-C-V-Agr $[_{eP}$ $[_{eP}$ t • $[_{AgrP}$ t Agr ...]]]

This solution offers an answer to the second questions as well. The strength of the subject/object assymetry now reflects the extent to which the illegitimate trace must linger on in the derivation. An illegitimate trace formed by object extraction out of an island can be immediately eradicated, leaving only a slight effect of ungrammaticality. The illegitimate trace formed by extraction of a subject of an ECM complement must last longer, as it is a member of a uniform A-bar chain with the tail in Spec-ΠP. The chain becomes non-uniform in the covert syntax, when the Spec-IP trace replaces the tail of the wh-chain on its way to Spec-AgrP. At that point, the illegitimate trace can be deleted. An illegitimate trace formed when the subject of a finite clause is extracted can never be deleted, in contrast, as the wh-chain ending in Spec-ΠP remains uniform through the rest of the derivation.

4.4.4   Uniformity and θ–positions

Chomsky (1991,p.c.), following Koopman and Sportiche (1984). suggests that the *Uniformity Condition* is sensitive to the θ-status of a position, as well as what kind of position it is in, i.e., A, A-bar, or the head of a phrase. Under this view, chains with tails in non-θ positions would be treated as 'uniform' chains by the *Uniformity Condition*, just as chains with tails in A-bar positions are. This supposition enables

him to account for the island sensitivity of idiom chunks and non-θ-marked complements. Take the sentences in (173), for example.

(173)   a.   How much did Marge say that Harry weighs?

        b.   Marge wondered whether Harry weighs more
                than 200 pounds.

        c.   * How much did Marge wonder whether Harry
                weighs?

The object of *weigh* is not a θ-marked NP—it is more like an idiom chunk and its interpretation is strictly dependent on the verb which selects it. This object can be extracted by wh–movement, as in (173a), but unlike θ-marked objects, it cannot escape a wh–island. Under Chomsky's account this is explained in the following way. Like any object NP, *weigh* can be extracted via successive cyclic wh–movement, so the chain which results from such extraction will contain a number of intermediate traces. One of these traces must bear the '*' mark which is produced when movement skips over an intermediate possible landing–site, in this case, the Spec–CP position occupied by *whether*. But as the chain formed here is uniformly non–*theta*, the *Uniformity Condition* does not force or allow deletion of the intermediate traces. Consequently, the '*'–marked trace is present at LF, and the sentence is therefore ill–formed.[9]

Chomsky suggests that a similar analysis can be used to constrain subject extraction. The 'surprising asymmetries' would then fall together with the island sensitivity of idiom chunks. But there is reason to think that this approach cannot be extended to subject extraction. Consider the data in (174).

(174)   a. Jerry saw Lisa quietly light her thesis on fire.

        b. I don't want to here there be any noise from now on.

        c. John proved his sister to have been out of town the
           night of the riot.

        d. Beatrice believed her chihuahua eaten by immigrants
           for many years.

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[9]Note that under Chomsky's account deletion under Uniformity must be blocked if the chain in question is uniform in *either* respect. Otherwise, the intermediate traces in A–chains would be deleted by virtue of occupying non–θ positions.

The examples in (174) all contain complement clauses in which the subject occupies a non-θ position. In (174a), the subject can be seen to be VP-external because it precedes the adverb *quietly*. In (174b), expletive *there* is the subject, and expletive elements do not occupy θ positions. And in (174c) the subject is separated from VP by the inflectional element *to*. I conclude that, at least in the (non-finite) complements to perception verbs and verbs like *prove*, the subject always moves to a non-θ position.

The relevant question is now: what happens when the subject is extracted from this non-θ position by wh-movement.

(175)   a. Who do you know how Jerry saw quietly light her thesis on fire?

            b. What do you know how Jerry saw Lisa quietly light on fire?

            c. Who do they know how John proved to have been out of town the night of the riot?

            d. Where do they know how John proved his sister to have been the night of the riot?

            e. What do they know why Beatrice believed eaten by immigranst for many years?

            f. Who do they know why Beatrice believed her her chihuahua eaten by for many years.

(176)   a.   ? Who did you say why John imagines *t* to be serious about his work.

            b. ?* Who did you say why John wishes *t* to be serious about his work?

            c. ?* Who did you say why John imagines *t* will arrive first?

            d.   * Who did you say why John wishes *t* would call him?

As noted above, extraction from an island of the subject of an infinitival complement to a *believe*-class verb results in a relatively weak violation, almost as weak as the violation produced when objects are extracted from wh-islands, while extraction of the subject of an infinitival complement to a *want*-class verb or of the subject of any finite clause results in noticeably stronger violations. Under

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Chomsky's account, however, all of the (174) sentences should be quite bad, as they all involve extraction from a supposed non-θ-position. In particular, (174a) should be at least as ill-formed as (173c). Similar contrasts are found when the subject of an infinitival complement is a parasitic gap, or the free variable in a *tough*-clause.

(177)   a. ? Which book did Hilary buy *t* because her
               minister declared *t* to be immoral?

        b. * Which book did Hilary buy *t* because she
               wished *t* to be successful?

        c. ? the fellow that anyone who assumes *t* to
               be circumspect confides in *t*

        d. * the fellow that anyone who wants *t* to
               keep their secret confides in *t*

(178)   a. This fellow is tough for us to believe to have cheated
         on his taxes.

        b. * Anne is easy for Henry to want *t* to call that
         station.

        c. * This reaction is hard to see *t* produce this chemical.

As shown in chapters 2 and ??, the Exceptionally Case-marked subjects of *believe*-class infinitival complements are Case-checked at LF after they raise to the specifier position of an AgrP immediately above VP, while the subjects of *want*-class infinitival complements are Case-checked *in situ*. Only the former are lexically governed at LF. This difference is reflected in the data in (177)–(178). But if an NP in Spec-IP were always a non-θ element, then any long-extraction of such an NP from an island should result in ungrammaticality equivalent in force to that resulting from extraction of adjuncts from islands.

I conclude from this that extraction of subjects must not result in a uniformly non-θ-marked chain. Only if this is the case will sentences like (174a) be relatively acceptable. This conclusion requires that we assume that a θ-role be shared throughout an A-chain. Then the head of the A-chain will bear a θ-role and extraction from the position of the head will result in an unambiguously non-uniform chain, i.e., a chain which is non-uniform both with respect to its θ properties and with respect to its L-relatedness.

4.4.5   Uniformity and 'complement' positions

Browning (1987) offers an account based on the idea that *complements* are less sensitive to islands. She proposes the relativized subjacency principle: (179).

(179)   a. If (α_i, α_{i+1}) is a link of a chain C, then α_{i+1} is n-subjacent to α_1.

   b. (i)   If C is a complement chain, then $n = 1$.
      (ii) If C is a non-complement chain, then $n = 0$.

The problem is that there are languages in which the subject-object assymetries are sometimes not found. Browning's account has no provisions for such cases. Subjects are *never* complements, so they should always be subject to 1-subjacency.

The data from Dutch (180)–(181) and West Flemish (182)–(183) shows that Browning's approach cannot work.

(180)   a. welke jongens vroeg je je af waarom Jan zei dat Marie
t gekust had ?
"Which boys did you wonder why John said that Mary had kissed
t ?"

   b. welke jongens vroeg je je af waarom Jan zei dat t Marie gekust
hadden ?
"Which boys did you wonder why John said that t had kissed Mary
?"

   c. de jongens die Piet vroeg wanneer Jan Marie t had zien kussen

   d. de jongens die Piet vroeg wanneer Jan t had zien dansen
"the boys who Pete asked when John had seen t dance"

(181)   a.   ?   jongens die iedereen [die t Marie t
heeft zien kussen] t begeert t
boys who everyone who t M-subj t has see kiss t desires

   b.   *   jongens die iedereen [die t t Marie hebben zien
kussen] t begeert t
boys who everyone who t t M-obj have see kiss t desires

(182)   a. Wien peinst Valere woarom da Peter peinst dat er goa
kommen
who thinkgs Valere why that Peter thinks that there goes come

   b. Wien peinst Valere woarom da Peter peinst da Pol
getrokken eet
who thinks Valere why that Peter thinks that Pol photographed
has

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(183)   a. * den vent da Pol vroeg woarom da Valere peinst die
        gekommen is

        b.   den vent da Pol vroeg woarom da Valere peinst da
        Marie getrokken eet

Such facts are compatible with my account. In complement clauses in Dutch
and West Flemish, the Spec-IIP position may simply be filled by a non-subject (null
in Dutch), so extraction of the real subject does not give rise to a uniform chain.
Weak sensitivity to islands is the result, as intermediate traces in non-uniform
chains can be deleted.

4.5   Deriving *that*-trace effects

A large body of literature attests to the fact that long wh-extraction of subjects is
subject to certain constraints which do not affect extraction of complements or
adjuncts (cf. ? (?), Bresnan (1972), Chomsky (1973), Chomsky and Lasnik (1977),
Pesetsky (1982a), ? (?) and many others). Informally stated, the descriptive
generalization is: (184).

(184)   NPs cannot be extracted long-distance by wh-movement from the posi-
        tion immediately to the right of a (normal) finite complementiser.

And the problem I address next is how to derive this generalization on principled
grounds.

There are certain parameters we should impose on any explanation proposed
for '*that*-trace' effects. It should be the case that violation of whatever principle is
violated results in sharp judgements of ungrammaticality, sharper than those found
with *Relativized Minimality* violations with adjunct (or subject) extraction from
wh-islands, for example. At the same time, there must be relatively 'surfacy'
mechanisms to enable long wh-extraction of subjects to take place in languages in
which this is actually possible. Otherwise it will be difficult to account for the
dialectal variation reported by Sobin (1987).

As a first step, (184) can be streamlined by removing the qualification that it
applies only to long-distance extraction. Under my assumptions, the position

occupied by locally moved wh-subjects is no different from the position occupied by any other subject: Spec-IIP. And we can make explicit the position from which long wh-extraction is blocked, by replacing *'the position immediately to the right of the complementizer'* with *Spec-IIP*. Then (184) can be rewritten as (185).

(185)   NPs cannot be extracted from Spec-IIP by wh-movement, in the domain of an overt complementizer.

Next, (185) must be made more general to accomodate the '*that*-trace' effects found with locative inversion (Bresnan (1977), discussed in section ?? above). Not only NPs are frozen in Spec-IIP. So (185) becomes (186).

(186)   Nothing can be extracted from Spec-IIP by wh-movement, in the domain of an overt complementizer.

So far, nothing has been stipulated (beyond whatever counts as stipulation in sections ?? to ??) to make the description (184) into (186). Of course, nothing has been explained yet either, but the description (186) at least has the attractive property of imposing no constraints cn subjects which occupy a position other than Spec-IIP. If (186) is on the right track, then we do not expect extraction of NPs from, e.g., a postverbal position to be sensitive to the presence of an overt complementizer. This is the case in languages like Italian (?).

On further reflection, it turns out that most of (186) actually follows already in the *Minimalist* model from the principle of *Full Interpretation* and the theory of 'chains'. While wh-movement is driven by the requirement that $[+wh]$ features be checked in CP, the chain which results must be given some interpretation at LF, like any other chain. The normal way to interpret such chains is as Operator-variable pairs (with the proviso that uniform chains are interpreted as their termini, cf. section ??). In operator-variable chains, the tail is always a member of another chain as well, in which it bears some other semantic relation to the clause as a whole, either a θ-relation if it is an argument, or some modifier relation if it is an adjunct or other phrase. In contrast, when a chain is formed by extracting a phrase from Spec-IIP, the tail of the new chain has no direct semantic relation to the rest of the phrase. It is not a member of an A-chain, so it bears no θ-role. It is not in a

position in which it modifies any other phrase, so it cannot be interpreted like adjunct A-bar phrases are. It can only be interpreted as an operator binding a variable elsewhere in the clause—usually in Spec-IP. I suggest that the reason wh-extraction from Spec-IIP is generally impossible is because the result is a chain in which an operator directly binds another operator.

We can make this idea more precise by delving somewhat more deeply into the question of how operator variable chains are interpreted at LF. Consider a simple question like (187).

(187) **What kind of ice cream do you prefer** t **?**

Given Chomsky's 'copy' theory of movement, the trace in (187) actually represents another wh-phrase with the same contents as the wh-phrase in Spec-CP.

(188) [$_{CP}$ **what kind of ice cream do** [$_{IP}$ **you ...prefer what kind of ice cream**]]

The next step is to get from (188) to a representation which can be interpreted at LF. Chomsky assumes that there is a procedure which factors an operator phrase into a quantificational part and a restrictive part. This procedure must affect every member of the chain if the result is to be interpretable. The result of this procedure applied to (188) is (189).

(189) [$_{CP}$ [**wh** x: x **kind of ice cream**] **...prefer** [**wh** x: x **kind of ice cream**]]

Finally, complementary portions of the head and tail of the wh-chain are deleted. (If we assume that deletion must be recoverable, then only material which *is not* deleted from the head of the chain can be deleted from the tail, and vice versa.) There are two possible structures which result from this step, displayed in (190).

(190) $_{CP}$ [**wh** x **...prefer** [x: x **kind of ice cream**]]

   $_{CP}$ [**wh** x: x **kind of ice cream ...prefer** [x]]

Both structures can be interpreted at LF.

The same procedures will transform the sentence (191) with a wh-phrase in Spec-IIPinto the representations in (192).

(191) Which politician was impeached yesterday?

(192) $_{\Pi P}$[wh x [$_{IP}$ [x: politian x] was impeached yesterday]]

$_{\Pi P}$[wh x: politician x [$_{IP}$ [x] was impeached yesterday

But when the procedure is applied to a phrase in which wh-movement takes place from Spec-ΠP, the result is not interpretable, because Spec-ΠP is already an operator position. Consider example (193).

(193) Who did they say that [t [$_{IP}$ t would be nominated]] ?

There are two chains headed by operators in this structure. If the interpretive procedure applies to the upper operator-headed chain, then the result is (194).

(194) [$_{CP}$ [wh x] they said that [x : person x [$_{IP}$ who would be nominated]]]

And the lower chain cannot be interpreted, or even factored into an interpretable object. Similar catastrophic results obtain when the lower operator variable chain is subject to the interpretive procedure first.

The *that*-trace constraints on subject extraction thus follow from general principles directly, as long as subjects must first move to Spec-ΠP. What is more, the explanation has the right feel to it in several respects. As it is *Full Interpretation* that is violated in *that*-trace cases, the *sharpness* of the ungrammaticality judgements is to be expected. In languagess like Italian, in which the subject is extracted from a position other than Spec-ΠP, no violation is expected, as the trace of wh-movement can freely be interpreted as a variable.

Note that the same problems do not arise when wh-movement extracts a *part* of the subject. Consider example (195a).

(195)   a. ? Which politician did Peter say that
                pictures of t had frightened his cattle?
        b. * Which politician did Peter say that had
                frightened his cattle?

Although (195a) is not fully grammatical, it is clearly better than (195b). And the mild ungrammaticality of (195a) follows from the bounding theory I assumed to

begin with. The subject NP is not L-marked so it is a barrier. As it is an argument, it cannot be adjoined to. Movement of the phrase *which politician* to its surface position therefore crosses a barrier. As the wh-phrase originates in A-position, the offending intermediate trace is deleted at LF, so the violation is a mild one.

Of course, I have yet to account for the fact that subjects *can* apparently be extracted from Spec-IIP under some circumstances. So how now can the loophole in (186) be incorporated into the theory? The first clue comes from long wh-extraction of subjects in French. Subjects of finite clauses can be extracted to a higher clause by wh-movement in French only from the complement of a few verbs. There is a stylistically marked flavour to the sentences in which this takes place. And it is only possible if the complementizer *que* is absent from the complement clause and the 'relative' wh-pronoun *qui* is present. So (196a) contrasts with (196b).

(196) a. * Qui veulent-ils [CP que [IIP *t* [IP *t* soit
            choisi]]]

        b.   Qui veulent-ils [CP ∅ [IIPqui [IP *t* soit
            choisi]]]

The technical details of (196b) are all-important. The first thing to note is that *qui* must have its features checked, as always. As *qui* is $[+wh, +O]$, it can be checked only if II raises to a $[+wh, +O]$ complementizer. The null complementizer in (196b) must be taken to be the same lexical item as is found in any other finite clause with a fronted wh-phrase.

Properly annotated, the structure of (196b) in overt syntax is (197).

(197)   *qui*   ∅   ∅   *qui*
        [CP $[+wh]$ $[+wh]$ veulent-ils [CP Σ-$[+wh]$ [IIP$[+wh]$ t_Σ [IP *t*
        soit choisi]]]]

Now consider what possible interpretation we can associate with such a structure. The upper operator chain does not bind any chain with an independent interpretation, i.e., it binds no argument chain or adjunct chain, so it does not appear to bind any variable. It should not be interpretable, therefore. This consequence can be avoided only if the upper operator actually shares the variable bound by the operator *qui*. Then the upper operator and *qui* will be interpreted as

a 'discontinuous' operator, much like the partial wh-movement constructions in Hindi (Mahajan, 1990) or Bavarian (?).

If both the upper operators bind the variable simultaneously, then the problem of interpretation does not arise. The interpretive procedure will simply treat both upper operators the same and factor them simultaneously into quantificational and restrictive parts, along with the variable. The deletion of the restriction will occur simultaneously as well, resulting in the structure (198).

(198)   [$_{CP}$ [wh x] ils veulent [[wh x] [$_{IP}$ x: person x soit
        choisi]]]

Now the English case seems less mysterious. In English, the extraction of an element from Spec-ΠP can result in the formation of a discontinuous operator—a chain—as long as the tail of the chain has operator features checked. This is the role of the null complementizer in those dialects in which the *that*-trace effect is found. Only the null complementizer (the complementizer which is incorporated into a higher verb) has the property of checking 'weak' operator features on Spec-ΠP (after Π raises). In the dialects discussed by Sobin, the overt *that* complementizer can do the same checking operation.

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