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The Syntax of Adverb Distribution

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Declaration

I hereby declare that this thesis is of my own composition, and that it contains no material previously submitted for the award of any other degree. The work reported in this thesis has been executed by myself, except where due acknowledgement is made in the text.

Elspeth Claire Edelstein

ABSTRACT

The distribution of adverbs is particularly difficult to account for, given the amount of variation it encompasses. Not only are adverbs typically optional, but any adverb may also appear in several different positions relative to other constituents, with placement differing according to adverb type and language. As a result, although adverbs are not essential clausal mainstays, the way they are incorporated into the syntax has crucial implications for an overall understanding of clause structure.

Some recent accounts of adverb distribution, most notably Cinque (1999), require a highly articulated clausal cartography, where each adverb fits into a specific syntactic position. The placement of adverbs is determined by their semantic properties inasmuch as their specified positions correspond to semantic classes. The ordering of these positions is syntactically predetermined, supposedly with no little or no semantic input. More semantics-based accounts of adverb distribution, as exemplified by Ernst (2002), do not restrict adverbs to specific positions. Rather, any adverb may adjoin to any projection, as long as its individual semantic requirements are satisfied. Such theories of distribution thus depend on adverbs' semantic interactions with each other and other constituents. The differences between these 'syntactic' and 'semantic' approaches have led to questions about the nature of verb movement, functional projections, and adjunction. The debate over adverb distribution also raises the issue of what contribution semantics makes to the syntax, and what is syntactically primitive.

The aim of this dissertation is to develop an account of adverb distribution that neither requires the introduction of new functional projections, nor attempts to shoehorn an external semantic hierarchy onto a pre-existing syntactic one. It will focus on the position of adverbs in relation to other constituents rather than their order with respect to each other. In this thesis I will review previous theories of adverb distribution, giving special attention to Cinque's (1999) 'functional specifier' approach and Ernst's (2002) 'semantic adjunction' approach, as well as some alternatives, especially the VP-remnant analysis proposed in Nilsen (2003). I will then look at the little-discussed phenomenon of 'Adverb Climbing' (AC), in which an adverb precedes a verb that takes an infinitival complement, but is interpreted as modifying the embedded rather than the matrix verb. Taking the varying availability of AC with Control and Raising verbs as a starting point, I will develop a theory of adverb licensing that determines where an adverb may adjoin according to its location in relation to a particular projection. Specifically, I will propose that an adverb must c-command the projection it modifies, and must have access to that projection either in the same phase or at the edge of a lower phase. Based on this

analysis I will argue that AC is in fact an indicator of restructuring, and that control and raising verbs take different sizes of infinitival complement. I will also examine the distribution of 'verb-modifying' adverbs. Drawing on previous 'split VP' proposals (e.g. Ramchand 2008; Travis (2010)), I will contend that the varying distribution of agentive, subject-oriented, and manner adverbs indicates that each is distributed in relation to a different projection within the *v*P, and that some postverbal adverbs are complements of VP. This proposal will require the introduction of crosslinguistically parameterised restrictions on the order in which adverbs and feature-checking elements may be merged to a single projection. Moreover, I will argue that the array of positions available to agentive adverbs indicates that English has head movement within the *v*P which bypasses a head, violating Travis's (1984) Head Movement Constraint (HMC). I will then posit a new analysis of head movement which allows for this violation while still precluding the instances of ungrammaticality that the HMC was meant to rule out. I will finally discuss the distribution of adverbs and negation in the IP range, giving special attention to Pollock's (1989) classic data from English and French. I will develop an analysis of negation which will allow me to explain the distribution of both sentential adverbs and negation without splitting the IP. Further refinement of the ordering restrictions on multiple merge will also provide an explanation for the ungrammaticality of an adverb between a subject and the highest verb in French, and between *do* and *not* in English.

This dissertation will serve to situate the study of adverb distribution within Chomsky's (1995) Minimalist framework while providing fresh insight into the extent to which adverb distribution may be used as an indicator of clause structure and movement of other constituents.

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And Will, who helps me to keep calm and carry on.

Once upon a time, Professor Zellig S. Harris
gave me the charitable advice:
"Don't try adverbs, that way madness lies".

Vendler (1984: 297)

CONTENTS

CHAPTER 1

Introduction

1.1 ADVERB DISTRIBUTION

In the amount of variation it encompasses, the distribution of adverbs is particularly difficult to account for. Not only are adverbs typically optional, but any adverb may also appear in several different positions relative to other constituents, with placement differing according to adverb type and language. As a result, although adverbs are not essential clausal mainstays, the way they are incorporated into the syntax has crucial implications for an overall understanding of clause structure.

Some recent accounts of adverb placement, most notably Cinque (1999), require a highly articulated clausal cartography, where each adverb fits into a specific syntactic position. The placement of adverbs is determined by their semantic properties inasmuch as their specified positions correspond to semantic classes. At the same time, the ordering of these positions is syntactically predetermined, supposedly with little or no semantic input.

More semantics-based accounts of adverb distribution, as exemplified by Ernst (2002), do not restrict adverbs to specific positions. Rather, any adverb may adjoin to any projection, as long as its individual semantic requirements are satisfied. Such theories of distribution thus depend on adverbs' semantic interactions with each other and other constituents.

The differences between these 'syntactic' and 'semantic' approaches have led to questions about the nature of verb movement, functional projections, and adjunction. The

debate over adverb distribution also raises the issue of what contribution semantics makes to the syntax, and what is syntactically primitive.

The aim of this dissertation is to develop an account of adverb distribution that neither requires the introduction of new functional projections, nor attempts to shoehorn an external semantic hierarchy onto a pre-existing syntactic one. This work will focus on the position of adverbs in relation to other constituents rather than their order with respect to each other. The data I will look at come mainly from English and French, but the principles that I will propose should be applicable in other languages, subject to certain aspects of crosslinguistic variation.

The remainder of the current chapter will consist of a review of previous theories of adverb distribution, giving special attention to Cinque's (1999) 'functional specifier' approach and Ernst's (2002) 'semantic adjunction' approach, as well as some alternatives, especially the VP-remnant analysis proposed in Nilsen (2003).

In Chapter 2 I will look at the little-discussed phenomenon of 'Adverb Climbing' (AC), in which an adverb precedes a verb that takes an infinitival complement, but is interpreted as modifying the embedded rather than the matrix verb. Taking the varying availability of AC with Control and Raising verbs as a starting point, I will develop a theory of adverb licensing that determines where an adverb may adjoin according to its location in relation to a particular projection. Based on this analysis I will propose that AC is in fact an indicator of restructuring, and that Control and Raising verbs take different sizes of infinitival complement.

In Chapter 3 I will examine the distribution of 'verb-modifying' adverbs. Drawing on previous 'split VP' proposals I will argue that the varying distribution of agentive, subject-oriented, and manner adverbs indicates that each is distributed in relation to a different projection within the *v*P, and that some postverbal adverbs are complements of VP. This proposal will require the introduction of crosslinguistically parameterised restrictions on the order in which adverbs and feature-checking elements may be merged to a single projection. Moreover, I will argue that the array of positions available to agentive adverbs indicates that English has head movement within the *v*P which bypasses a head, violating the Head Movement Constraint (HMC). I will then propose a new

analysis of head movement which allows for this violation while still precluding the instances of ungrammaticality that the HMC was meant to rule out.

Chapter 4 will focus on the distribution of adverbs and negation in the IP range, giving special attention to Pollock's (1989) classic data from English and French. I will develop an analysis of negation which will allow me to explain the distribution of both sentential adverbs and negation without splitting the IP. Further refinement of the ordering restrictions on multiple merge proposed in Chapter 3 will also provide an explanation for the ungrammaticality of an adverb between a subject and the highest verb in French, and between auxiliary *do* and *not* in English.

In Chapter 5 I will summarise my conclusions and consider some remaining questions.

1.2 APPROACHES TO ADVERB DISTRIBUTION

Cinque's (1999, see also 2002, 2004) model of adverb placement challenges the conventional view of adverbs as adjuncts. It also requires a far more complex clause structure and set of verb movements than had previously been proposed. Ernst (2002, see also 1998, 2004, 2006) argues for an adjunction account of adverb placement, rejecting the idea that there are predetermined, adverb-specific syntactic positions.

While Cinque's work offers potentially significant insights about the relationship between adverbs and verbal morphology, his approach faces serious empirical problems. For this reason, attempts have also been made at models which incorporate some of the restrictions on adverb order noted by Cinque, while allowing for more flexibility in their distribution.

1.2.1 THE 'FUNCTIONAL SPECIFIER' APPROACH

According to Cinque's (1999) theory, every clause in every language contains an identical sequence of functional projections, corresponding to different subtypes of mood, modality, tense, and aspect. Adverbs appear in the specifiers of these projections, while their heads host related verbal morphology. This 'universal hierarchy' is present regardless of the complexity of the sentence.

(1) CINQUE'S HIERARCHY (1999: 106)[1]

[*frankly* $\text{Mood}_{\text{speech act}}$ [*fortunately* $\text{Mood}_{\text{evaluative}}$ [*allegedly* $\text{Mood}_{\text{evidential}}$ [*probably* $\text{Mod}_{\text{epistemic}}$ [*once* T(Past) [*then* T(Future) [*perhaps* $\text{Mood}_{\text{irrealis}}$ [*necessarily* $\text{Mod}_{\text{necessity}}$ [*possibly* $\text{Mod}_{\text{possibility}}$ [*usually* $\text{Asp}_{\text{habitual}}$ [*again* $\text{Asp}_{\text{repetitive(I)}}$ [*often* $\text{Asp}_{\text{frequentative(I)}}$ [*intentionally* $\text{Mod}_{\text{volitional}}$ [*quickly* $\text{Asp}_{\text{celerative(I)}}$ [*already* T(Anterior) [*no longer* $\text{Asp}_{\text{terminative}}$ [*still* $\text{Asp}_{\text{continuative}}$ [*always* $\text{Asp}_{\text{perfect(?)}}$ [*just* $\text{Asp}_{\text{retrospective}}$ [*soon* $\text{Asp}_{\text{proximative}}$ [*briefly* $\text{Asp}_{\text{durative}}$ [*characteristically*(*?*) $\text{Asp}_{\text{generic/progressive}}$ [*almost* $\text{Asp}_{\text{prospective}}$ [*completely* $\text{Asp}_{\text{SgCompletive(I)}}$ [*tutto* $\text{Asp}_{\text{PlCompletive}}$ [*well* Voice [*fast/early* $\text{Asp}_{\text{celerative}}$ [*again* $\text{Asp}_{\text{repetitive(II)}}$ [*often* $\text{Asp}_{\text{frequentative(II)}}$ [*completely* $\text{Asp}_{\text{SgCompletive(II)}}$

Cinque bases his 'functional specifier' approach on several claims. He argues that any given pair of adverbs has only one possible order. For instance, if *unfortunately* can precede *probably*, *probably* should not be able to precede *unfortunately*. Under Cinque's proposal this fixed order results from the requirement that *unfortunately* be in the specifier of a designated functional projection that is higher than the one that *probably* must be in the specifier of.

(2) a. He unfortunately has probably left
b. *He probably has unfortunately left

He also contends that the ordering of adverbs is transitive, a prediction that must follow if each adverb may appear in the specifier of only one projection in a set sequence: if the position in the hierarchy for one adverb precedes the position for another, then any adverbs in positions following the second adverb will also have to follow the first. This transitivity allows him to place all adverbs in his hierarchy without having to examine every possible pair[2]. Thus, if *unfortunately* precedes *probably*, and *probably* precedes *quickly*, *unfortunately* should precede *quickly*. The proposed order is borne out for this triplet, as shown by (2) and (3).

[1]This 'approximation' of the universal syntactic hierarchy of functional projections contains 30 categories, with the implication that there are likely far more.

[2]The assumption of transitivity is especially advantageous for pairs of adverbs that do not co-occur. French *pas* and *plus*, for instance, never appear together, yet Cinque (1999: 5) claims that they are in different positions, based on the observation that *pas* precedes the adverb *déja*, and *plus* follows it.

(3) a. He probably has quickly left
b. *He quickly has probably left
c. He unfortunately has quickly left
d. *He quickly has unfortunately left

Cinque then examines the ordering of verbal morphology (including both inflectional bound morphemes and auxiliary verbs), which he also deems crosslinguistically invariant[3]. He shows that if each type of adverb is matched with a semantically correspondent verbal element (e.g. the epistemic modal *should*, and the epistemic adverb *probably*) the ordering of adverbs and the ordering of verbal morphology are the same. According to Cinque this alignment reflects an underlying 'cascade' of functional projections. A particular semantic notion may be instantiated as verbal morphology in the head of one of these projections, or as an adverb in its specifier. Each adverb thus enters into a spec-head agreement relationship with a particular projection in the hierarchy.

Aside from the apparent correlation between adverbs and verbal morphology, this 'syntactic' theory of adverb distribution is motivated by fundamental theoretical considerations. Specifically, Cinque seeks to accommodate adverbs within the antisymmetric model proposed by Kayne (1994). Kayne's Linear Correspondence Axiom (LCA) maps hierarchical structure to linear order by way of asymmetric c-command: if X asymmetrically c-commands Y then X precedes Y. He defines c-command in terms of categories, such that multiple adjunction is banned, because two segments adjoined to the same projection cannot enter into an asymmetric c-command relation. As a result, Kayne does not differentiate between specifiers and adjuncts. Cinque's hierarchy therefore adheres to the LCA requirement that there be only one specifier per head, while its multiplicity of functional heads serve as landing sites for verb movement.

Not all of Cinque's evidence that adverb order is fixed is entirely definitive. In (4), the evidence in English and German matches up. In (5), though, Italian *francamente* can only precede *purtroppo*, whereas it is just as grammatical, if not more so, for *unfortunately* to precede *frankly* in English, especially if *frankly* is not as low as in Cinque's translation.

[3]In establishing the order of adverbs and verbal morphology, Cinque draws evidence from a number of languages, bolstering the assertion that his observations are linguistically universal.

(4) GERMAN (Cinque 1999: 12)

a. Konrad ist leider vermutlich verreist
'K has unfortunately presumably left.'

b. *Konrad ist vermutlich leider verreist
*'K. has presumably unfortunately left.'

(5) ITALIAN (Cinque 1999: 12)

a. Francamente ho purtroppo una pessima opinione di voi
'Frankly I unfortunately have a very bad opinion of you.'

b. *Purtroppo ho francamente una pessima opinione di voi
(?)'Unfortunately I have frankly a very bad opinion of you.'
(cf. 'Unfortunately, I frankly have a very bad opinion of you.')

Cinque does note some other instances of apparent intralinguistic variation. These will be discussed in §1.3.2.

Even if adverb order is relatively invariant, the placement of adverbs with respect to other elements is not. Cinque's model thus requires that other constituents move around adverbs in order to derive variation in adverb placement. For instance, under a functional specifier account, *George* would have moved over *probably* in (6)b, and both *George* and *will* would have moved over *probably* in (6)c.

(6) (Cinque 1999: 109)

a. Probably George will have read the book
b. George probably will have read the book
c. George will probably have read the book

Alexiadou (1997) presents an approach similar to Cinque's. In her proposal, sentential adverbs appear in specifier positions, while some verb-modifying adverbs are generated as complements of V. This difference has consequences in terms of the apparent reversed scope of post-verbal adverbs in English (cf. Stroik 1990; Phillips 2003; Larson 2004), an issue that I will take up again in Chapter 3. Regardless, Alexiadou's model is still essentially antisymmetric, and still confines adverbs to specific positions, even if they are not all specifiers.

1.2.2 THE 'SEMANTIC ADJUNCTION' APPROACH

Ernst (2002) argues that adverbs are not feature-checking specifiers, but rather are adjoined according to their individual lexicosemantic requirements. His model also requires a sequence of functional projections, but they are optional, and much more limited in number than Cinque's. Ernst also does not confine specific adverbs to specific projections. Instead, any adverb may be adjoined to any projection, provided this adjunction is not precluded semantically.

Ernst's 'semantic adjunction' theory involves a set of interacting constraints. First, adverbs' adjunction is governed by what he terms a 'Fact-Event Object' (FEO) Calculus, based on a hierarchy that represents possible input and output types.

(7) (Ernst 2002: 53)
FEO-Calculus
Speech-Act > Fact > Proposition > Event > Specified Event

Each adverb will adjoin to a projection that corresponds to its specified input type. Once adjoined, it will produce an output that is either of the same type as the projection it has adjoined to, or higher on the scale. The requirements of input and output thus restrict what position an adverb can appear in, as some functional projections will introduce input types incompatible with particular adverbs. This system also limits the order of any pair of adverbs according to whether one can take the other's output as an input. It also potentially derives the fact that some pairs of adverbs cannot co-occur, in that they cannot produce an input/output match in either order.

Ernst also argues for right adjunction, invoking directionality principles that determine whether Functional-Direction (F-Dir), and Complement-Direction (C-Dir) complexes apply. F-Dir licenses [+F] (functional) items to the left, deriving the assumption that specifiers are adjoined to the left. In languages where C-Dir is active, [+Lex] (lexical) items are licensed to the right. In exceptional cases, C-Dir may be active only for lexical projections or only for CP. These effects are also modulated by Weight Theory, such that C-Dir is instantiated for [+Heavy] constituents, making them [+R(ight)], whereas [+Lite] constituents are [-R]. Ernst's view of right-adjunction is particularly pertinent for the observation that VO languages tend to allow postverbal adjuncts while OV ones tend not to. This difference is explained if head-initial languages have an active C-Dir, permitting

both left- and right-adjunction, but head-final languages do not, so that they only allow for left-adjunction. Sentence-final adverbs in English are therefore right-adjoined, as opposed to in Cinque's theory, where they are postverbal because of verb movement.

Svenonius (2002) also argues for a semantics-based model of adverb distribution, in which 'adverb attachment is driven by interpretation'. Like Ernst, he allows adverbs to adjoin to any semantically appropriate projection. He contends that this freedom crucially requires that functional projections not be tied to particular interpretations, contrary to the strict one-to-one correspondence between position and interpretation seen in a functional specifier approach. This proposed semantic flexibility, along with the assumption that multiple adjunction is permitted, allows Svenonius to reduce the required number of projections for adverb placement to just two, TP and VP.

1.2.3 THE 'REMNANT MOVEMENT' APPROACH

Nilsen (2003, cf. 2004; Nilsen & Vinokurova 2000) argues that adverbs are not adjoined freely, as in a semantic adjunction account. Instead, they attach directly to the projections that they modify, meaning there are no intervening projections that must be ignored or must 'pass on' the correct semantic type. The distribution of adverbs is then derived by a series of VP remnant movements, wherein 'adverbs attract projections of verbs, and verbs attract projections of adverbs' (Nilsen 2003: 125).

His system also requires that affixes and verb stems be merged separately, such that verbs are attracted to affixes for phonological completeness. Adverb position may therefore be affected by where an adverb merges in relation to an affix: if it merges below the affix the verb will move over it, resulting in verb-adverb order; if it merges above the affix the verb will move to the affix, but not over the adverb, resulting in adverb-verb order. The derivation in (8) shows a verb undergoing head movement over an adverb, with *have* moving to the affix *-s* in T. Because the adverb is merged above the *-ed* affix, movement of *kiss* to this affix has no effect on the position of the adverb in relation to this verb.

(8) (Nilsen 2003: 133)

'John has often kissed Mary'

[kiss Mary]

MERGE *-ed* and MOVE *kiss*

[$kiss_i$ [-ed [t_i Mary]]]

MERGE *have*

[have [$kiss_i$ [-ed [t_i Mary]]]]

MERGE *often*

[often [have [$kiss_i$ [-ed [t_i Mary]]]]]

MERGE T and MOVE *have*

[$have_j$ [-s [often [t_j [$kiss_i$ [-ed [t_i Mary]]]]]]]

Under this analysis it is also possible for adjacency between a verb and its affix to be achieved by VP movement. An adverb may therefore be moved along with the verb, although Nilsen claims that pre-auxiliary frequency adverbs are 'marked' in English, suggesting that this type of movement is disfavoured[4].

(9) (Nilsen 2003: 132)

'John often has kissed Mary' (same as derivation in (8) up to MERGE *often*)

[$_{VP2}$ often [have [$_{VP1}$ [$kiss_i$ [-ed [t_i Mary]]]]]]

MOVE VP_1

[[$_{VP1}$ $kiss_i$ [-ed [t_i Mary]]]$_j$ [$_{VP2}$ often [have t_j]]]

MERGE T and MOVE VP2

[[$_{VP2}$ often [have t_j]]$_k$ [-s [[$_{VP1}$ $kiss_i$ [-ed [t_i Mary]]]$_j$ [t_k]]]]

According to Nilsen, then, the eventual placement of an adverb depends on which projection the adverb modifies, head movement for phonological completeness (of verbs and affixes), and a complex series of 'roll-up' movements. Which projections may roll up varies crosslinguistically.

[4]For independent reasons I will not discuss here Nilsen assumes that it is not possible for *often* simply to merge to T above *have*.

Bentzen (2007) characterises Nilsen's verb movements in terms of the presence of 'lifters', functional projections that attract adverbs or VPs. She describes their distribution for Norwegian in the generalisation given here in (10).

(10) Bentzen (2007: 37)
Generalisation 1
Every auxiliary has a VP lifter below it and an AdvP lifter above it.

The outcome of this distribution of lifters is that all adverbs must precede all verbs in Standard Norwegian, a configuration that supposedly occurs as the result of derivations such as (11).

(11) (Nilsen 2003: 116)[5]
[completely [fixed]]

MOVE VP

[fixed [completely]]

MERGE *been*

[been [fixed [completely]]]

MOVE AdvP

[completely [been [fixed]]]

MERGE *always*

[always [completely [been [fixed]]]]

MOVE VP

[[been [fixed]] [always [completely]]]

MERGE *have*

[have [[been [fixed]] [always [completely]]]]

MOVE AdvP

[[always [completely]] [have [been [fixed]]]]
etc.

[5]The constituents that Nilsen labels 'AdvP' in these derivations are actually VP remnants with all verbal material moved out.

Northern Norwegian permits this order as well. However, it also sometimes allows auxiliaries to precede adverbs.

(12) Bentzen (2007: 43)

...ettersom mange har allerede kunnet lasta den ned...
...as many have already could loaded it down...
'...as many people have already been able to download it...'

Bentzen thus concludes that Generalisation 1 may not always apply for auxiliaries in Northern Norwegian. As English also permits adverbs to appear below auxiliaries, both English and Northern Norwegian therefore require optionality with respect to the extent of remnant movement.

As for the ordering of adverbs, Nilsen argues that many are polarity items, while others induce environments that license or exclude other adverbs. He focusses particularly on *possibly*, which cannot be embedded under negative adverbs such as *never*, but suggests that other 'high' speaker-oriented adverbs are positive polarity items as well. This contention serves to order adverbs with respect to each other, rather than deriving their distribution in relation to other elements. I will assume that such an approach is essentially correct, inasmuch as the limitations that govern the placement of adverbs with respect to other adverbs are largely separate from those that determine where an adverb may appear in relation to other elements.

1.2.4 OTHER APPROACHES

Cinque's (1999) account relies on the notion of syntactic primitives, while Ernst's (2002) requires 'few syntactic principles specific to adverbials', but many semantic ones. Between these extremes are models that do not position adverbs as rigidly as the functional specifier approach, but still define some aspects of adverb distribution as fundamentally syntactic.

Tenny (2000) looks at adverb distribution in terms of event structure, the semantics of which she takes to be syntactically represented within the verb phrase. The grammatical complexity of a verb depends on whether it has an inner or 'core' event. *Close*, for instance, can be decomposed into 'cause to become closed', separating the outer event of causation from the core event of becoming closed. Verbs such as *hit*, in contrast, cannot

be decomposed. Verbs with core events are then divided according to whether they have a measure or path.

Using these distinctions, Tenny looks at the compatibility of different types of adverbs with verbs' decomposed event structure[6]. She then argues that adverbs may be classified by their interaction with different parts of an 'extended event structure', which shapes the part of the clause external to the lexical verb. By simplifying the possible semantic categories for adverbs, Tenny drastically reduces the number of functional heads required by Cinque, with each remaining head representing a 'semantic zone'. Adverbs are ordered syntactically inasmuch as they are lexically specified to appear in certain zones, but any ordering within those zones is determined semantically.

Frey (2003) also proposes dividing adverbs into broad semantic categories, differentiating between adverb 'classes', and more specific adverb 'types'. For each class of adverbs he identifies a specific set of c-command relations with respect to arguments, predicates, and other adjuncts. Though these constraints are syntactic, an adverb is not associated with a specific base position, but may adjoin anywhere that obeys the requirements defined for its class. Adverbs of different classes will therefore be ordered with respect to each other by syntactic requirements, but adverb subtypes within classes will be ordered according to semantic scope interactions.

Frey's and Tenny's proposals are similar in their division of adverbs into classes with syntactic distribution, but semantic ordering. The two differ, though, in their degree of reliance on predetermined clause structure. Tenny still looks to a fixed hierarchy of non-optional functional heads, albeit a much less extensive one than Cinque's, in order to define semantic zones. She does not address how adverbs attach at all, declining to specify 'whether [adverbs] are specifiers, adjuncts, or something else'. That said,

[6]This proposal for the interaction of verbal decomposition with adverbs appears superficially to conflict with Fodor's (1970) argument that adverbs show that verbs cannot be decomposed syntactically. He concludes that *kill* cannot be broken down into *cause to die*, as *cause* and *die* can be modified by conflicting time adverbials, but the same is not possible for *kill*.

(i) I caused him to die on Tuesday by giving him poison on Monday

(ii) *I killed him on Tuesday by giving him poison on Monday

While these examples do indicate that *kill* is not derived from, and does not have the same structure as, *cause to die*, the varying distribution of verb-modifying adverbs does point to their modifying different parts of a split VP. I will explore this question in Chapter 3.

given that adverbs are to be ordered within semantic zones defined by single projections, multiple adjunction seems inevitable under this account.

Frey, in contrast, references c-command relations between adverbs and different types of constituents, and so does not require a fixed functional structure. As in more semantics-oriented approaches, Frey's adverbs are adjuncts. The variability of the types of rules Frey proposes also suggests that they cannot be purely syntactic. For instance, he posits the following requirements for what he calls 'sentence adjuncts' (e.g. *fortunately*) and 'event-internal' adjuncts.

(13) a. SADJs:
The base position of a SADJ c-commands the finite verbal form, the base positions of the arguments and the base positions of the remaining adjunct classes.

b. Event-internal adjuncts (e.g. event-related temporals or locatives, instrumentals):
The base position of an event-internal adjunct is minimally c-commanded by the base position of the highest ranked argument.

While the rule for SADJs makes reference to the finite verb, arguments, and other adjuncts, the position for event-internal adjuncts depends only on the position of a specific argument. The distribution of SADJs also depends on their taking scope over other elements, while the distribution of event-internal adjuncts depends on their being within the scope of something else. Without any semantic justification, then, Frey's restrictions on adverb placement seem arbitrary and inconsistent when framed as syntactic rules.

Kim (2000, cf. 2004) and Mizuno (2010) take a somewhat similar approach, in that they allow an adverb free distribution within a particular domain. Specifically, both claim that an adverb must appear in the same phase as a particular projection. For Kim this means that some adverbs can be licensed as complements by the same mechanism that licenses them as adjuncts. She also assumes that what she calls 'Class VI' adverbs (following the classification of adverbs set out by Jackendoff 1972) cannot appear between the subject and first auxiliary.

(14) (Kim 2000: 490f)

a. *Albert simply has been being a fool
(cf. Albert has simply been being a fool)

b. *He merely will be having the most exciting time of his life
(cf. He will merely be having the most exciting time of his life)

These data lead Kim to posit that such adverbs are distributed with respect to an ASP projection, situated between T and *v*P, which constitutes an additional phase to the usual CP and *v*P. It is in fact untrue that these adverbs are ungrammatical in these positions, even if they are dispreferred. The examples in (15) come up on the Internet, and as a native English speaker I find them acceptable.

(15) a. Plus, a huge achievement for me **simply has been** being able to make my living playing music...

b. ...the best part of the 2007-08 season **simply has been** being there for the entire ride.

c. ...what you **merely will be** asking for is his reaction.

d. ...you **merely will be** sharing the enhancement/profit of obtaining planning permission...

Jackendoff (1972) himself does not rule out such high positions for these adverbs. Therefore, although I will ultimately argue that adverb distribution is indeed sensitive to phase structure, there is no need for an additional ASP phase.

Mizuno (2010) additionally posits that an adverb must not only be in the same phase as a specific projection, but that it must also be c-commanded by that projection. This proposal is problematic, in that some adverbs appear quite a lot higher than what they apparently modify. For example, in (16)a *intentionally* precedes *seems* even though it apparently modifies *insulted*.

(16) George intentionally seems to have insulted Jane

Intentionally also can appear before the highest auxiliary and postverbally with no apparent change in meaning. It could be c-commanded by the same projection in both instances, but not within the same phase.

(17) a. George intentionally has insulted Jane
b. George has insulted Jane intentionally

I will discuss examples such as (16) in Chapter 2 and consider the distribution of agentive adverbs such as *intentionally* in Chapter 3.

1.3 ARGUMENTS AGAINST THE SYNTACTIC APPROACH

Cinque takes the observed semantic correspondences between adverbs and verbal morphology to indicate an underlying syntactic correspondence. His hierarchy of projections has no other compelling motivation. It also fails empirically to account for all of the data on adverb distribution.

1.3.1 THE HIERARCHY

In requiring a large array of functional projections, Cinque's analysis entails a far more extensive clause structure than had previously been assumed. It is questionable whether such complexity is necessary, or even feasible.

Bok-Bennema (2001: 4) suggests that the covert functional heads of Cinque's theory are contrary to Minimalist theory, constituting a 'heavy computational load'. This claim is spurious, inasmuch as it could be argued that an invariant functional hierarchy requires a far less complex set of rules than one in which each functional head has a number of other projections it may select for. Even an extensive fixed clausal cartography would therefore be less cognitively demanding than a more mutable one.

Nevertheless, it may be difficult to justify the array of functional projections actually needed to account for all the data. As pointed out by Svenonius (2002: 207) the possibility in some languages of having subject, direct object, and indirect object all appearing between proximate adverbs means that Cinque's hierarchy is insufficient: there would have to be an additional three specifier positions between every functional head in order to allow for the three arguments to be together.

Cinque's claim that every projection appears in every clause is apparently underpinned by notions of minimising complexity, as he argues that 'this is the least costly assumption, once we recognize that each head comes with a marked and a default value' (1999: 127). The multiplicity of functional projections in Cinque (1999)'s clause structure

potentially might be reduced by making them optional, such that only those hosting overt morphology would be present. This solution is inadequate within his framework, though, as it introduces complexity in terms of syntactic selection, requiring that a projection select for every projection that may appear after it, or forces functional projections to be ordered by semantic means. Alternately, as described in §1.2.4, Tenny (2000) decreases the number of possible functional heads. This reduction necessitates the introduction of compensatory semantic constraints. Such results reinforce the conclusion by Ernst (2006) that the functional specifier approach 'cannot account easily for semantic generalizations without duplicating semantic mechanisms'.

Cinque dismisses the supposedly un-Minimalist nature of his functional structure, quoting Chomsky (1995), who states 'postulation of a functional category has to be justified'. Such justification, Cinque argues, comes from the allocation of a semantic interpretation to each functional head. He further maintains that the universal presence of the same 'functional notions' crosslinguistically suggests that the same hierarchy holds across languages.

If every projection is present in every clause, the need to assume a default or unmarked value for every functional category is also a problem. He makes a brief survey of his posited functional heads, assigning default values based on a definition of 'unmarked' as 'the member with wider application...more frequent, conceptually basic, often expressed with zero morphology...' (1999: 128). It is not clear that one value for any functional head will always meet these criteria. Furthermore, it seems odd for the default value of a functional projection to sometimes be overtly expressed. For instance, if the 'positive' evaluative mood is unmarked (as Cinque suggests) it should never be necessary to use the overt adverb, knowing that all clauses are intrinsically designated with a covert *fortunately* unless otherwise stated.

Bok-Bennema (2001: 12) also observes that, if the default value of the modal 'volitional' head is *intentionally*, as Cinque claims, (18)a and (18)b should sound equally odd.

(18) a. He broke the window. But he did it unintentionally.
b. #He broke the window intentionally. But he did it unintentionally.

It is true that (18)a is not contradictory in the same way as (18)b. That said, the oddness of (19) implies that some volition is in fact understood, presumably because of the agency presupposed with a sentient subject and an accusative verb; the two statements do not seem contradictory enough to merit the contrastive *but*.

(19) #He broke the window. But he did it intentionally.

Therefore, though Bok-Bennema's example suggests that Cinque's 'unmarked' values are not equivalent to overt expressions, in this instance *unintentionally* sounds more contrastive than *intentionally*, indicating that *intentionally* is the underlying value here. This kind of assumption cannot be extended to all categories of adverb, though, as the understood 'value' of a category depends largely on context and real-world knowledge. Example (20)a sounds odder than (20)b, implying that the first sentence has an underlying *fortunately*, but (21)a sounds less odd than (21)b, implying that the default value is *unfortunately*. These contradictory evaluations arise because saving someone's life is generally considered positive, and slapping someone negative.

(20) a. #Jane saved George's life. But it was fortunate that she did so.
b. Jane saved George's life. But it was unfortunate that she did so.

(21) a. Jane slapped George. But it was fortunate that she did so.
b. #Jane slapped George. But it was unfortunate that she did so.

1.3.2 ORDER AND TRANSITIVITY

Cinque's assumption of transitivity in the ordering of adverbs is challenged by Nilsen (2003), who suggests that he may have failed to find certain orders simply because 'it is quite difficult to conjure up pragmatically felicitous examples containing several adverbs'. Both Nilsen and Ernst (2002, 2004) cite cases in which transitivity apparently fails.

As Cinque (2004) points out, most of these examples make use of adverbs that have two possible interpretations. Such adverbs are exceptionally given two possible positions of base-generation in Cinque's original model, under the assumption that there is a one-to-one correspondence between adverb position and interpretation.

Nilsen specifically looks at the ordering of 'always', 'probably' and 'not' in Norwegian, demonstrating that 'probably' must precede 'not' and 'not' 'always', but 'always'

may also precede 'probably'[7]. 'Always' is among the adverbs that may be generated in two positions under Cinque's analysis. Moreover, Cinque specifically does not have a fixed position for negation in his hierarchy.

This apparent transitivity failure could thus hypothetically be eliminated by ordering the positions for 'always', 'probably', and 'not' as in (5), with a restriction against the co-occurrence of the higher 'always' and 'not'[8].

(5) always $_{I}$ > probably > not > always $_{II}$

However, although 'always' precedes 'probably' in (5), both positions for 'always' actually appear below 'probably' in Cinque's hierarchy. Theoretically, it should be possible to accept Cinque's approach without accepting his exact array of functional projections. In actuality, any rearrangement of the cascade of heads he posits will contradict his evidence on the matching sequencing of adverbs and verbal morphology. Since these ordering data are the basis for his claim regarding a hierarchy of functional projections, any serious challenge to the configuration of projections that he proposes must bring into question the entire theory of an extended functional hierarchy. Therefore, even overlooking the apparent transitivity failure with 'always', 'probably', and 'not', the fact that 'always' can precede 'probably' at all is problematic for Cinque's account.

It is possible to come up with other examples of transitivity failure.

(22) a. Jane frequently could quickly answer George's questions
b. Jane quickly could frequently answer George's questions

(23) a. Jane frequently could cleverly answer George's questions
b. Jane cleverly could frequently answer George's questions

As shown in (22) and (23), *frequently* may occur before and after both *quickly* and *cleverly*. If there are only two positions for *frequently*, and *quickly* occurs before *cleverly*, then the base positions for these three adverbs would have to be ordered as in (24).

(24) frequently > quickly > cleverly > frequently

[7] He does note, though, that *always* > *probably* is relatively rare, in both Norwegian and English.

[8] As previously mentioned, Cinque assumes that there are items which are not in the same position yet do not co-occur, such as French *plus* and *pas*.

This sequence is the only one that would allow *frequently* to precede and follow both of the other adverbs, while maintaining their order with respect to each other. Example (25) demonstrates, though, that it is possible for *frequently* to appear between *willingly* and *cleverly*.

(25) Jane quickly could frequently answer George's questions cleverly

From evidence of this type Ernst (2006: 1017f) concludes that there must be at least three positions for *frequently*.

(26) frequently > quickly > frequently > cleverly > frequently

Ernst argues that the three positions for *frequently* do not all have clear interpretational differences, and that these examples therefore undermine Cinque's analysis, which crucially depends on each position corresponding to a different interpretation.

Of course, if *frequently* has multiple positions where it may be base-generated then the same should be true for *quickly* and *cleverly*, as in (27), making it possible not only for *quickly* to precede *cleverly*, but also for *cleverly* to precede *quickly*.

(27) a. Jane quickly could answer George's questions quickly
'Jane soon could answer George's questions fast.'
b. Jane cleverly could answer George's questions cleverly
'It was clever of Jane to be able to answer George's questions in a clever way.'

(28) a. Jane quickly could answer George's questions cleverly
'Jane soon could answer George's questions in a clever way.'
b. Jane cleverly could answer George's questions quickly
'It was clever of Jane to be able to answer George's questions fast.'

With a configuration such as (29), then, it is possible to derive several possible orders of these three adverbs, without having three positions for *frequently*[9].

(29) frequently > quickly > cleverly > frequently > quickly > cleverly

[9]This particular sequence actually permits only five of six possible permutations of these three adverbs. It does not allow for *cleverly* > *quickly* > *frequently* (e.g. *Jane cleverly could quickly answer George's questions frequently*). Giving each of three adverbs two positions of base generation, there is no way to configure them to give all of the six possible permutations.

Even allowing two positions for several types of adverbs is not sufficient, though. Any two adverbs have only two possible linear orders. However, if each adverb is of a type that has two possible positions for base generation, any one surface order will have at least two, and as many as four, possible underlying structures. In determining a fixed hierarchy of adverb positions, then, there are six possible adverb position orders for any two adverbs with two positions, as schematised in (30).

(30) a. quickly > quickly > cleverly > cleverly
b. quickly > cleverly > quickly > cleverly
c. quickly > cleverly > cleverly > quickly
d. cleverly > cleverly > quickly > quickly
e. cleverly > quickly > cleverly > quickly
f. cleverly > quickly > quickly > cleverly

None of the configurations in (30) captures all grammatical orders of these two adverbs. Regardless of which schema is correct, there is no permutation of two possible positions for each of these adverbs that allows *quickly* to precede two instances of *cleverly*, and *cleverly* to precede two instances of *quickly*. As shown in (31), both combinations are possible.

(31) a. She quickly cleverly answered every question cleverly
'She was quick to be clever in answering the questions in a clever way.'
b. She cleverly quickly answered every question quickly
'She was clever to be quick in answering each question in a quick way.'

According to the schema in (30), either (31)a or (31)b must be ungrammatical. While (31)a is compatible with (30)a, (30)b, and (30)c, it would be ruled out by (30)d, (30)e, and (30)f. On the other hand, (31)b would be allowed with (30)d, (30)e, and (30)f, but not (30)a, (30)b, and (30)c. Given that both examples are actually grammatical, it would be necessary to have more than two positions of base generation for at least one of these adverbs. Though one type of adverb could possibly correspond to more than two functional projections, such a solution moves increasingly far from Cinque's one-adverb-to-one-position restriction.

More generally, Cinque's division of several groups of adverbs into two functional heads misses an important generalisation. He argues that frequentative or repetitive

adverbs (e.g. *often*, *twice*), celerative adverbs (e.g. *quickly*), certain types of manner adverbs (e.g. *cleverly*), and completive adverbs (e.g. *completely*) must each correspond to two positions. Yet the distributions of the 'higher' and 'lower' interpretations are identical for every group: all allow their 'higher' reading before auxiliaries and directly before the verb, but not postverbally, and their 'lower' reading directly before the verb and postverbally, but not before auxiliaries. This commonality suggests that their ambiguity stems from some overriding constraint(s) on adverb interpretation, rather than each class of adverb having two possible positions separate from the positions available to the others.

1.3.3 VERB MOVEMENT

Bobaljik (1999) argues that a 'functional specifier' analysis leads to a 'hierarchy paradox' Cinque's hierarchy of projections depends on the idea that adverbs are strictly ordered and appear in fixed positions, with verbal elements and arguments moving around them. But verbal elements and arguments are also ordered, meaning that Cinque's reasoning could be applied in reverse, with verbs and arguments in fixed positions and adverbs moving around them. There is no way to simultaneously derive the ordering of adverb and the ordering of verbs and arguments from the type of functional hierarchy that Cinque proposes.

Bobaljik mentions the possibility of a rule of isomorphy, which allows verbs and arguments to move, but requires that they end up in their original order. He rejects this idea, however, as unparsimonious in its extra isomorphic specifications. His solution to the hierarchy paradox is to generate multiple independent tiers of clause structure, which are eventually interleaved into a single structure. This explanation has echoes of a semantic adjunction approach in combining hierarchies that have been generated separately, though in this instance both hierarchies are based on phrase structure. While I will opt for an analysis that makes use of only a single syntactic tier, Bobaljik's assessment that 'the principles ordering adverbs occupy a different plane than those ordering verbal elements and arguments' (1999: 28) seems fundamentally correct.

Movement of verbs around adverbs also may violate Travis's (1984) Head Movement Constraint (HMC), as in (32) and (33), where several auxiliaries appear to move over a single adverb. Because the HMC precludes head movement bypassing heads, if the

higher auxiliary (e.g. *may*) undergoes head movement over an adverb it will impossible for a lower auxiliary (e.g. *have*) to also undergo head movement over that adverb, as it would cross the trace of the first.

(32) (Svenonius 2002: 208)

a. Howard foolishly may have been trying to impress us
b. Howard may foolishly have been trying to impress us
c. Howard may have foolishly been trying to impress us
d. Howard may have been foolishly trying to impress us

(33) (Ernst 2002: 117)

Maureen could have been wisely getting involved in other pursuits

Cinque (2004) addresses (32)a, pointing out that *foolishly* has two interpretations, and thus may be generated in two positions in his hierarchy. The same can be said for *wisely*. If the different base positions for these two-position adverbs are within the auxiliary range it is possible to derive all orders in (32). I have already shown, of course, that such adverbs actually require more than two positions in order to account for their order with respect to other adverbs. Setting these aside, there are adverbs such as *probably* that have only one interpretation, making examples such as (34)c problematic.

(34) a. George probably will have read the book
b. George will probably have read the book
c. George will have probably read the book

Probably belongs to the class of epistemic modals, a category that appears relatively high in Cinque's hierarchy, and does not have multiple positions of base generation. Example (34) would thus involve the adverb being generated above the subject and auxiliaries. These constituents, including both auxiliaries, would then have to raise over *probably*. However, *have* cannot raise into the position vacated by *will*, or cross its trace.

Cinque claims (34)c is ungrammatical. He is then forced to concede in an endnote that such examples may be acceptable for some speakers. He suggests that the HMC violation might be solved if *probably* either is being used for focus, or '*have* (əv) is actually a reduced form of *of*, a complementizer', but does not elaborate on the implementation of these alternatives (1999: 213n4). Sentences such as (34)c therefore present a real

stumbling block for his account, especially since grammatical examples of *probably* following multiple auxiliaries are easily found[10].

(35) (Examples from British National Corpus)

a. ...those with time for a 30-kilometre trek **could have probably** made it...

b. As you **will have probably** read from your QT notes...

c. I **would have probably** gone to Wimbledon with a cast on...

With no clear effects on interpretation, the verb and argument movements required to derive different linear adverb positions also appear to be unmotivated. Cinque's analysis thus conflicts with the Minimalist view of syntax, which requires that movements be triggered by feature-checking requirements. With respect to the optional movement of the subject around adverbs, Cinque comments that the subject might enter into a feature-checking relationship, or that its movement might be 'motivated by (LF) concerns of a relative scope between the subject and different adverbs' (1999: 115).

The first suggestion, which amounts essentially to an optional feature that causes the subject (or verb, or object) to move, would adequately allow for variable movement. At the same time, this optional [+MOVE] feature has no reason to exist independent of the need to motivate movement in order to derive certain adverb positions. Such a mechanism is not impossible, but comes across as largely descriptive.

The second suggestion implies that the overt movement of the subject would change its scope, and thereby its interpretation. According to this explanation, the subject must have different scopal readings in different positions, which could not be derived other than by overt movement. Since some arguments (e.g. quantified ones) already have scopal ambiguities in a single position it is not clear what would necessitate these overt movements.

1.3.4 SUMMARY

Cinque's match-up between adverb and auxiliary orders is compelling. However, in order to account for all possible adverb configurations, his already-complex clause structure

[10] In Chapter 3 I will argue that the HMC should be eliminated. However, head movement of multiple auxiliaries over a single adverb will still be precluded in my account.

must be expanded to accommodate multiple argument and verb positions. His assumption of default values for functional heads means that the overt expression of some adverbs should be redundant. Furthermore, his analysis cannot accommodate all possible adverb orders, and requires a number of unmotivated movement features. By dividing adverbs into so many categories, Cinque also misses potential generalisations about their scope. For these reasons, his functional specifier account fails to capture the realities of adverb distribution.

1.4 PROBLEMS FOR SEMANTIC ADJUNCTION

Although it allows a given adverb to be in more than one position, Ernst's proposal still requires some syntactic hierarchy. On this he attempts to impose a semantic hierarchy, i.e. his FEO Calculus, which applies to both functional projections and adverbs. One apparent result of this approach is that the semantics of certain heads must be quite flexible, as they may select for either an unmodified projection or one which has an adjoined adverb. As an adverb may change the FEO output, the selecting head must be able to take more than one type of FEO input.

Nilsen (2003) discusses this problem in terms of the semantics of T. If T denotes tense and is not semantically vacuous, he argues, then it should be incorporated in the selectional properties of the FEO Calculus. Given the different types of adverbs that can adjoin to T, though, it must have several output types, meaning that it 'mindlessly passes on the FEO-type of its complement' (2003: 15).

Bentzen (2007) makes a similar point regarding the adjunction of 'low' adverbs such as 'completely' in Norwegian, which can apparently be adjoined to 'high' positions, with no change in interpretation. In such cases, Bentzen (2007: 50) suggests, 'intervening projections may be irrelevant for modification'. If one adopts Ernst's account, the apparent lack of interference by certain projections is not cross-linguistically consistent, as *completely* cannot appear in such a high position in English. The idea that some projections simply are ignored in some instances also contradicts the idea of the FEO Calculus, as presumably it applies to every head.

(36) a. John has completely finished the cake
b. *John completely has finished the cake

Ernst (2006) argues that manner adverbs such as *completely* cannot appear before auxiliaries because the auxiliary converts the 'specified event' denoted by the lexical verb to an 'event', such that it is no longer of the correct input type for a manner adverb. This explanation obviously cannot be applied to Norwegian 'completely'. It also does not account for subject-oriented adverbs in English, which may appear both before and after *has*, as they would have to allow both 'specified events' and 'events' as FEO inputs, seemingly going against the idea that each adverb type has specific lexicosemantic requirements.

(37) a. George will cleverly have answered the questions (stupidly)
b. George will have cleverly answered the questions (stupidly)

In general, Ernst's theory depends on the notion that adverbs always take scope over what they precede. This assumption is belied by the placement of 'completely' in Norwegian, and also by examples such as (38)a, in which the adverb *intentionally* does not take scope over the matrix verb *seem*, which it cannot modify. At the same time, adverbs do consistently take scope over other adverbs. A semantically related adverb to *seem* (38)b is therefore ungrammatical following *intentionally*.

(38) a. George intentionally seems to have insulted Jane
b. *George intentionally has seemingly insulted Jane

These scope inconsistencies suggest that, while perhaps more empirically sound than the functional specifier approach, a semantic adjunction account is still inadequate. Nilsen (2003) observes that these two types of accounts are not dissimilar, in that both make use of predetermined hierarchies. Cinque attempts to incorporate adverbs and verbal morphology into a hierarchy defined by a cascade of functional projections. Ernst's proposal also requires a series of functional projections, which determines the order of auxiliaries[11]. As seen above, problems arise in integrating the FEO calculus with this hierarchy.

[11]Unlike Cinque's, Ernst's functional projections are optional. If verbal morphology does indeed have a strict order, then the order of those functional projections must be derived from selectional requirements, either syntactic or semantic.

1.5 PROBLEMS FOR REMNANT MOVEMENT

By merging adverbs where they take scope, Nilsen's VP-remnant movement account overcomes the problem encountered by semantic adjunction accounts, where certain projections must be irrelevant to certain adverbs. However, like the extensive head movement in Cinque's account, the remnant movements he proposes lack motivation.

Abels (2003) rules out the 'roll-up' of a complement to the specifier of the same projection on theoretical grounds, an issue I will look at in Chapter 3. Setting this consideration aside, I will assume for the moment that remnant movement occurs with 'lifter' projections, as described by Bentzen (2007). What, then, determines whether adverb or verb lifters are present? As Bentzen points out, these lifters must be parameterised across languages to derive crosslinguistic adverb placement differences. Parameterisation of lifters does not seem impossible, although they are apparently instantiated only to derive the required verb movement, and have no effect on affixation or meaning. It is more problematic that in some languages the lifters must also be optional in order to derive variation in adverb placement, making them no more explanatory that Cinque's optional strong features. There is also optionality with regards to whether a verb moves on its own or with an adjoined adverb (see examples (8) and (9)). Nilsen claims that there is an interpretational difference between the resulting forms (*John has often* v. *John often has*). It is also possible, though, for an adverb to have the same reading in multiple positions, meaning that whether an adverb moves along with a verb or not would be entirely arbitrary.

Nilsen notes that it is in unclear what drives the series of movements he argues for. He tentatively suggests that auxiliaries must be adjacent to the other auxiliary verbs that they select for. The blocking of adjacency by intervening adverbs could then trigger these verb movements. I see no reason, though, why an adverb adjoined to a projection should block selection of that projection. Moreover, these adjacency requirements would again have to be parameterised across languages, and optional within some languages for certain projections.

A VP-Remnant movement approach also still cannot account for certain scope facts. If an adverb is adjoined to a projection that it takes scope over, it should be free to appear above higher projections by way of successive lifting, but it should not be able to appear

below the original projection. Bentzen points out that some adverbs do take scope over preceding finite verbs in Northern Norwegian, as in (39). The gloss shows that the same is true for English adverbs directly following the first auxiliary.

(39) Bentzen (2007: 45)

...ettersom ho har allerede kjøpt tre par denna uka
...as she has already bought three pairs this week
'...as she has already bought three pairs this week.'

In order to account for the unexpected inverse scope of the adverb, Bentzen posits an optional additional movement of the verb to a 'high' position, either by head movement or additional remnant movements. Why this movement should occur (and apparently be favoured in English) is not obvious. Bentzen admits, 'The fact that a separate stipulation had to be made for finite verbs could possibly be a challenge to the remnant movement account' (2007: 50).

1.6 CONCLUSION

Cinque's (1999) attempt to accommodate adverbs and verbal morphology into a single hierarchy proves empirically unworkable, in that it cannot account for all adverb orders, requires a number of unmotivated verb movements, and misses generalisations regarding correlations between adverb position and interpretation. Ernst's (2002) FEO calculus cannot be applied to the a syntactic hierarchy in such a way that functional projections and adverbs consistently take the same types of input and output. His analysis also cannot explain instances in which an adverb precedes an element that it does not take scope over. Nilsen's (2003) account also requires a great deal of unmotivated and optional movement, and must stipulate extra head movement in addition to the required remnant movement when an adverb takes inverse scope over a preceding verb. I will thus seek to develop an analysis of adverb distribution which eliminates unmotivated functional projections, provides a clause structure with semantically consistent components, and minimises optional or unmotivated movement.

CHAPTER 2

Adverbs and Restructuring

2.1 INTRODUCTION

Investigation of adverb distribution has largely been confined to simplex clause contexts, with little discussion of how adverbs behave with more complex clause structures. Infinitival complements pose a particularly interesting challenge to understanding the domain over which rules of adverb distribution operate, as 'Restructuring' effects suggest that they may not always constitute discrete clauses. The availability of particular adverbs with different types of verbs that take infinitival complements can therefore provide new insight into the limitations on adverb distribution. At the same time, the distribution of adverbs has the potential to provide greater insight into the shape of these infinitival complements.

In this chapter I will look at Adverb Climbing (AC), in which an adverb preceding a verb with an infinitival complement modifies the non-finite complement verb rather than the matrix verb. The acceptability of AC with different types of matrix predicates will provide insight into the domain of modification for adverbs. My examination of this phenomenon will allow me to propose a novel account for adverb distribution, as well as suggesting that the possibility of AC shows that English Raising and Control predicates select for different sizes of complement.

Section 2.2 will begin with an examination of approaches to Restructuring, in which seemingly multiclausal constructions exhibit monoclausal behaviour. This discussion will especially focus on Cinque's (2002) monoclausal and Wurmbrand's (1999) reduced

complement analyses. I will look at 'transparency effects', effects taken to indicate Restructuring because they exceptionally obtain across mutiple clauses with certain matrix verbs. Giving particular attention to Auxiliary Change and Clitic Climbing in Italian, I will consider whether the presence of one transparency effect in the absence of another indicates that they are not obligatory in Restructuring constructions. I will show that transparency effects are not arbitrarily optional, but situated on an implicational scale, such that failure of one to occur with another points to a hierarchy of Restructuring corresponding to different sizes of infinitival complement, as argued for in Wurmbrand (1999). I will then assess further evidence in favour of Wurmbrand's approach, arguing that her analysis, in which some predicates can take both non-Restructuring and reduced Restructuring complements, is superior to Cinque's, in which Restructuring verbs are slotted into an invariant clause structure. My comparison of these approaches will be followed by a brief review of how adverbs have previously been used to indicate Restructuring. I will conclude that Wurmbrand's reduced complement analysis best explains how transparency effects are motivated and why Restructuring varies crosslinguistically. This discussion of Restructuring will lay the groundwork for the analysis of Adverb Climbing in §2.4.

In §2.3 I will look at the Movement Theory of Control (MTC), first proposed by Hornstein (1999), in which Control consists of movement from one theta position to another. I will consider the advantages of this theory, namely certain aspects of the relationship between a controlled empty category and its antecedent, and the elimination of PRO and problematic aspects of the associated PRO module, such as the need for null case. Then I will discuss the fact that the MTC fails to account for instances in which the controller is not the closest possible antecedent to the controlled empty category, arguing that this issue cannot be resolved by introduction of a null preposition. Other problems with the MTC, such as its failure to account for Partial Control and Split Control, will also be addressed. The next subsection will show that Jackendoff & Culicover's (2003) argument that controller choice depends on semantic criteria such as 'joint intention' also does not account for the data. I will conclude that instances of Partial Control are best explained by T-to-C movement, as proposed by Landau (2007), who observes that there is a correlation between predicates that allow for Partial Control and those that allow infinitival complements with independent tense specification. I will then revisit

Restructuring, arguing that the absence of transparency effects with English Raising verbs does not rule out the possibility that they take reduced infinitival complements. Selection of reduced infinitival complements by Raising verbs, along with T-to-C movement in some Control complements, will prove crucial for my later analysis of Adverb Climbing.

Starting with the French data described by Bok-Bennema & Kampers-Manhe (1994) and Cinque (2006), in §2.4 I will give an overview of Adverb Climbing (AC), in which an adverb precedes a verb with an infinitival complement but does not take scope over it. This will be followed by a look at previously undescribed data in English, for which AC is usually limited to Raising verbs. I will show that previous approaches to adverb distribution cannot account for AC, and reject the possibility that this phenomenon depends on theta-role assignment. Having defined additional syntactic restrictions on AC, I will look at infinitival complement size in English, as well as T-to-C movement. I will then preliminarily set out criteria for adverb distribution, based on whether an adverb c-commands and is in the same phase as the projection it modifies. This proposal will subsequently be refined following a look at possible instances of AC with Control verbs, and comparison of AC to Neg-Raising. I will also consider the lack of AC with Raising-to-Object verbs, with a discussion of two possible reasons for this unexpected non-occurrence: V-to-T movement of the matrix verb, or selection of a CP complement. The latter will prove a better explanation, despite requiring Improper Movement.

The primary outcomes of this chapter will be additional evidence that Control and Raising verbs take different types of infinitival complement, as shown by the variable availability of AC, and a proposal for the criteria governing adverb distribution:

(1) a. An adverb must c-command the projection it modifies.

AND

b. (i) The adverb must appear in the same phase as that projection. **OR**
(ii) The adverb must have access to the features of that projection at the edge of a lower phase.

2.2 RESTRUCTURING

'Restructuring' refers to constructions in which an otherwise multiclausal structure exhibits monoclausal behaviour. The term originated with the idea that such constructions

resulted from deletion of material in a full complement clause so that it was 'restructured' (Rizzi 1982). Indicators of Restructuring, operations that seem to apply across two clauses when they would normally be limited to a single clause, are known as 'transparency effects'. For example, the object clitic of an embedded infinitive may precede a matrix verb in Spanish and Italian, apparently appearing outside the clause in which it originates. Only certain predicates allow these 'Clitic Climbing' configurations.

(2) ITALIAN (Cinque 2001:1)

a. *Lo volevo vedere subito*
him wanted.1SG to-see immediately
'I wanted to see him immediately.'

b. **Lo detesto vedere in quello stato*
him hate.1SG to-see in that state

The idea that Restructuring constructions are actually 'restructured' has recently given way to theories in which they consist of structures that are never fully multiclausal. These proposals have led to re-examination of the significance of transparency effects and the definition of 'multiclausal'. The following sections look at a monoclausal and a reduced complement approach to Restructuring, with a view to ultimately examining the behaviour of adverbs in potential Restructuring contexts.

2.2.1 APPROACHES TO RESTRUCTURING

Cinque (2002) views Restructuring verbs in terms of the cartographic hierarchy of functional heads proposed in Cinque (1999). Because this clausal architecture is universal and invariant, Restructuring predicates are simply slotted into predetermined positions, so that the clause structure is unaltered by the presence or absence of any given Restructuring verb. Furthermore, Cinque argues that Restructuring verbs, as part of the functional structure of the clause, never assign theta roles.

This is the most monoclausal approach to Restructuring possible, as Cinque denies that the introduction of a Restructuring predicate has any effect on clause structure at all. In support of this claim he cites the supposed rigid ordering of these predicates, which he takes to show that Restructuring verbs remain part of the functional structure of the

clause even in cases where transparency effects do not obtain[1]. In other words, because Restructuring predicates have a specific order, they must have corresponding specific positions in his functional hierarchy.

In contrast, Wurmbrand (2001) views each transparency effect as pertinent to the structure of the complement clause. She notes that these effects do not always occur or fail to occur together, and thus rejects the binary Restructuring/non-Restructuring distinction. Instead, she concludes that verbs that take infinitival clausal complements can be identified as belonging to four classes: Functional Restructuring, Lexical Restructuring, Reduced non-Restructuring, and Full non-Restructuring predicates.

The two Restructuring categories are divided according to whether they are in the 'thematic domain'. Lexical Restructuring predicates assign external theta roles, and appear lower down in the clause, as they are not part of its functional structure. They are also ambiguous, acting as non-Restructuring predicates in the instances where they do not show transparency effects. Functional Restructuring predicates are non-thematic and unambiguous, appearing higher in the clause as part of its functional structure. Both types of Restructuring verb take a reduced clausal complement, consisting of a bare VP, which lacks TP and *v*P projections. Reduced non-Restructuring predicates have complements which lack CP, but may have a *v*P and TP.

In diverging from traditional approaches, which arrive at monoclausal structures by generating full CP complements and then deleting unnecessary projections, both Cinque's and Wurmbrand's analyses represent more economical solutions to the Restructuring problem. Generating structure that has no meaning during any part of the derivation is unparsimonious and unmotivated, especially if syntax is not to be 'templatic or vacuous' (Wurmbrand 2001: 136).

[1]Cinque (2002: 19) gives the following as an example of rigid ordering of Restructuring verbs, claiming that the ungrammaticality of (ii) cannot be semantic because 'it would make perfect sense to "stop having the habit of doing something".'

(i) Soleva smettere di vederla/?smetterla di vedere ogni sei mesi'
He used to stop seeing her every six months'

(ii) *Smetteva di soler vederla/solerla vedere ogni sei mesi
*'He stopped using to see her every six months'

Alternatively, it has been suggested that Restructuring represents raising of the lower verb to the higher tense head. Wurmbrand points out that this movement would always have to be covert, despite the fact that overt V-to-T movement is possible in other circumstances. Such raising would also have no discernible reason other than the need to explain transparency effects, though it has been suggested that it occurs because of some tense deficiency of T in the infinitival complement. In §2.4.6.2 I will show that some apparent transparency effects do result from head movement within the lower clause, rather than from the complement to the matrix clause.

2.2.2 ARE TRANSPARENCY EFFECTS OPTIONAL?

One question that divides Cinque's monoclausal and Wurmbrand's reduced complement approaches to Restructuring is whether particular transparency effects must apply in a Restructuring construction, or a Restructuring configuration is merely a necessary condition for transparency effects to apply.

Wurmbrand (2001; see also 2004, 2005) argues that transparency effects must obtain in Restructuring constructions by virtue of the lack of structure in the infinitival complement. Because Restructuring verbs take reduced complements, lacking CP, TP, or *v*P depending on the degree of Restructuring, elements that would typically move to these projections are forced to move to the equivalent projections above the matrix predicate.

Cinque (2004), on the other hand, claims that transparency effects do not always occur in Restructuring constructions. If Restructuring predicates are inserted into the hierarchy of functional projections which under his analysis comprises every clause, then the application of transparency effects will be entirely optional, as they will not result from structural differences. The grammaticality of a given transparency effect will identify a Restructuring predicate or its unavailability will identify a non-Restructuring predicate, but the non-occurrence of a possible transparency effect will indicate nothing about structure.

Particularly pertinent to this issue is the co-occurrence (or lack thereof) of Auxiliary Change and Clitic Climbing. Auxiliary Change, which occurs in Romance languages such as Italian, is the process by which the verb in the infinitival complement assigns an auxiliary to the matrix predicate which differs from the one that verb would usually take (Kayne 1991; Cinque 2004). For example, if an Italian matrix verb which normally takes

the auxiliary *avere* 'have' has in its infinitival complement a predicate which typically takes the auxiliary *essere* 'be', the matrix verb may have *essere* as its auxiliary in a Restructuring construction. Thus (3) is grammatical, even though *dovere* 'must' would otherwise have *avere* as its auxiliary.

(3) (Cinque 2004)

Maria	***c'***	***è***	*dovuta*	*venire*	*molte*	*volte*
M.	there	is	had-to	come	many	times

'M. must have come there many times'

The term Auxiliary Change (or Auxiliary Switch) partly mischaracterises this phenomenon. The auxiliary for the Restructuring predicate does change when the auxiliary for the lower verb differs from that for the higher verb. If both verbs would typically have the same auxiliary, then it is impossible to tell which is determining the matrix auxiliary. I assume, though, that the lower verb will have assigned the matrix auxiliary in any construction where Auxiliary Change would apply if the matrix and embedded verbs took different auxiliaries.

As shown in (2), Clitic Climbing occurs when a clitic pronoun which is an object of the verb in the infinitival complement appears in a position preceding the matrix verb. Though Wurmbrand focusses on languages that do not have object clitics, and hence no Clitic Climbing, her analysis can explain this phenomenon. If the reduced infinitival complement lacks the projection which clitics typically move to, they will move to the equivalent position in the matrix clause in order to satisfy the requirements which would otherwise motivate them to appear in preverbal position in the embedded clause.

Because Wurmbrand allows for different degrees of Restructuring, corresponding to the absence of different levels of structure in the reduced complement, it is possible under her theory for different transparency effects to be obligatory but not co-occur. Particular transparency effects target particular levels of structure; the more reduced the size of the infinitival complement, the more transparency effects will obtain. In essence, the degrees of Restructuring should put the occurrence of different transparency effects on an implicational scale.

Cinque (2004) demonstrates that Auxiliary Change occurs without Clitic Climbing in Italian, and therefore concludes that Clitic Climbing is optional in Restructuring constructions. He further indicates that Clitic Climbing does not occur in the absence of Auxiliary

Change. Thus (4)a, which has Clitic Climbing but no Auxiliary Change, is ungrammatical. At the same time, (4)b, which has Auxiliary Change but no Clitic Climbing, and (4)c, which has Auxiliary Change and Clitic Climbing together, are both acceptable. If correct, these facts do not contradict the implicational scale that Wurmbrand's analysis demands.

(4) (Cinque 2004)

a. *(?)Maria **ci** **ha** dovuto venire molte volte
Maria there has had to come many times'
'M. has had to come there many times'

b. Maria **è** dovuta venir**ci** molte volte
M. is had to come-there many times '
'M. must have come there many times'

c. Maria **c'** **è** dovuta venire molte volte
M. there is had to come many times
'M. must have come there many times'

Not all evidence points to an implicational scale between these two transparency effects. Kayne (1991: 253) states 'rather than being coextensive with Clitic Climbing, the range of this [auxiliary] phenomenon, whereby auxiliary "be" is licensed in some sense by the embedded infinitive, is definitely more restricted than that of Clitic Climbing,' but does not elaborate. Again, many instances of Auxiliary Change may not be apparent because they involve assignment of a 'have' auxiliary by the lower verb when the higher verb also takes a 'have' auxiliary.

More difficult to explain are data from Cardinaletti & Shlonsky (2002), who show that verbs that take the auxiliary *essere*, such as *andare* 'go', will not show Auxiliary Change to *avere* in the presence of Clitic Climbing. Auxiliary Change is impossible in (5), even though it has Clitic Climbing.

(5) (Cardinaletti & Shlonsky 2002)

a. ***Lo** **ho** andato a trovare
him have.1SG gone to visit
'I went to visit him.'

b. **Lo** **sono** andato a trovare
him be.1SG gone to visit

Causative and perception verbs, which take the auxiliary *avere*, also do not trigger Auxiliary Change, even in the presence of Clitic Climbing.

(6) (Cardinaletti & Shlonsky 2002)

a. ***L' ho*** *fatto andare a prendere a Maria*
it have.1SG made go to fetch to Maria
'I made Maria go and fetch it.'

b. ****Lo sono*** *fatto andare a prendere a Maria*
it be.1SG made go to fetch to Maria

At first glance these data imply that, as it is possible for Auxiliary Change to occur without Clitic Climbing, and Clitic Climbing without Auxiliary Change, there is no implicational scale for these two effects. Auxiliary Change differs from other transparency effects, though, inasmuch as it depends on the realisation of a particular type of element rather than its placement. Consequently, the matrix verb can have effects on Auxiliary Change which are independent from the structure of the embedded infinitive.

Cardinaletti & Shlonsky (2002: 540) describe those Restructuring predicates that do not undergo Auxiliary Change as 'imposing' their own auxiliaries, and also state that 'modal verbs do not have their own auxiliary when occurring as functional verbs'. Taking this conclusion further I assume that modals never have 'their own' auxiliary, and *avere* is a default, produced in the absence of any other specification. In Restructuring configurations with a modal, the absence of the auxiliary-hosting projection in the reduced complement will result in the lower predicate selecting the auxiliary for the next nearest auxiliary-hosting projection, above the matrix verb. Because the modal does not assign any auxiliary itself, it will take whatever auxiliary is assigned by the lower predicate. As discussed above, Auxiliary Change will still have taken place when the auxiliary for a matrix modal is *avere* in Restructuring constructions, as the auxiliary will still have been assigned by the embedded verb rather than the modal itself.

If both the matrix verb and the embedded verb have a specified auxiliary, the matrix verb will take precedence over the embedded verb in assigning the matrix auxiliary, and there will be no Auxiliary Change. In other words, assignment of the matrix auxiliary by the matrix verb will block assignment of the matrix auxiliary by the embedded verb, even though the infinitival complement may still lack the auxiliary-hosting projection. Lack of Auxiliary Change in these instances does not indicate that there is no implicational scale

with respect to Clitic Climbing and Auxiliary Change, but rather that an additional factor (namely, assignment of the auxiliary by the matrix verb) may prevent Auxiliary Change while having no effect on Clitic Climbing.

If Auxiliary Change were optional in the presence of Clitic Climbing for a particular Restructuring predicate, then the implicational scale would not hold. However, given that Auxiliary Change is categorically grammatical or ungrammatical for particular Restructuring verbs (or types of Restructuring verbs), interference by the matrix predicate is clearly implicated. The failure of Auxiliary Change and Clitic Climbing to co-occur thus does not constitute evidence against Wurmbrand's theory of reduced infinitival complements.

2.2.3 MORE ARGUMENTS FOR A REDUCED COMPLEMENT APPROACH

As discussed above, Cinque's approach to Restructuring provides little motivation for the occurrence of transparency effects. More fundamentally, despite the considerable number of projections it encompasses, his functional hierarchy cannot account for the possibility of a Restructuring predicate appearing twice, as in (7). Such a construction would either require the same predicate to appear in different functional heads, or for the functional heads to be duplicable. Both solutions clearly go against the spirit of Cinque's proposal.

(7) I don't **want** to **want** to eat the cake (but I can't avoid feeling tempted)[2]

What is more, Wurmbrand's evidence that certain projections are not present in Restructuring configurations is compelling. In German, for instance, certain verbs require a Long Passive, where the embedded object appears in the subject position of the matrix predicate.

(8) a. *dass der Traktor zu reparieren versucht wurde*
that the tractor-NOM to repair tried was
'that they tried to repair the tractor'

b. *dass die Traktoren zu reparieren versucht wurden*
that the tractors-NOM to repair tried were
'that they tried to repair the tractors'

[2]I use *want* in this example not because I necessarily believe that it is a Restructuring verb in English, but because in Cinque's model it would be considered one.

This form is obligatory in Restructuring constructions, and follows straightforwardly if there is no *v*P in the embedded infinitive, forcing the embedded object to move up to Spec,*v*P of the matrix predicate for case assignment. As a result, the embedded object is nominative instead of accusative, and undergoes agreement with the matrix verb. Long Passives do not occur with non-Restructuring verbs because they have at least a *v*P layer, and the concomitant case-assigning positions, that Restructuring predicates lack.

The biggest drawback to Wurmbrand's proposal is the ambiguity of lexical Restructuring verbs, which have non-Restructuring equivalents. Wurmbrand suggests that there is not just a structural, but also a semantic difference between the Restructuring and non-Restructuring instantiations of these verbs. It is not always evident what these semantic differences are, although Napoli (1981) observes that selective realisation of transparency effects can subtly change the meaning of a verb in Italian. She gives an example of a text in which an instance of Italian 'want' with Clitic Climbing expresses intent, while an instance of 'want' without Clitic Climbing expresses desire without intent.

Under Wurmbrand's analysis, then, subtle meaning changes would lead a predicate to select a Restructuring or non-Restructuring type complement in a given instance. The extent of these semantic differences may need more clarification, but if transparency effects are true indicators of Restructuring/monoclausality, optional selection of Restructuring type complements better explains why some verbs inconsistently show transparency effects than Cinque's approach, in which the transparency effects themselves are optional, with no justification one way or another, but Restructuring is not.

The basis of Cinque's analysis, that all clausal architecture is the same, regardless of language and regardless of which predicates are overtly expressed, presents another fundamental drawback in terms of crosslinguistic variation. Wurmbrand stresses that the model she presents applies specifically to German. In instances where she stipulates predetermined structure (designating a pair of ordered modal projections in the functional domain, for instance), she does not claim that this clausal architecture is universal. Her account thus allows for variation among languages in terms of which verbs are Restructuring or non-Restructuring predicates. Though the verbs which allow Restructuring are often semantically similar or related, the distinction is ultimately selectional rather than semantic.

2.2.4 ADVERBS AS A RESTRUCTURING DIAGNOSTIC

Given that one objective of this chapter is to examine the use of adverbs with embedded clauses, it is worth noting that adverbs have occasionally been used as a diagnostic for Restructuring. First, the use of adverbs can help determine whether a structure is mono- or biclausal.

(9) (Cinque 2004: 5)

a. *Maria vorrebbe **giá** aver**lo** **giá** lasciato*
Maria would-want **already** to-have-**him** **already** left
'Mary would already want to have already have left him.'

b. *Maria **lo** vorrebbe **già** aver **già** lasciato'

'Already' cannot occur twice in monoclausal configurations. The ungrammaticality of two instances of 'already' in (9)b therefore suggests that it is monoclausal. Clitic Climbing has been used to show that it is in fact a Restructuring construction.

As Wurmbrand (2004: 1007) points out, the acceptability of (9)a suggests that it is biclausal. However, given Cinque's claim that Restructuring verbs are Restructuring verbs even when they do not show transparency effects, (9)a and (9)b should be equally ungrammatical. Under Cinque's model the prohibition against having two instances of the same adverb would therefore specifically have to result from the Clitic Climbing[3]. It makes more sense to conclude that structures in which transparency effects do not obtain are not monoclausal, and are actually non-Restructuring configurations.

Wurmbrand (2001) also uses adverbs to justify the presence or absence of certain projections in embedded infinitives. For instance, she differentiates between 'tensed' and 'tenseless' infinitives according to the grammaticality of *morgen* 'tomorrow'.

(10) Wurmbrand (2001: 73)

a. *Hans hat beschlossen (morgen) zu verreisen*
John has decided (tomorrow) to go-on-a-trip
'John decided to go on a trip tomorrow'

b. *Hans hat versucht (*morgen) zu verreisen*
John has tried (*tomorrow) to go-on-a-trip
'John tried to go on a trip (*tomorrow)'

[3]Cinque also demonstrates that the transparency effects Long NP-Movement, *Loro* Climbing, and Auxiliary Selection preclude the use of the same adverb twice in otherwise acceptable contexts.

She argues that *beschliessen* 'decide' takes a tensed infinitive, so that the embedded predicate may have its own tense specification, allowing it to have a separate temporal modification from the matrix predicate; the embedded infinitive under *versuchen* 'try' is incompatible with the adverb 'tomorrow' because it lacks a TP projection and must inherit its tense from the matrix predicate, requiring a 'simultaneous interpretation'. In later sections of this chapter I will take a different view of what the difference between temporally dependent and independent infinitives means for structure.

2.2.5 PRELIMINARY CONCLUSIONS ON RESTRUCTURING

This section has shown that Wurmbrand's reduced complement approach to Restructuring has several advantages over Cinque's monoclausal analysis: it offers motivation for *why* transparency effects occur, it shows how it is possible for some transparency effects to obtain when others do not without resorting to entirely arbitrary optionality, and it allows for crosslinguistic variation. There is also evidence that the complements of Restructuring predicates lack certain projections. Ways in which adverbs can be used as Restructuring diagnostics were introduced in §2.2.4. These will become pertinent in later sections.

2.3 CONTROL AND RAISING

Verbs which take infinitival complements are not only divisible by what transparency effects they permit, but also by whether they are 'Control' or 'Raising' predicates. In this section I will look at the distinctions between these two types of construction, as they will later prove to also pattern differently with respect to adverb distribution.

Because of their surface similarity, Control and Raising have traditionally been studied in tandem.

(11) a. George tried to leave (CONTROL)
b. George seemed to leave (RAISING)

The essential difference between them is thematic: Control predicates assign an external θ-role, whereas Raising predicates do not. As a result, passivisation of the infinitive changes the meaning of Control but not Raising constructions (Rosenbaum 1967).

(12) a. The doctor tried to examine John
≠ John tried to be examined by the doctor
b. The doctor seemed to have examined John
= John seemed to have been examined by the doctor

Additionally, Raising constructions allow idiomatic and expletive subjects. Control constructions are ungrammatical with nonthematic subjects (Postal 1974).

(13) a. The jig seems to be up
b. *The jig wants to be up
c. It seems to be raining
d. *It wants to be raining

Within the Government and Binding framework of Chomsky (1981) the contrasts between Control and Raising were explained as a difference between the types of empty categories which serve as the subjects of the infinitival complements, and the way the referents of these subjects are assigned. In Raising the infinitival subject is a trace t, left by movement to the subject position of the higher predicate. In Control the infinitival subject is PRO, a silent pronominal element that is co-indexed with the higher subject. As the head of an A-chain, PRO can bear a θ-role; a trace cannot, as it is part of the A-chain headed by the matrix subject. The matrix subject and PRO are therefore assigned θ-roles separately.

Assignment of a θ-role to PRO prevents violation of the θ-Criterion, which specifies that each argument may have only one θ-role (and each θ-role may be assigned to only one argument). In Raising constructions the subject is assigned its θ-role in the infinitival complement before it moves to the matrix subject position. This movement does not violate the θ-Criterion, as Raising predicates do not assign θ-roles to their subjects.

2.3.1 THE MOVEMENT THEORY OF CONTROL

Hornstein (1999) argues that the θ-Criterion is unnecessary and, as a D-Structure requirement, un-Minimalist (cf. 2000, 2003; Boeckx & Hornstein 2003, 2004, 2006, 2007; Boeckx et al. 2007a, 2007b). He suggests that θ-roles are actually features, so that there is no reason why an A-chain should not have multiple θ-roles. Based on this reinterpretation of θ-roles, he proposes the Movement Theory of Control (MTC). The

MTC makes Obligatory Control (OC), in which PRO has only one possible controller, virtually identical to Raising, different only in that it requires movement from one θ-position to another. Non-Obligatory Control (NOC), in which multiple controllers are possible, involves a *pro* akin to that found in *pro*-drop languages.

This analysis has the advantage of eliminating PRO, a type of empty category conceived for the sole purpose of use in Control constructions, and its accompanying PRO module. Hornstein argues against the traditional construal between the controller and the abstract PRO, claiming instead that an OC PRO is not a PRO at all, but rather an NP-trace. Like other NP-traces (as opposed to case-marked empty categories such as *wh*-traces) it fails to block *wanna* contraction.

(14) (Hornstein 1999: 76)

a. *Who do you wanna vanish? (WH-TRACE)

b. John's gonna leave (NP-TRACE)

c. I wanna leave (PRO)

The elimination of PRO means that null case, used to explain its distribution, can also be dispensed with. Hornstein observes that the assignment of null case by non-finite T has largely been designed to fit the data. Moreover, null case is the only case which is limited to a single type of argument (i.e. PRO). Work in Icelandic has also shown that PRO may in some instances actually be assigned non-null case (Sigurðsson 1991, 2008; Bobaljik & Landau 2007).

Under the MTC it follows straightforwardly that in OC the controlled empty category has only a single possible controller if the latter is simply a syntactic copy of the former. The MTC also derives other characteristics used to distinguish OC from NOC. As Hornstein (1999) argues, analysing OC PRO as a trace explains why it must have an antecedent. Constraints on movement will also result in the requirements that this antecedent be local and c-command PRO. In these respects the MTC initially appears more Minimalist than previous analyses, in that it requires a relatively minimal set of stipulations.

2.3.1.1 PROBLEMS FOR THE MTC

Despite its theoretical attractions, the MTC faces not insubstantial empirical obstacles. Hornstein argues that Control is subject to Rosenbaum's (1967) Minimal Distance Principle (MDP), which 'picks the closest c-commanding potential antecedent as controller'. If Control is in fact a form of Raising, he claims, the MDP can be reduced to the Minimal Link Condition. As discussed in Culicover & Jackendoff (2001), though, the verb *promise* fails to obey this condition (cf. Jackendoff & Culicover 2003; Culicover & Jackendoff 2006; Landau 2003, 2007). In (15)a *John* is the unique controller of the infinitival PRO, despite the intervention of *Mary*, which also c-commands PRO. Controller selection with *promise* contrasts with that of Object-Control verbs, such as *persuade*. *Mary*, the closer antecedent, is the controller in (15)b, as would result from the MDP.

(15) a. John promised Mary to leave
b. John persuaded Mary to leave

Discussion of this difference goes back to Rosenbaum (1967), in which it poses a problem for his formulation of the MDP. *Promise* is thus not just problematic for the MTC, but any theory of Control which determines the controller according to syntactic distance. As such, the MTC fares no worse than the traditional PRO theory of Control in this respect.

Boeckx & Hornstein (2003, cf. 2004, 2006) cite the late acquisition of *promise* type verbs, discovered by C. Chomsky (1969), as evidence that they are 'marked'. They argue that the atypical controller assignment with verbs such as *promise* actually bolsters the MDP (an instance of the exception proving the rule), and that any theory which incorporates *promise* as unremarkable is actually deficient.

These arguments are convoluted at best. As Landau (2007) observes, markedness is not the only reason for late acquisition; constructions such as the passive are also acquired relatively late without being considered exceptional or irregular.

More convincing is Boeckx & Hornstein's (2003) suggestion that *promise* has a null preposition which renders the supposedly intervening object irrelevant to the MDP. This proposal makes *promise* similar to verbs such as *vow* and *commit*, which require a preposition for Subject-Control.

(16) a. John committed Mary to leave (OBJECT-CONTROL, *Mary* leaving)
b. John committed to Mary to leave (SUBJECT-CONTROL, *John* leaving)
c. *John vowed Mary to leave
d. John vowed to Mary to leave (SUBJECT-CONTROL)

In support of this conclusion, it appears that *promise* is unique in English among semantically related predicates (e.g. *pledge, guarantee*, *take an oath*) in not requiring an overt preposition (Jackendoff & Culicover 2003)[4]. It is also noteworthy that 'promise' does require a preposition in other languages (e.g. French, Spanish, Italian)[5]. Moreover, in languages with overt case marking (e.g. German, Russian), the non-controller object of the verb 'promise' requires dative case, while the controller object of 'persuade' takes accusative case. Therefore, regardless of whether these observations can be generalised to English, there is certainly crosslinguistic evidence of a syntactic difference between 'promise' and 'persuade' verbs.

Similarly at issue are those verbs that undergo Control Shift (e.g. *ask*, *beg*, *plead*, *petition*), in which the controller may be either of two explicit arguments. Landau (2000, 2003) notes that the choice of controller often appears to be contextual. In (17), for instance, it is unlikely that the prisoner's request is for the guard to smoke; given the normal relationship between prisoner and guard (and the oddness of asking that another person smoke), the likeliest interpretation is that the prisoner wants permission to smoke himself.

(17) (Landau 2003:480)
The prisoner asked the guard to smoke one more cigarette[6]

In order to deal with Control Shift under the MTC, Hornstein and Boeckx would again have to posit a null preposition in the cases where the matrix subject is the controller.

[4] *Threaten* is a possible candidate for having the same Control behaviour as *promise*, depending on the grammaticality of (i)

(i) ??I threatened him to leave

[5] French and Italian do not require a preposition following 'persuade', whereas Spanish does.

[6] These may be relatively rare, but they do occur spontaneously. A person in my office who wanted to participate in another's study and had repeatedly tried to get her friend to schedule her a time produced (i). I also encountered (ii) in an aeroplane safety video.

(i) I've asked you several times to do your experiment
(ii) Please ask a flight attendant to be reseated (if you are unhappy sitting in an exit row)

Unlike with 'promise', there is no crosslinguistic evidence of differences in preposition use or case assignment when controller choice contravenes the MDP. Wurmbrand (2001: 238) cites (18) as an example of Control Shift: while the indirect object of 'offer' is consistently dative, both arguments may serve as the controller[7].

(18) *Ich*$_i$ *habe* *ihm*$_j$ *angeboten* *SUBJ*$_{i/j}$ *mich* *zu* *erschie*β*en*
I$_i$ have him$_j$-DAT offered SUBJ$_{i/j}$ me/myself to shoot

The lack of case difference in German for Control Shift thus undermines the argument for a null preposition. It is still possible that there could be a null preposition in German, assuming that 'offer' takes dative case regardless of whether it is present. That said, the case difference between the objects of 'promise' and 'persuade' in German, which mirrors the supposed presence/lack of a null preposition in English, predicts that there should also be a case difference in Control Shift. It is therefore questionable whether there is any evidence for a null preposition in these instances.

A further criticism of the MTC, discussed in Landau (2003, see also 2000, 2007), is that it cannot account for cases of Partial Control (PC), where the controller is singular with an embedded predicate that requires a plural subject. If the controller is in fact simply a raised copy of the infinitival subject, then it should not be possible for them to differ in this respect.

(19) a. *John met at 6
b. John wanted to meet at 6

States Landau (2003: 493), '*there is no partial raising*. It is not even clear how to formulate a rule of NP-movement that would yield a chain with nonidentical copies. Indeed, partial readings are not found in raising contexts.'

Hornstein (2003; cf. Boeckx & Hornstein 2004) suggests that it is possible to accommodate Partial Control in the MTC by way of a meaning postulate, which is licensed by certain Control predicates. They are inexplicit about how this postulate should operate. Landau (2007) counters that this explanation is excessively stipulative, and does not address why embedded tense should be relevant to PC (see §2.3.1.2). In general, such a stipulation would fundamentally undermine the MTC, in that it must use semantic

[7]A native German speaker I consulted found this sentence odd, but entirely acceptable for both interpretations if *erschie*β*en* 'shoot' was replaced with *waschen* 'wash'.

means in addition to movement in order to derive the identity between the controller and the infinitival subject, weakening the claim that properties of OC follow directly from movement.

Split Control, which overlaps significantly with Partial Control, also poses a problem for the MTC. For instance, both *John* and *Mary* control the infinitival subject in (20).

(20) (Landau 2000: 53)
John proposed to Mary to meet each other at 6
(cf. John proposed to meet at 6)

Hornstein claims that the lack of Split Control in OC reflects the fact that OC is a form of movement. Landau (2007) notes that Split Control actually does occur with OC predicates (e.g. *proposed*), and that the variability of controller with such predicates is in itself problematic. Again, he observes that the MTC cannot explain how to interpret these syntactically, as it is impossible for both subjects to have moved from the same position. In other words, there is also no split raising.

One solution to these problems is to deny that Split Control, Control Shift, and Partial Control constitute cases of Obligatory Control at all. Wurmbrand (2001: 239) comes to this conclusion, stating 'Unlike obligatory and like non-obligatory control... partial, split, and variable control do not involve a unique pre-determined controller but allow different possibilities for the interpretation of the infinitival subject. We will take this latter property to group partial, split, and variable control as part of non-obligatory control.'

While this determination is not unwarranted in terms of defining Obligatory and Non-Obligatory Control, it does not allow for the fact that many otherwise OC predicates systematically allow Partial Control, Split Control, or Control Shift. If OC is defined as not including these types of Control, then the MTC will explain only the instances in which there is a single, obligatory controller which is the closest c-commanding argument to PRO.

As mentioned above, the MTC applies specifically to OC. The empty category is analysed as *pro* for NOC, in which multiple controllers are possible, or the controller can be generic or abstract. According to Hornstein, NOC is the 'elsewhere case', only occurring when movement, and concomitantly OC, is impossible. Because they occur with verbs that also allow OC, Partial and Split Control cannot actually be dismissed as

not constituting OC according to the MTC, as there would be nothing to preclude movement in these instances (although a movement analysis might make incorrect predictions about the interpretation of the controller).

Another major problem for the MTC is case assignment. Landau (2003) discusses Sigurðsson's (1991) observation that floating quantifiers have the same case as their subjects in Icelandic. It is therefore possible to identify PRO as having non-null case. Moreover, in Raising constructions the case of floating quantifiers does not differ from that of the raised subject. In Control constructions, on the other hand, it is possible for there to be a 'case mismatch' between the embedded floating quantifier and the matrix subject. Landau (2003: 493) states 'It would hardly make sense to argue that (a) A-chains can be doubly Case-marked; and (b) that option is licensed only when the head of the chain is θ-marked.'

Boeckx & Hornstein (2006) argue that Icelandic case assignment is in fact also affected by the assignment of default case in non-finite contexts, and that the only true case mismatches involve quirky case, which is inherent rather than structural. Their analysis thus requires that inherent case is not subject to the same constraints as structural case (e.g. the Case Filter). As with the 'promise' problem, they appeal to markedness, claiming that instances in which the case of the floating quantifier differs from that of its subject are questionably grammatical for some speakers. This justification does not, though, obviate the acceptability of this case mismatch in some circumstances.

2.3.1.2 ALTERNATIVES TO THE MTC

Jackendoff & Culicover (2003) reject syntactic explanations of control, arguing that the choice of controller is inherent to the meaning of Control predicates themselves, as mediated by 'conceptual structure'. Returning to the *promise*/*persuade* distinction, they observe that it is possible to have the same syntactic configuration with different controllers. Furthermore, they argue that there may be different instances of the same required controller in different configurations, as in (21).

(21) Jackendoff & Culicover (2003: 520)

a. Bill ordered Fred$_i$ [to $_i$ leave immediately]

b. Fred$_i$'s order from Bill [to $_i$ leave immediately]

Based on this evidence, they conclude that PRO selection cannot be syntactically based. Rather, they discuss the role of 'actional' complements, those in which there is an animate (and voluntary) agent, claiming that verbs which select for this type of complement will have Obligatory Control. According to Jackendoff & Culicover, 'Unique Control'[8] occurs when the controller is determined by which argument is the agent of the voluntary action. As actional complements are apparently not syntactically restricted to a particular type of non-finite complement (e.g. *to*-infinitives or gerunds), they conclude that this selection must be wholly semantic.

Jackendoff & Culicover's arguments essentially extend into the semantic domain the idea that Control, unlike Raising, is largely dependent on thematic roles. They are not specific about how the relations determined by conceptual structure are applied syntactically, if at all. More generally, they do not discuss the possibility of structural differences among different types of Control and Raising.

Landau (2000, 2003, 2006, 2007) considers Control verbs in terms of the tense of their complements. He observes that particular predicates select for 'tensed' infinitives (cf. Stowell 1982), also allowing for a correlation with particular types of Control. He argues that Exhaustive Control (EC) predicates, which require PRO to be identical to the controller, lack independent tense specification, whereas Partial Control infinitives do not.

(22) a. *John managed to meet at the cinema
b. John wanted to meet at the cinema (PC)

Thus *manage*, an EC verb, disallows use of contradictory time adverbs, while they are acceptable with *want*, a PC verb. This test mirrors Wurmbrand's use of 'tomorrow' to show that the infinitival complement of *versuchen* 'try' is 'tenseless' (see example (10), §2.2.3).

(23) (Landau 2000: 6)
a. *Yesterday, John managed to solve the problem tomorrow
b. Yesterday, John wanted to solve the problem tomorrow

[8] 'Unique control' is defined as any case where 'there are two possible targets of control in the matrix clause, but only one of them can serve as controller' (Jackendoff & Culicover 2003: 523).

Landau differs from Wurmbrand, who concluded that temporal dependence of the non-finite complement meant that TP was absent. He assumes that tense features are specified on C, such that it shares the features of the tense head. This concurrence of tense features is accomplished via T-to-C movement which, in untensed infinitives, fails to occur. Landau thus reduces the correlation between tense and Partial Control to an agreement operation: in EC the matrix subject agrees with PRO, while in PC it agrees with the tense head, which has raised to C.

Jackendoff & Culicover (2003) argue that PC is a derivative of the concept of 'joint intention', in which multiple participants seek (individually) to accomplish a collective task. They predict that only 'activities', rather than unintentional 'states' and 'nonvoluntary events' should allow PC, as the latter do not involve intention on the part of the controller. Examples such as (24), in which a stative complement is less acceptable than an actional complement with a PC predicate, support their arguments.

(24) (Jackendoff & Culicover 2003: 549)
Hildy told me that she$_i$ wants to $_{i+}$ form/??$_{i+}$ constitute an alliance

The difference between (25)a and (25)b, which contrast in terms of whether the disbanding is a 'preplanned voluntary action', is less pronounced.

(25) (Jackendoff & Culicover 2003: 549)
a. The chair$_i$ hopes to $_{i+}$ disband soon after calling a vote
b. ??The chair$_i$ hopes to $_{i+}$ disband soon in reaction to a bomb threat

This example improves further if (25)b is replaced by (26), where the reason for disbanding does not have the undesirable connotations of a bomb threat. It is not apparent whether Jackendoff and Culicover would argue that (26) is in some sense more 'voluntary' than (25)b.

(26) The chair hopes to disband soon in reaction to good news

Even some stative complements are acceptable with Partial Control. For instance, someone trying to organise a presentation with an antagonistic group of collaborators might make the statement in (27).

(27) I want to be a cohesive group with a cohesive argument

The difficulty with (24) may in fact not be a true PC distinction at all, as *form an alliance* is acceptable with a singular subject even in matrix clauses, whereas *constitute an alliance* is not.

(28) a. Hildy formed an alliance (with three other contestants)
b. *Hildy constituted an alliance (??with three other contestants)

Jackendoff & Culicover also argue that the apparent temporal orientation of Partial Control is semantic rather than syntactic, as intention is 'nonpast directed'. Given that their evidence for intentional complements is in itself weak, this does not explain the correlation between the realisation of PC and independent tense specification in the non-finite complement. I will therefore preliminarily accept Landau's conclusions regarding Partial Control. In §2.4.6.2 evidence from the placement of adverbs will show that there may be other indications of T-to-C movement in the complements of PC verbs.

2.3.2 CONTROL AND RAISING IN RESTRUCTURING

Although the Control/Raising divide does not exactly align with Restructuring distinctions, they overlap in that both categorise predicates with infinitival complements, which I will examine in light of adverb distribution in §2.4. While English shows empirical distinctions between Control and Raising predicates, it lacks many of the transparency effects that in other languages are taken as indicators of Restructuring. The Long Passive constructions, Long Object Preposing, and Scrambling that mark Restructuring in German are unavailable. Effects seen in Romance languages, such as Clitic Climbing and Auxiliary Change, are also impossible, because English has neither object clitics nor variation in auxiliary choice.

The question arises why a language would fail to display the transparency effects typical of related languages, unless it did not have Restructuring at all. Cinque (2006: 99) notes that the non-occurrence of Clitic Climbing, Auxiliary Change, and Long Object Preposing in French have been taken to suggest that it did not have Restructuring, although he also discusses other potential French transparency effects that have subsequently been identified.

If, as Wurmbrand (2001, 2004) argues, transparency effects are obligatory, then their varying occurrence in related languages suggests that the reduced complements of Restructuring configurations do not necessarily contain the same projections crosslinguistically. Elements which move out of the embedded clause (e.g. clitics) in one language but not another might also target different projections in different languages.

Wurmbrand (2001) argues that Raising verbs form Restructuring constructions, demonstrating that in German they are in the functional domain, which encompasses all Functional Restructuring predicates. She shows that all modals are Raising predicates, regardless of whether they are epistemic or deontic (cf. Wurmbrand 1999). It is thus possible for a modal to be deontic without the obligation/permission it expresses being directed at the subject of the sentence, as in (29). From this evidence, Wurmbrand concludes that the deontic modal does not assign a θ-role to the subject.

(29) (Wurmbrand 2001)

a. The old man must fall down the stairs and it must look like an accident

b. *weil der Kaviar gegessen werden muß / darf / soll*
since [the caviar]-NOM eaten become must / may / should
'because the caviar must / may / should be eaten'

Wurmbrand also suggests that other German Raising verbs are in the functional domain. The Raising verb *scheinen* 'seem' cannot appear after auxiliaries at all, and the ambiguous 'promise', 'threaten', and 'begin' only allow a Control interpretation under auxiliaries and modals. She therefore concludes that the raising forms of these predicates must be competing with auxiliaries for the AUX position.

She does not argue categorically that all Restructuring predicates are Raising verbs. In fact, her Lexical Restructuring verbs cannot be, as they are defined as being in the thematic range, i.e. assigning external θ-roles. Furthermore, she specifies that her conclusions are specific to German, noting that in English 'raising verbs do not seem to compete with auxiliaries'.

This conclusion does not rule out a tie between Raising predicates and Restructuring in English. More specifically, it is possible that English Raising verbs take reduced infinitival complements without appearing in the functional domain as their German equivalents do.

2.3.3 SUMMARY OF CONTROL AND RAISING

In this section I have examined some of the disadvantages of the Movement Theory of Control, as well as arguments against purely semantic approaches to Control. I have also taken a preliminary look at the possible relationship between Restructuring and Control/Raising, especially with respect to English. The next section will explore the Adverb Climbing phenomenon, suggesting that it supports the conclusion that Raising constructions involve some degree of Restructuring.

2.4 ADVERB CLIMBING

Adverb Climbing (AC), a little-examined phenomenon first described in a footnote in Kayne (1975), refers to cases in which an adverb precedes a matrix predicate, but is interpreted as modifying its complement[9].

(30) George intentionally seems to have insulted Jane
'George seems to have intentionally insulted Jane.'

Bok-Bennema & Kampers-Manhe (1994) identify AC as a transparency effect, observing that, like clitics and quantifiers, French manner adverbs associated with an embedded predicate can 'climb'.

(31) (B-B & K-M 1994:200)

a. *J'ai très bien voulu faire ce travail*
I-have very well wanted to-do this job
'I wanted to do this job very well.'

b. *Marie a soigneusement fini de ranger sa chambre*
Marie has carefully finished to tidy her room
'Marie finished tidying her room carefully.'

c. *Elle a parfaitement su lui répondre*
She has perfectly known him to-answer'
'She has known how to answer him perfectly.'

They argue that Restructuring results from T-incorporation, in which movement of the embedded T to C induces transparency of the otherwise impermeable CP, making it

[9] 'Adverb Climbing' is a coinage analogous to 'Clitic Climbing' and 'Quantifier Climbing'. I will use this term to refer to this type of construction, though I will argue for an analysis in which adverbs do not actually move.

possible for other elements to move out of the complement clause. Under this analysis the adverb in an AC construction originates as a downstairs VP-adjunct and moves to its matrix position.

Cinque (2006) cites additional examples of AC in his assessment of supposed indicators of Restructuring in French.

(32) a. *Vous avez mal dû raccrocher*
you have badly must hang-up
'You must have hung up badly.'

b. *Il aurait mieux voulu se comporter*
he would-have better liked himself behave
'He would have liked to behave better.'

Based on its occurrence in the absence of other indicators of Restructuring, such as Clitic Climbing, Cinque concludes that AC is not a true transparency effect. He also claims that subjunctive finite complements also allow AC interpretations, as in (33), taking these data to show that the availability of AC interpretations in French depends not on Restructuring, but rather 'irrealis context'.

(33) *Il faut très bien que tu te comportes*
It is-necessary very well that you yourself behave
'It is necessary that you behave very well.'

As discussed in §2.2, the availability of one transparency effect where another is precluded may simply reflect different levels of (non-)Restructuring, rather than proving that one is not a transparency effect at all. That said, the apparent acceptability of AC with certain finite complements is troubling if AC is supposedly an indicator of Restructuring. This issue will be addressed in §2.4.6.2[10].

[10]While I will still take it into account to some extent, the French data cited here may be flawed or, at the very least, obscure: no French speakers consulted for this chapter corroborated these grammaticality judgments. Some found (31)b acceptable, but only in the context where *soigneusement* applied to *finir* rather than *ranger* (i.e. Marie *finished* tidying carefully, but may very well have done the rest of the tidying haphazardly). Example (33), in which AC apparently applies across a finite clause boundary, was universally rejected, though this may simply reflect speakers' more general aversion to AC. A corpus search of the French Treebank (Abeillé et al. 2003) also failed to unearth any examples of AC.

Any conclusions regarding French will only hold if AC of manner adverbs is really possible in French. In Chapter 3 I will show that a very minor amendment of the account for French can allow me to explain the French data even if climbing of manner adverbs is not grammatical.

I am more confident about the English AC examples, which as a native speaker I find acceptable. I have also had confirmation that other speakers find these grammatical, and have been able to find examples such as (i) and (ii) on the Internet.

AC interpretations also occur in English, as already demonstrated in (30). More generally, Raising verbs allow AC interpretations, while Control verbs do not (but see §2.4.3 for exceptions)[11].

(34) a. George intentionally { appeared / proceeded / tended } to insult Jane
'G { appeared / proceeded / tended } to intentionally insult J.'
b. George intentionally { wanted / tried / promised / forgot } to insult Jane
≠'G { wanted / tried / promised / forgot } to intentionally insult J.'

Instances where a Raising verb does not allow an AC interpretation may result from the impossibility of embedding a particular adverb under a particular Raising predicate. For instance, because *happen* implies chance, *intentionally* rarely occurs in its complement; an AC interpretation will also be unavailable.

(35) a. ?*George happens to have intentionally insulted Jane
b. ?*George intentionally happens to have insulted Jane

AC interpretations also occur with epistemic and deontic modal verbs taking bare infinitives. The possibility of AC with both types of modals is in accord with Wurmbrand's (1999) argument that all modal verbs are Raising verbs (See (29), §2.3.2).

(36) a. I unknowingly must have bumped my head (EPISTEMIC)
b. He voluntarily should resign from the party (DEONTIC)

The distinction between Raising and Control thus appears to be the relevant one for the availability of AC interpretations in English. As seen in (34)b, Control verbs that induce irrealis interpretation of their complements (e.g. *want* and *try*) do not permit AC readings. AC readings are also not possible with subjunctive finite complements in English.

(i) The legislature quite intentionally appears to have elevated "labor" to the stature of a property.

(ii) He intentionally seems to have left the minister in the dark.

[11] Again, the Internet provides grammatical real-world examples of these

(i) ...his Lordship... intentionally appears to have obfuscated the facts of the meeting.

(ii) ...unless they... intentionally proceeded to publish the story to damage [his] reputation ...

(iii) A 'Facebook Troll' is a man or woman who intentionally tends to make inflammatory remarks...

(37) I (willingly) asked (willingly) that he help with the washing up
≠ 'I asked that he willingly help with the washing up.'

They actually never occur with finite clauses, even with otherwise acceptable Raising predicates.

(38) *It intentionally { seemed / appeared } that George had insulted Jane

Cinque's argument that French AC interpretation depends on 'irrealis context' therefore cannot apply to English.

2.4.1 AC IN TERMS OF ADVERB DISTRIBUTION

From an adverb distribution perspective, the evidence on AC contradicts Cinque's (1999) cartographic approach. According to his hierarchy of functional projections it should not be possible for a volitional adverb such as *intentionally* to appear above the evidential predicate *seem*, as the evidential head is located higher than the volitional. *Intentionally* would have to move from its base position in the specifier of the volitional phrase in order to precede *seem*. While it allows verbs to raise over adverbs, though, Cinque's system does not license independent adverb movement.

AC does not fare much better under Ernst's (2002) analysis, as his FEO-calculus assumes that each adverb takes the type of the projection it attaches to as a semantic 'input'. The adverb would therefore take scope over any projection it comes before, but AC adverbs have inverse scope with respect to the matrix verb.

In Nilsen's (Nilsen 2003) approach adverbs attach to the projections they modify, and then may raise to higher 'lifter' projections. His analysis would therefore allow the AC adverb to attach to the embedded predicate, and then be 'lifted' over the matrix predicate as a remnant following movement of the rest of the VP. Here the criticism still applies that the complex series of movements required lacks motivation. Moreover, his theory still cannot account for why an adverb modifying the embedded predicate might be 'lifted' above a Raising verb but not a Control verb, or why complex tense would make AC less acceptable, as in (39)b.

(39) a. George intentionally seems to have insulted Jane
b. *George intentionally has seemed to insult Jane

c. *George intentionally might seem to have insulted Jane

Current proposals on adverb placement are thus inadequate for explaining the availability of AC readings.

2.4.2 ADVERB CLIMBING AND THEMATIC ROLES

As discussed in §2.3, Control verbs assign an external θ-role, while Raising verbs do not. Given that the divide between AC and non-AC verbs appears to align with the distinction between Raising and Control (but see §2.4.3 for exceptions), an initial examination of the English data suggests that the availability of AC might depend on θ-role assignment.

Agent-oriented adverbs (e.g. (*un*)*intentionally*, (*un*)*willingly*, (*un*)knowingly) provide clear examples of AC interpretation. In examining such adverbs, Zubizarreta (1982) proposes the 'Adjunct θ-Criterion', based on the observation that they are sensitive to agentivity distinctions. She claims that such adverbs have an 'adjunct θ-role', which must combine with an 'argument θ-role' in order to be assigned. Following this theory, AC interpretations might occur because Raising verbs lack the argument θ-role required by these adjunct θ-role assigning adverbs, forcing the agent-oriented adverb to modify the closest verb with an external argument.

However, although the agentivity mismatch between Raising verbs and agent-oriented adverbs may sometimes block matrix interpretations, it cannot be the sole determining factor for the occurrence of AC. First, if agent-oriented adverbs simply sought the closest verb that assigns an external argument, there would be no reason for sentences with finite complements, such as (38), not to allow an AC reading

Second, AC interpretations occur with subject-oriented adverbs that are not agentive (e.g. *stupidly*, *quickly*)[12]. They are also available with frequency adverbs (e.g. *rarely*, *always*).

(40) a. George stupidly seems to have answered the wrong questions
'George seems to stupidly have answered the wrong questions.'

[12]Subject-oriented adverbs describe the behaviour of the subject, but not in terms of agency, and thus can be used to describe non-volitional actions.

(i) Jane stupidly tripped and fell over

(ii) George quickly had become confused

b. George quickly seemed to grasp difficult concepts
'It quickly seemed that George grasped difficult concepts
'George seemed to quickly grasp difficult concepts.' (AC)

c. George rarely seemed to have answered the right questions
'It rarely seemed as if George has answered the right questions'
'George seemed to have rarely answered the right questions.' (AC)

Third, even non-agentive Control verbs do not permit AC interpretations.

(41) *George intentionally managed to insult Jane

Finally, AC interpretations are only available in cases where an adverb directly precedes the matrix predicate in a Raising construction. An adverb preceding an auxiliary will not have an AC interpretation. The same adverb may otherwise be grammatical in this position.

(42) a. George intentionally has insulted Jane
b. *George intentionally had seemed to insult Jane
c. *George intentionally must seem to insult Jane

AC interpretations also don't occur with adjectival Raising predicates.

(43) a. *George intentionally is likely to insult Jane
b. *George is intentionally likely to insult Jane

This evidence indicates that AC does not simply result from differences in θ-role assignment, but must be subject to additional syntactic constraints. The following sections will show that the availability of AC interpretations depends on the size of the infinitival complement selected by the matrix predicate, which crucially differs for Raising and Control verbs.

2.4.3 INFINITIVAL COMPLEMENT SIZE IN ENGLISH

The idea that Control predicates have CP complements and the complements of Raising predicates lack a CP layer has received support from the observation that, in many languages, Control can occur with an overt complementiser (Landau 2003: 488). For instance, Kayne (1981) argues that French *de* (and Italian *di*) is not analogous to the

infinitival *to* in English, but instead appears in C. He bases this claim on distributional differences between *de* and *to*: *to* co-occurs with *wh*-phrases while *de* does not, and though negation often precedes *to* in English, it must follow *de* in French. He also notes that the French *de* of infinitival complements is, unlike English *to*, incompatible with Raising. Dutch also permits an overt complementiser with Control verbs.

(44) FRENCH (Adapted from Kayne 1981: 351f)

a. *Jean a { essayé / oublié / decidé } **de** partir*
John has { tried / forgotten / decided } COMP to leave

b. *Jean { semble / paraît / se trouve / s'avere } (***d'**) être parti*
John { seems / appears / happens / turns out } COMP to be left

(45) DUTCH (Koster & May 1982: 134)

*John hat geprobeerd **om** het boek **te** lezen*
John has tried COMP the book to read

Though some dialects allow overt *for* with infinitival complements (e.g. *I want for to leave*), Standard English does not (Landau 2000: 33). The impossibility of an overt complementiser with a Control complement means that one important argument for a difference in the size of Control and Raising complements does not apply: with no overt instantiation of C in English, both could lack a CP layer.

Recall Wurmbrand's (2001) argument that different predicates select for different sizes of infinitival complement. Which transparency effects obtain depends on which layers are absent; if a process targets a particular layer of structure that is missing from the embedded clause, it will be forced to instead target the equivalent projection in the matrix clause. English does not show the transparency effects present in other Germanic languages, but the lack of other transparency effects does not rule out the possibility of a reduced complement in Raising constructions, especially if AC is an indicator that the CP layer is absent.

One possible reason for the unavailability of overt complementisers in English Control constructions is the presence of other elements in the CP. As discussed in §2.3.1.2,

Landau (2000) observes that Partial Control (PC), in which a singular element apparently controls a plural PRO, occurs only when the infinitival complement is temporally independent from the matrix predicate, meaning that they do not require simultaneous interpretation. In these instances, he argues, the independent tense specification of the infinitival complement results in T-to-C movement, allowing agreement between the temporal features moved to C and a higher functional head. If overt complementisers in English block this T-to-C movement there will be no overt complementisers in PC environments.

Landau contrasts Partial Control with Exclusive Control (EC), in which the plurality of the PRO and its controller must match. According to his analysis, T-to-C movement does not occur with EC because the infinitival complement has no independent temporal specification. It is then not the temporal features in C, but PRO that agrees with the higher functional head.

In order to accommodate this agreement, Landau must relax the Phase Impenetrability Condition (PIC), which permits access only to features at the edge of a lower phase (Chomsky 2001). He allows interpretable features to be visible anywhere in the phase. This modification makes PRO visible to the higher functional head, even though it remains in Spec,TP.

An alternative to modifying the PIC would be to assume that PRO moves to Spec,CP in EC constructions. This idea is fitting with Pesetsky & Torrego (2000), whose analysis Landau follows in his proposal regarding T-to-C movement. They argue that the 'T-to-C asymmetry' in questions, in which T-to-C movement only occurs in the absence of movement of the subject, is a result of a *u*T EPP feature on CP. This feature may be checked by head movement of T to C; it may also be checked by movement of the subject to Spec,CP, because nominative case on the subject is a manifestation of a tense feature. Movement of a *wh*-word subject to Spec,CP to check *u*Wh also checks *u*T. As a result, there is no T-to-C movement in subject questions in English, as evidenced by the lack of *do*-support.

(46) (Koopman 1983)

a. What did Mary buy?

b. *What Mary bought?

c. *Who did buy the book?

d. Who bought the book?

In these instances it is more economical to have this single movement satisfy both the *wh* and T requirements of CP than to have T-to-C movement as well. Movement of PRO to CP instead of T-to-C movement does not have such obvious independent motivation. One possibility is to assume that all English non-finite CPs have a tense feature that must be checked. If the non-finite clause is a temporally independent one this requirement will be satisfied by T-to-C movement. It will otherwise be fulfilled by movement of PRO to Spec,CP.

Pesetsky & Torrego extend this analysis to embedded clauses, arguing that complementisers *that* and *for* are not generated in C, but rather move from T. If movement of PRO to Spec,CP is in complementary distribution with T-to-C movement, then this account also rules out having an overt complementiser in EC constructions, because the T-to-C movement this entails means that it will not be possible for PRO to move to Spec,CP, and it will be inaccessible to the higher functional head that it must agree with.

In essence, English disallows overt complementisers in the complements of Control verbs because in Partial Control they would prevent the T-to-C movement required by temporally independent infinitives, and in Exclusive Control they would prevent movement of PRO to the phase edge required for its construal. Of course, this account cannot hold for languages such as French and Dutch that do allow overt complementisers with Control verbs. It shows, though, that the impossibility of overt complementisers in English Control may be arise from factors other than a lack of structure. The ungrammaticality of complementisers with Control verbs thus does not rule out the possibility that their infinitival complements are full CPs in English.

2.4.4 WHAT ADVERB CLIMBING INDICATES ABOUT ADVERB DISTRIBUTION

If Control complements are full clauses and Raising complements lack a CP layer, it is possible to explain why Raising predicates allow AC interpretations and Control pred-

icates do not. This difference can provide more general insight into the limitations on adverb distribution.

Intentionally is an agentive adverb. Unlike unequivocally verb-modifying manner adverbs, it can appear in a pre-auxiliary position.

(47) a. George intentionally has answered the questions
b. George cleverly has answered the questions
≠ 'George answered the questions in a clever way' (MANNER)
= 'George was clever to answer the questions' (SUBJECT-ORIENTED)

I therefore assume for the moment that *intentionally* is a 'sentence-modifying' adverb, meaning that it modifies a sentential functional projection such as TP[13]. This projection presumably must be accessible to the adverb in order for it to receive a sentential interpretation. In the case of Control verbs there is a clause boundary between the adverb and the lower TP, while in Raising there is none.

(48) a. George intentionally tried [$_{CP}$ [$_{TP}$ to insult Jane]]
b. George intentionally seemed [$_{TP}$ to insult Jane]

If it is sufficient for an adverb to be in the same clause as the projection it modifies (rather than having to adjoin directly to that projection), then the interference of the clause boundary explains the basic distinction between Control and Raising in terms of the availability of AC interpretations. It does not account for the unavailability of AC interpretations when the adverb is above an auxiliary in the matrix clause. It must therefore be not just the clause boundary, but the phase boundary that is pertinent in terms of an adverb having access to the projection it modifies. In directly preverbal position an adverb will be adjoined to *v*P, allowing it to modify projections within that phase. When it appears before any preceding auxiliaries it will be outside the *v*P phase that minimally contains the infinitival TP.

(49) a. George [$_{vP}$ intentionally seemed [$_{TP}$ to insult Jane]]
b. *George intentionally would [$_{vP}$ seem [$_{TP}$ to insult Jane]]

[13] I will abandon this assumption in Chapter 3 based on a more comprehensive look at the distribution of agentive adverbs, which may also appear in lower positions than the one shown, both pre- and postverbally, and conclude that agentive adverbs modify a verbal projection. This difference will have no effect on the analysis posited here.

With the AC interpretation unavailable, (49)b is unacceptable due to the agentivity mismatch between *intentionally* and *seem*, discussed in §2.4.2. Frequency adverbs may modify *seem*, and thus are grammatical with a matrix verb reading. As shown in (40)c (repeated in (50)), they can be interpreted either as modifying the matrix predicate or the embedded predicate when directly preceding a Raising verb.

(50) George rarely seemed to have answered the right questions.
'It rarely seemed as if George has answered the right questions'
'George seemed to have rarely answered the right questions.' (AC)

AC interpretations therefore result from an unusual configuration created by the reduced complement size of Restructuring infinitives. In a matrix clause, or one with a full CP complement, a TP will be minimally contained by a CP phase. When a predicate selects for a TP complement TP will be minimally contained by a *v*P phase[14].

This analysis departs from Chomsky (2001), who proposes that Raising verbs (along with other non-transitive verb forms such as passives and unaccusatives) do not constitute strong phases. In the idea that all verbs project *v*Ps I follow Legate (2003, 2005), who demonstrates that binding reconstruction effects, quantifier raising, and parasitic gap licensing all show that all verb phrases are phases. Inasmuch as my account of AC is successful it provides another argument in support of this conclusion.

A requirement that a sentence-modifying adverb must be in the same phase as TP does not actually account for all adverb distribution. This condition predicts that any sentence-modifying adverb should occur in any position within its minimally containing phase.

[14]Other Germanic languages seem the most obvious candidates for crosslinguistic comparison of AC with English, especially in light of Wurmbrand's (2001) extensive study of Restructuring in German, but the SOV structure of German and Dutch makes it difficult to identify whether an adverb is in the matrix clause or its infinitival complement.

Results from Swedish, an SVO language, prove more informative. Speakers report that sentences such as (i) have both a matrix and an AC interpretation (Because Swedish is a Verb-Second language, making it impossible to have an adverb between the subject and matrix verb as in English, these examples use a complex tense.).

(i) *George hade* { *alltid* / *snabbt* } *verkat svara på fel frågor*
George had { always / quickly } seemed answer on wrong questions

The verb used here has both a Raising reading, 'seem', and a Control reading, 'pretend'. The adverb in (ii) may have a matrix interpretation, but only if the matrix verb acts as a Control predicate (English also has a marginal use of *seem* that can be agentive, and presumably could act as a Control verb, e.g. ?*He intentionally seemed happy so she wouldn't be upset*).

Many speakers have limitations, though, on how low certain 'high' adverbs can appear. While *cleverly* can directly precede the matrix predicate, evaluative (speaker-oriented) adverbs such as *fortunately* and *frankly* tend to be sentence-initial, and are marginal in lower positions.

(51) (Fortunately) George (?fortunately) will (??fortunately) have (??fortunately) eaten the cake.

Given that not all sentence-modifying adverbs have the same lower bound, there must be an additional constraint on their distribution. Without going to the extremes of an extensive clausal cartography of the type proposed by Cinque (1999), it is plausible that the CP phase may minimally contain multiple 'sentential' functional projections, and that different types of adverbs are sensitive to different semantic notions encoded in these projections.

Following Svenonius (2002) in assuming that an adverb must c-command the projection relevant to its interpetation, and that irrelevant intervening nodes will have no effect on its position or interpretation, it is possible to explain adverb distribution in terms of the criteria in (52).

(52) a. An adverb must c-command the projection it modifies[15].
b. The adverb must appear in the same phase as that projection.

(iii) *George hade medvetet verkat glömma boken hemma*
George has intentionally seemed forget book-the at-home
RAISING
≠'George intentionally seemed to forget his book at home.'
'George seemed to intentionally forget his book at home.' (AC)
CONTROL
'George intentionally pretended to forget his book at home.'
≠'George pretended to intentionally forget his book at home.' (AC)

Speakers note that the adverb may require stress in these cases to differentiate the matrix and AC interpretations: stress on the adverb indicates an AC (Raising) reading, whereas stress on the matrix verb will indicate a matrix (Control) reading.

Other Control verbs do not permit AC readings in Swedish.

(iv) *George hade* { *snabbt / medvetet / alltid* } { *försökt / velat* } *att förolämpa Jane*
George had { quickly / intentionally / always } { tried / wanted } to insult Jane

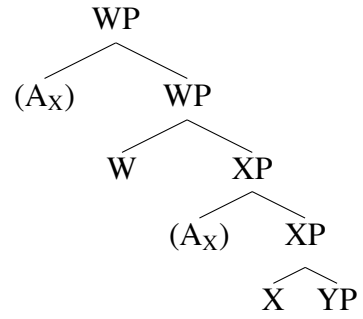
[15]I assume a first branching node definition of c-command.

While the phase determines the upper boundary for adverb position, the lower boundary is determined by what projection the adverb modifies, so that not all sentential adverbs necessarily have exactly the same distribution. A projection may be modified by an adverb if it has the feature required by that adverb for its interpretation. This analysis is thus similar to Cinque's in that specific types of adverbs relate to specific projections. It differs in that it would be possible for different adverbs to modify the same projections, or the same adverb to modify different projections. Under the current approach the adverb does not have to be in the specifier of the projection that it modifies.

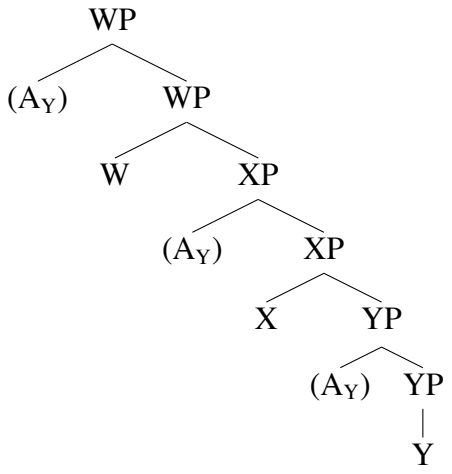
Crucially, the criteria in (52) are only intended to explain adverb placement with respect to other elements, not the ordering of adverbs with respect to each other. Cinque's one-to-one matching of adverbs and specifier projections conflates the two, but, in an analysis in which adverbs are more freely distributed, restrictions on placement and ordering will not necessarily result from a single mechanism.

Given two adverbs A_X and A_Y, such that Y, the projection that A_Y modifies, is lower than X, the one that A_X modifies, it will be possible for A_Y to appear lower than A_X.

(53) Possible positions for A_X

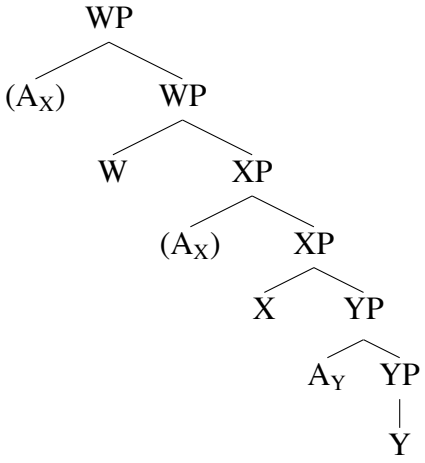


(54) Possible positions for A_Y



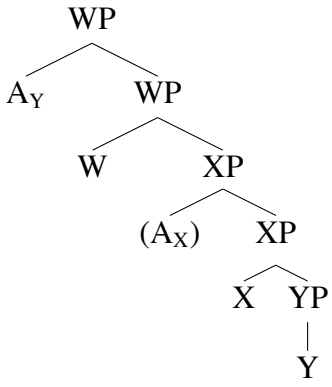
If these adverbs co-occur with A_Y adjoined to YP, A_X will necessarily precede A_Y.

(55)



However, A_Y may also adjoin higher than YP, meaning that its distribution will potentially overlap with that of A_X; there thus may not be a syntactic reason why A_Y must precede A_X.

(56)



In practice, few pairs of sentential adverbs can be interchangeably ordered (though see Nilsen (2003) for discussion of *already* and *probably*). For example, although *cleverly* and *probably* have overlapping distributions, *probably* must precede *cleverly*.

(57) a. (Cleverly), George (cleverly) has answered all the questions
b. (Probably), George (probably) has answered all the questions
c. Probably, George cleverly has answered all the questions
d. *Cleverly, George probably has answered all the questions

Nilsen (2003) and Ernst (2009) suggest that the ordering of adverbs with respect to each other is semantic rather than syntactic. For instance, Nilsen argues that *never* cannot precede *probably* because the latter is a positive polarity item. Therefore, if A_X must precede A_Y although their distributions overlap, the ungrammaticality of $A_X > A_Y$ is

semantic. That the projection Y also must precede the projections X does not have to be coincidental; the ordering of functional projections and their features may well arise from the same semantic principles as the ordering of adverbs.

2.4.5 POSSIBLE COUNTEREXAMPLES

The unavailability of AC interpretations with Control predicates is not without exception. The sentence in (58)a is a counterexample to the generalisation that Control verbs do not allow AC, as it may be synonymous with (58)b[16].

(58) a. I always want to be with you
b. I want to always be with you

It is possible to show that (58)a permits a matrix interpretation by including an additional instance of *always* in the infinitival complement, thus forcing the matrix reading of the higher adverb.

(59) I always want to always be with you
'I always have the desire to always be with you.'

Other contexts favour the lower reading.

(60) I'm giving you this ring because *I always want to be with you*, for ever and ever

Never also permits AC interpretations with *want*.

(61) I never want to see you again
'I want to never see you again.'

As shown by Horn (1978: 151), who quotes the poetry of Gelett Burgess, *never* also permits an AC interpretation with *hope*.

(62) I never saw a Purple Cow
I never hope to see one

Hope also allows an AC interpretation with *always*.

[16] I am grateful to an anonymous reviewer from CGSW 25 for bringing this to my attention.

(63) I always hope to be with you
'I hope to be with you always'

Hope and *want* also permit AC interpretations with *soon*.

(64) a. I soon hope to finish my book
b. ?I soon want to finish my book

Expect shows a similar pattern.

(65) a. I always expect to be with you (for ever and ever)
b. I never expect to see you again (so we should say our final goodbyes)
c. I soon expect to see her

The AC interpretation is much less readily available with frequentative adverbs and these Control verbs.

(66) I { usually / frequently / rarely } { hope / want / expect } to be with you
??= I have a desire to usually be with you.

The AC interpretation also does not occur with other Control verbs, even with the same adverb and complement.

(67) I { always / never / soon } { try / manage / forget } to be with you
≠ 'I try to always be with you.'

Additionally, when the matrix verb is not in the present tense it becomes more difficult to have an AC reading, though not impossible.

(68) a. ?He had long lived in Edinburgh, and always wanted to stay there
b. ?He had never seen a Purple Cow, and never hoped to see one
c. ?He had never eaten haggis, but soon expected to try some

There are also restrictions specific to the different adverbs with *want*, *hope*, and *expect*.

2.4.5.1 *Always*

If the verb in the infinitival complement is changed, the AC interpretation may not be available. (The following findings for *want* also apply with *hope* and *expect*.)

(69) I always want to { eat cake / jump up and down / discuss syntax }
≠'I have a desire to always eat cake.', etc.

That said, all complement stative verbs do allow an AC interpretation with *always* and *want*[17].

(70) I always want to { love you / know you / have a book handy }
'I want to always love you.', etc.

There is a requirement with *always want* that the state described in the complement clause is pre-existing. Thus (71) has only a matrix reading.

(71) I live in Edinburgh, but I always want to live in Schenectady

Dynamic verbs can become acceptable with AC readings for *always want* if they describe an already established, repeated action, as in (72) (though a matrix reading is still possible as well).

(72) I enjoy having cake every Monday. I always want to eat cake on Mondays!

This evidence highlights the fact that *always* has two possible interpretations, only one of which is available in AC with *want*. The matrix reading of *always* preceding *want* has the interpretation 'all the time', whereas the AC interpretation means 'forever'. As such, it bears a closer relationship to *never* than to frequentative adverbs such as *usually*, *rarely*, etc., though these (including the other interpretation of *always*) are acceptable in AC constructions with Raising verbs.

2.4.5.2 *Never* AND *Soon*

Never does not require a stative complement, or a pre-existing state. Rather, the complement of an AC construction with *never* and a Control verb must be irrealis. If the event has previously occurred, *again* appears in the embedded complement.

[17]Swedish speakers report a similar result: (i) has an AC interpretation, but (ii) does not.

(i) *George hade { alltid / aldrig } velat vara med dig*
George had { always / never } wanted to-be with you

(ii) *George hade alltid velat spela fotboll*
George had always wanted to-play football

(73) a. I never hope to see a Purple Cow
b. I never expect to see you again

Soon also requires an irrealis complement.

(74) I soon hope to visit him.

Horn's 'Purple Cow' example is in fact cited as an instance of Neg-Raising, suggesting that these examples are actually just special cases of Neg-Raising. I will explore this possibility in the following sections.

2.4.6 NEG-RAISING

Neg-Raising (NR), in which *not* preceding a matrix verb negates the verb in the embedded clause, bears a strong resemblance to Adverb Climbing; both phenomena consist of an upstairs modifier with a downstairs reading.

(75) Horn (1978: 129)
a. I don't think he has come
b. I think he has not come

In the surface interpretation of (75)a *think* is negated. Under the NR interpretation, which is often preferred, (75)a is semantically equivalent to (75)b.

Early treatments of NR dubbed it 'Not-Transportation', based on the idea that the negation in the matrix clause must have moved from the embedded clause (Lakoff 1969; Lindholm 1969; Lakoff 1970 and others). Arguments for this transformation depended on the licensing of NPIs in the embedded clause, the formation of tag questions, and the use of replacement by *it*.

Lakoff (cf. Klima 1964) observes that the NPI nondurative *until* may occur in the embedded clause with NR.

(76) a. *Mary would arrive until midnight
b. Mary wouldn't arrive until midnight
c. I didn't think that Mary would arrive until midnight

Similar facts regarding NPIs and Neg-Raising obtain in Spanish and French.

(77) a. SPANISH (Rivero 1970: 310)

No cree que el tren llegue hasta las siete
not believe.2SG that the train arrives until the seven
'He doesn't believe that the train arrives until seven o'clock.'

b. FRENCH (Prince 1976: 406)

Je n' imagine pas que Fifi a oublié un mot depuis
I NE imagine not that Fifi has forgotten a word for/in
deux ans
two years
'I don't imagine F has forgotten a word for/in two years.'

In order for the NPI to be licensed, Lakoff claims, *not* must have originated in the embedded clause. Otherwise, the clause boundary should preclude NPI-licensing.

Furthermore, NR sentences also permit positive tag questions.

(78) I don't suppose the Yankees will win, will they?

Positive tag questions only apply to negative statements (and vice versa). Because the one in (78) questions the embedded complement rather than the whole sentence, Lakoff argues that the positive tag must have formed prior to movement of the negation out of the embedded complement.

Lindholm (1969) suggests that *it* pronominalisation also constitutes evidence for NR as a syntactic transformation (cf. Lakoff 1970).

(79) I don't think Bill paid his taxes, and Mary is quite sure of it

He argues that *it* replaces constituents. In order for *it* in (79) to have the interpretation 'Bill didn't pay his taxes', *not* must have originated in the embedded clause.

However, as Jackendoff (1971) observes, embedded *until* is licensed not just in NR contexts, but also in sentences such as (80), where there is no overt negation in the matrix clause. In order for this example to be consistent with Lakoff's analysis of Neg-Raising, a negative element moved from the embedded clause would somehow have had to be incorporated into the matrix predicate *doubt*.

(80) (Jackendoff 1971: 292)
I doubt that John will arrive until 4:00

This evidence undermines the claim that *until* (and other NPIs) may only be licensed in the same clause as negation.

Jackendoff also questions the idea that tag questions indicate constituency. He points out that if NR consists of movement of negation out of the embedded clause the acceptability of (81)a is unexpected given the ungrammaticality of (81)b.

(81) (Jackendoff 1971: 294f)

a. I don't {think/?believe} they'll win, will they?

b. I {*think/?*believe} they won't win, will they?

Horn (1978) re-examines the evidence from pronominalisation, suggesting that *it* does not have to replace constituents. He offers as a counterexample (82), from Cornulier (1974: 29).

(82) *Je ne sache pas qu' elle soit jamais venue, et tu t' en*
I NE know not that she is ever come, and you REF of-it
doutes aussi bien que moi
doubt also well as me
'I don't know that she ever came, and you doubt it as much as I do.'

Although French *savoir* 'to know', like its English equivalent, does not allow Neg-Raising, pronominal *en* apparently replaces *qu'elle ne soit jamais venue* 'that she never came', meaning that pronominalisation of this type does not require constituency.

Another clear problem for a movement account of NR is that raising of *not* through CP might interact with other syntactic processes. Under a Minimalist analysis negation would have to move through the phase edge in order to escape the embedded clause. In canonical Neg-Raising sentences, the overt complementiser would block Neg-Raising through C. And if *wh*-words move out of a lower clause through Spec,CP, Neg-Raising should be blocked in complex questions.

(83) What doesn't he think she saw?

Shlonsky (1989) makes similar arguments regarding Hebrew, claiming that the negative element *'iS* may not move through Spec,CP, unlike *wh*-words, because the extraction of *'iS* induces an apparent violation of the Empty Category Principle, where the extraction of a *wh*-word does not[18]. Haegeman (1995: 311n30) also notes that Neg-Raising does not

[18]The Empty Category Principle (ECP) requires that empty categories be properly governed.

trigger the switch from *que* to *qui* that occurs in French with subject extraction through Spec,CP.

(84) *Il n' a rien fallu que je dise*
There NE has nothing must that I say
'I did not have to say anything.'

It has in fact been argued that NR is a purely semantic phenomenon. On one view, even in their different interpretations, NR constructions and their non-NR equivalents are synonymous by way of logical equivalence (Jackendoff 1971; Partee 1973). Thus the two interpretations are interchangeable, so that the higher one implies the lower.

Alternatively, the idea that NR constructions and their non-NR equivalents are not exactly synonymous has been used to argue against a syntactic account. Dwight Bollinger, quoted in Lakoff (1969), suggests that the further a negation is from the predicate it negates, the weaker its force. If a Neg-Raising construction and its corresponding embedded negation are not exactly semantically equivalent, then there is the question of how one can be derived from the other by movement of the negation (Horn 1978).

2.4.6.1 A SELECTIONAL SOLUTION

Klooster (2003) frames NR as a matter of selection. He argues that in cases of NR the matrix predicate takes as its complement a CP specified as negative. Especially compelling is his evidence from Basque, in which it is possible to have a negative complementiser. In NR constructions in Basque, the negative complementiser must be realised. Otherwise, the negation will have a matrix interpretation. For instance, (85)a has the negative complementiser *enik*, giving it an NR interpretation, while (85)b has the declarative complementiser *ela*, and lacks an NR reading.

(85) (Klooster 2003: 11)

a. *Galileok ez zuen sinisten [eguzika lurrari inguruka*
Galileo no had believed [sun-the earth-to turns-in
*zebil**enik**]*
went-that]
'Galileo did not belive that the sun revolved around the earth'

b. Galileok ez zuen sinisten [eguzkia lurrari inguruka zebil**ela**]

An updated version of Klima's (1964) neg-absorption hypothesis, in which negation was generated in both the matrix and complement clauses before the lower one was

deleted, Klooster's analysis eliminates the difficulties of treating NR as movement. It also accounts for the apparent idiosyncrasy of which predicates allow NR noted by Horn & Bayer (1984; see also Horn 1978, 1989). If NR results from selection, then the fact that nearly equivalent predicates may differ in whether they allow it (e.g. German *hoffen* is a neg-raiser, but English *hope* is not; cf. Fischer 1999). In this way it mirrors Wurmbrand's (2001) account of Restructuring, in which verbs which allow particular degrees of Restructuring do appear to form loose semantic classes, but are subject to apparently miscellaneous exceptions.

2.4.6.2 ADVERB CLIMBING AS NEG-RAISING?

Even with the *want* examples discussed above, there are significant differences between AC and NR. As shown in §2.4, AC does not apply across finite clause boundaries, even with verbs that otherwise allow an AC interpretation.

(86) It quickly seemed that he had answered the questions
≠It seemed that he quickly had answered the questions.'

Furthermore, NR is apparently limited to *not*. Negative adverbs such as *never* do not produce NR interpretations with typical NR predicates.

(87) I never thought he had any friends
≠'I thought he never had any friends.'

Klooster classifies Horn's (Horn 1978) *I never hope to see one* as a 'pseudo-NR' construction, because it does not have *not*. As Horn points out, *hope* is also not normally a neg-raiser.

(88) I don't hope that I will see a Purple Cow
≠I hope that I will not see a Purple Cow.'

Never is generally possible with AC interpretations with Raising verbs.

(89) He never seems to have answered the questions
'He seems to have never answered the questions.' (AC)

Klooster's solution to the 'Purple Cow' exception is to claim that *never hope* is purely idiomatic. Given the extent of exceptions to the prohibition against AC with Control

verbs such an explanation is unsatisfactory. Nor can this case be classed as an instance of NR, given that it not only has a non-NR predicate, but an analogous rule of 'Pos-Raising' would have to be instantiated in order to account for the possibility of *always* and *soon* in this construction

As it turns out, the negativity of *never* is not significant. Rather, the important characteristic that groups *never* with *always* and *soon* is their status as temporal adverbs.

As discussed in §2.3.1.2, it has been proposed that there is T-to-C movement with some infinitival complements. Bok-Bennema & Kampers-Manhe (1994) frame 'T-incorporation' as allowing the embedded adverb to move into the matrix clause. Under the current analysis, T-to-C movement allows an alternative explanation: if the tense features of the embedded clause are present in C, then they will be visible at the phase edge to a temporal adverb preceding the matrix verb, allowing for a matrix interpretation.

Recall Landau's (2003) argument that Partial Control predicates have independent tense specification, resulting in T-to-C movement. *Want*, *hope*, and *expect* are PC predicates; *try*, *manage*, and *forget* are not. PC predicates are therefore the same as those that permit AC readings with temporal adverbs.

This proposal for AC with Control predicates also accounts for a difference between English and French AC. French purportedly allows manner adverbs with AC interpretations, as in (31)a and (32)a (repeated in (90))[19]. English does not.

(90) a. *J' ai très bien voulu faire ce travail*
I have very well wanted to-do this job
English: *I have very well wanted to do this job

b. *Vous avez mal dû raccrocher*
you have badly must hang-up
English: *You must badly have hung up

If French has V-to-T movement prior to T-to-C movement, then the embedded CP in these cases will contain V features. French V-to-T movement, and the lack of it in English, is independently motivated by differences between French and English regarding question formation, first discussed in Pollock (1989). The features modified by manner adverbs will therefore be accessible at the phase edge to matrix manner adverbs in French, but not to those in English.

[19] Again, there is some doubt regarding the validity of this claim. I will address this issue in Chapter 3.

Differences in (V-to-)T-to-C raising could also explain the availability of AC interpretations with subjunctives in French. Not only do French subjunctives allow AC, but Prince (1976) observes that NR in French only occurs with subjunctive complements. Inasmuch as subjunctive mood depends on the matrix predicate in a way that indicative mood does not, it is reasonable to propose that subjunctive complements in French have T-to-C movement. Subjunctive complements in French thus allow AC interpretations as well as NR. If English, in contrast to French, lacks T-to-C movement in the presence of an overt complementiser, then the unavailability of an AC interpretation is once more explained.

The account of AC with Control predicates in this section requires a minor addition to the criteria for adverb distribution proposed in (54). Namely, it allows an adverb to be interpreted if the projection it modifies has moved so that its features are visible at the phase edge. This specification does not violate the Phase Impenetrability Condition; in fact, it would be unexpected for the phase edge to be inaccessible only for adverbs. The modified criteria for adverb distribution are as follows.

(91) a. An adverb must c-command the projection it modifies.

AND

b. (i) The adverb must appear in the same phase as that projection. **OR**
(ii) The adverb must have access to the features of that projection at the edge of a lower phase.

2.4.6.3 A NOTE ON T-TO-C MOVEMENT

The analysis proposed here requires T-to-C movement for cases of AC with a Control verb and a temporal adverb. It follows Landau's (2003) claim that T-to-C raising occurs with 'tensed' infinitives. While this movement might be required in terms of selectional purposes (allowing predicates to differentiate between 'tensed' and 'tenseless' infinitives), it is apparently motivated only by an EPP feature.

Some authors have argued for the opposite, claiming that T-to-C movement occurs in 'tenseless' infinitives because of their temporal deficiency. Bok-Bennema & Kampers-Manhe (1994) take this approach, citing (92) as proof that *want* has a temporally deficient complement.

(92) a. *Pierre dit être un espion depuis hier*
Pierre claims to-be a spy since yesterday

b. *Pierre veut être un espion (*depuis hier)*
Pierre wants to-be a spy since yesterday

This evidence superficially contradicts the claim that the complement of *want* is temporally independent. Closer inspection shows, however, that (92) is ungrammatical with *depuis hier* not because *want* and its infinitival complement have a simultaneous intepretation, but rather because the complement of *want* must be irrealis. The equivalent is unacceptable in English, but clashing time references are otherwise fine.

(93) a. *Peter wants [to be a spy since yesterday]

b. On Tuesday, Peter wanted [to be a spy on Thursday]

The data in (92) therefore do not challenge the conclusion that 'tensed' rather than 'tenseless' infinitives undergo T-to-C movement.

2.4.7 RAISING-TO-OBJECT

While AC interpretations occur with Raising-to-Subject constructions, they are not available in Raising-to-Object (RtO) constructions. The examples in (94) have only the matrix predicate interpretation.

(94) a. George willingly believed Jane to have insulted him
≠'George believed that Jane willingly insulted him.'

b. Jane frequently found George to lack conviction
≠'Jane found that George frequently lacked conviction.'

c. Jane cleverly proved George to have answered the questions
≠'Jane proved that George was clever to answer the questions.'

The position of adverbs has in fact served as an argument for the analysis in which RtO constructions require overt raising of the embedded subject, as opposed to Chomsky's (1981) Exceptional Case Marking (ECM). Under the ECM analysis, the embedded subject remained in Spec,IP of the embedded clause, which lacked a CP-layer; the absence of CP allowed the embedded subject to be assigned accusative case by the matrix verb.

In his original arguments for RtO, Postal (1974) observes that an adverb cannot appear between a 'B-verb' (e.g. *believe*) and the subject of its infinitival complement.

(95) (Postal 1974: 134)

a. *I believe very strongly Tony to be honest

b. *They found recently the money to be missing

He argues that this prohibition is akin to the one that prevents adverbs from appearing between verbs and their objects. Thus, the subject of the complement must have moved such that it has become the object of the B-verb.

Postal also observes that an adverb following the main verb can modify the matrix predicate.

(96) (Postal 1974: 146)

I have found Bob recently to be morose

The interpretation of (96) can either be that the finding was recent (and perhaps Bob has been morose all along), or that Bob's morose state was recent. The availability of the first interpretation provides another argument for raising of the embedded subject: if the embedded subject remains in the complement clause, then the following adverb must also be in the complement clause, and it should be impossible for it to receive a matrix clause interpretation. These facts regarding adverb position and interpretation hold true for Object-Control 'W-verbs' (e.g. *want*) as well, suggesting that their objects are also in the matrix clause, although they may have been base-generated in this position rather than moved to it.

Runner (2006, see also 1995) reviews prevailing analyses of RtO. He points out that covert Raising accounts such as Lasnik & Saito's (1991), in which the subject is spelled out in the embedded clause, derive the correct word order facts in terms of the embedded subject and matrix verb, but fail to account for Postal's observations regarding the position of adverbs. Overt RtO does account for these facts. Nonetheless, if the object position of a RtO verb is occupied by the infinitival complement, an overtly raised subject would have to move to a higher position in the matrix clause (e.g. *v*P). The matrix verb would subsequently have to raise over its derived object in order to obtain the correct verb-object word order in the matrix clause.

If the infinitival complements in RtO constructions are not full CPs, then AC interpretations should be available; as shown in (94), they are not. However, if a B-verb must move to a position higher than its derived object, an adverb preceding the matrix verb in RtO constructions will be outside the vP phase minimally containing the embedded functional projections, precluding an AC interpretation. In this respect, the lack of AC interpretations with RtO verbs could lend support to an overt raising analysis.

Johnson (1991) argues that the verb does move out of *v*P, as there is in fact V-to-T movement in English. In the following section I will review his arguments, and conclude the data he cites can be explained without V-to-T movement. I will therefore seek an alternative account for the lack of AC interpretations with RtO verbs

2.4.7.1 ENGLISH V-TO-T?

Johnson (1991) presents an analysis of verb movement in English based on the ordering of objects and particle verbs.

(97) (Johnson 1991: 593)
   a. Betsy threw out the bicycle
   b. Betsy threw the bicycle out

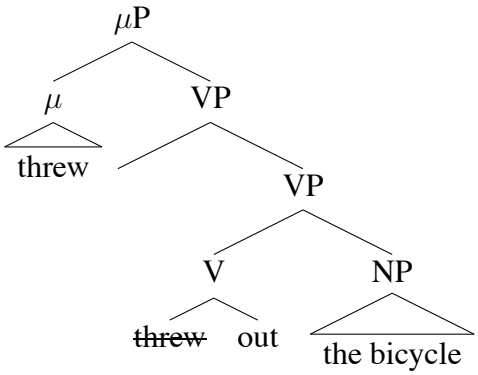
He proposes that the verb and its particle are both generated in the head of V. They may then together undergo head movement to a head μ above VP, so that the particle precedes the object, as in (97)a.

Alternatively, the verb moves independently to μ, stranding the particle in V. The object may be assigned accusative case in its original position in the complement of VP, again resulting in particle-object order. Otherwise, it moves to Spec,VP, resulting in object-particle order when the particle is stranded in V, as in (97)b. 'Weak' pronouns cannot be assigned accusative case in situ, and therefore must move to Spec,VP; in these instances the particle is always stranded, making particle-object order with weak pronouns ungrammatical, as in (98).

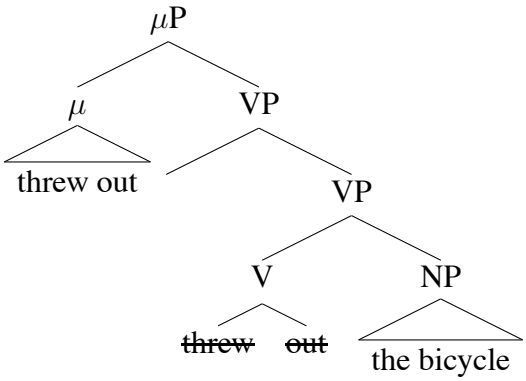
(98) a. Betsy threw it out
   b. *Betsy threw out it

The possible combinations of verb and object movement Johnson posits are pictured in (99).

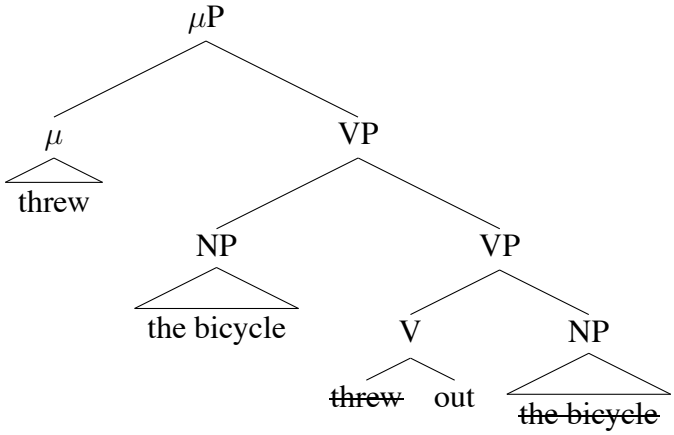
(99) a. PARTICLE AND OBJECT NOT MOVED



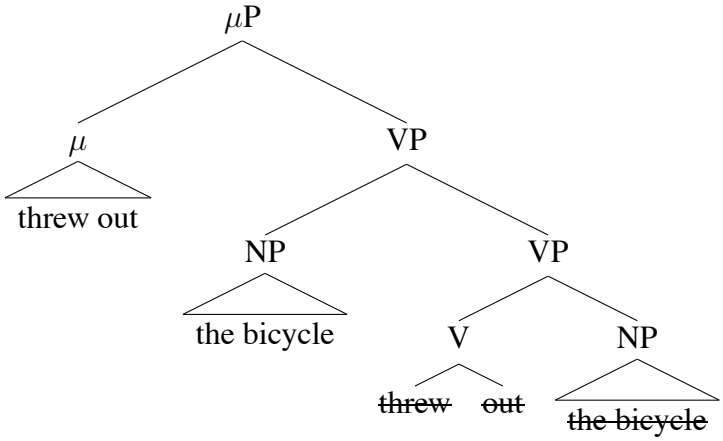
b. PARTICLE MOVED



c. OBJECT MOVED



d. PARTICLE AND OBJECT MOVED



Johnson further argues that the verb must move to T in order to receive agreement morphology. This verb movement strands the particle in V or μ so that the agreement morphology is not spelled out on the particle, e.g. **look uped* instead of *looked up*.

It is apparent from the options illustrated in (99), however, that optional movement of the object is sufficient to derive both particle-object and object-particle order. Thus it is not necessary for the particle ever to move to μ, and only (99)a and (99)c need ever occur.

An analysis in which the particle does not undergo head movement with the verb has several advantages. It eliminates one element of optionality, in that the particle always remains in its base position. Consistent stranding of the particle also resolves another difficulty with Johnson's analysis: in moving from V to μ, the verb and particle together act as a single head; for the verb to then move from μ to T, they would have to be syntactically separate. If the particle consistently remains in V this undesirable excorporation is avoided.

Most significantly, this modification of Johnson's proposal means that movement of the verb to T is unnecessary. Moved alone to μ (which can be identified with *v*), the verb can undergo agreement without interference from the particle. I will propose a more detailed account of particle verbs in Chapter 3. For the moment it is sufficient to say that they do not offer proof that the verb moves out of *v*P.

There are also more fundamental objections to a V-to-T analysis of English. First, as Runner (2006) observes, the position to which the matrix verb raises cannot be the same one to which the French verb moves, as that would obviate the argument that distinctions between English and French regarding question formation and adverb-object order result from V-to-T movement in French that does not occur in English (Pollock 1989). If the B-verb did move out of *v*P it would have to move to a position below T. Such a projection might very well exist, but ideally requires additional evidence.

Second, Johnson's arguments for movement of the verb to T apply across the board. If Subject-Raising verbs also moved out of vP, that would render them identical to RtO verbs in terms of AC interpretations, so that AC interpretations would never be available. Johnson's argument for English V-to-T movement is therefore not only unconvincing, but it makes no distinction among verb classes, although they behave differently with respect to a phenomenon that should be sensitive to this movement.

Given that there is neither evidence nor motivation for movement of the verb out of *v*P in English, the lack of AC interpretations with RtO verbs cannot be a result of such movement. In the following section I will therefore argue that AC interpretations are unavailable with RtO verbs because they take fully clausal complements.

2.4.7.2 RAISING-TO-OBJECT AND COMPLEMENT SIZE

Chomsky's (1981) ECM analysis of B-verbs required that they take a reduced complement in order to allow case assignment to the embedded subject by the matrix verb. Despite a shift back towards RtO accounts, the idea that these verbs take reduced complements has persisted. Runner (1995), for instance, tentatively concludes, based on the difficulty of movement over an embedded CP node, that verbs such as *believe* select IP complements rather than full CP complements.

More substantially, Bruening (2001) notes that Raising out of Spec,CP would constitute Improper Movement, as the subject, first A'-moved from Spec,IP to Spec,CP, could not then A-move to the higher clause. Looking at Japanese and Passamaquoddy, in which RtO apparently occurs out of a finite clause containing overt complementiser material, Bruening ultimately concludes that the RtO verbs in these languages do take fully clausal complements. The embedded subjects are generated at the clause edge rather than moved there, so there is no Improper Movement when they move to the matrix object position.

In fact, RtO and Object-Control constructions look similar to other constructions with complementisers, and as such have not always been identified as separate. Bresnan (1972) equates the optionality of *for*, which may serve as a complementiser with infinitival complements, with the optionality of *that*.

(100) (Adapted from Bresnan 1972: 39)

a. I don't think (that) you should have said that

b. I want (very much) (for) you to help me

Instances of optional *for* with B-verbs could suggest a phonologically null version of *for* in the C position that assigns accusative case to the infinitival subject. However, only verbs with irrealis or generic interpretations on their infinitival clauses allow *for* (Pesetsky & Torrego 2000: 393).

(101) a. I expect (for) him to leave
b. I { believed / considered / found } (*for) him to be crazy

If there were a phonologically null equivalent of *for* assigning case to the subject of the infinitival complement, overt *for* should be possible in (101)b as well. If the phonologically null case-assigner in C differed syntactically or semantically from *for*, then irrealis predicates should not alternate between the two without a change in meaning.

I return here to Pesetsky & Torrego (2000), mentioned in §2.4.3, who argue that that complementisers *that* and *for* move from T. If *for* is present in T it will move to C, assigning accusative case to the infinitival subject. If it is not present the subject will move to Spec,CP.

It is also possible that the subject moves to Spec,CP in the absence of *for* not because *for* undergoes T-to-C movement, but because without *for* the subject cannot be assigned case within the infinitival TP. Hypothetically, movement to the phase edge could be enough to render the embedded subject accessible for case assignment by the matrix predicate.

There are still reasons to think that the embedded subject in these constructions must move to a matrix object position. If the embedded subject remains in Spec,CP of the embedded clause, it becomes difficult to account for (96), in which an adverb follows the subject of the infinitival predicate but has a matrix reading.

The passivisation of B-verbs also suggests that it should be possible for the embedded subject to move to the matrix clause. The embedded subject may become the subject of the passivised matrix predicate.

(102) He is believed to have left early

Regardless of whether the subject of (102) moves directly from its base position to the matrix subject position or is first moved to a matrix object position, the fact that such embedded subjects are passivisable in this way shows that the embedded subject must move out of the embedded clause in passives.

The stumbling block for an account in which B-verbs take full clausal complements is whether raising of the object out of the CP constitutes Improper Movement, defined as movement of an element from an A-position to an A'-position to an A-position. In

Government and Binding terms, Improper Movement results from a binding violation. Thus a wh-word moved through CP cannot move into an A-position in the matrix clause, because the resulting c-command relation will violate Principle C (May 1979; Chomsky 1981).

(103) *Who decided Bill would hit (May 1979: 720)

More recently, Bruening (2001: 2) redefines Improper Movement as resulting from feature-checking requirements: an argument A'-moved to the edge of the clause will already have had its ϕ-features and Case checked and deleted, so that they cannot be checked in a higher clause. In (103) *who* cannot be the subject of the matrix predicate because it has already been assigned accusative case as the object of the embedded predicate.

Bruening examines apparent RtO in finite clauses. English RtO, in contrast, occurs only with infinitival complements. If the subject of the embedded clause moves to the phase edge but is not assigned case it should still be possible for it to move to an A-position in the matrix clause for Case assignment. The CP complements of RtO verbs are then in some sense 'defective' phases, as they leave the case of their subject unchecked.

If movement from Spec,CP to a matrix object position is permitted, there must be motivation for movement of the embedded subject to Spec,CP in the first place. The subject cannot move to this position for case reasons, as movement to the phase edge must occur before the rest of the phase is spelled out, meaning that the next phase, containing the accusative case assigner, will not yet have been formed. The accusative case assigner therefore cannot attract the embedded subject to Spec,CP. As already suggested, Pesetsky & Torrego's analysis provides motivation: the embedded subject moves to satisfy a *u*T feature. If the embedded subject moves to Spec,CP, it must be possible for *wh*-words to move to the phase edge simultaneously in order to derive sentences such as (104).

(104) What do you believe him to have eaten?

In order for the *wh*-word *what* to move into the matrix clause from its original position as the object of *eaten* it must pass through the phase edge, as must the derived object *him*. There is no conflict in terms of Pesetsky & Torrego's analysis: *what* will check the

embedded *u*Wh feature, while *him* will check the embedded *u*T feature. Moreover, both subjects and questioned objects must move through the edge of the *v*P phase in sentences such as (105).

(105) What have you eaten?

An RtO analysis in which the embedded subject moves out of a fully clausal complement therefore does not preclude *wh*-movement out of the embedded clause, although multiple adjunction to the phase edge must be allowed.

This analysis does depart from Pesetsky & Torrego's in one crucial respect. In their proposal the tense feature shared by T and its subject is realised on the latter as nominative case. In this instance the embedded subject must have a tense feature for it to move to Spec,CP, but must not be marked for case in order to allow it to move to the matrix object position. I therefore assume that T shares an EPP feature with the subject which is not case.

2.4.7.3 SUMMARY OF RAISING-TO-OBJECT

In this section I have considered two possible syntactic configurations for RtO verbs that might explain why they do not permit AC interpretations: either RtO verbs take a reduced infinitival complement but move out of *v*P so that preceding adverbs are not in the same phase as embedded functional projections, or RtO verbs select for fully clausal complements. I have shown that the supposed motivation for movement of the verb out of *v*P does not stand up to scrutiny. I have also argued that having a CP complement does not preclude movement to an object position in the matrix clause, and that an account based on Pesetsky & Torrego's analysis of the 'T-to-C asymmetry' can explain movement of the embedded subject to the clause edge. I therefore conclude that AC interpretations are unavailable with RtO verbs because, unlike Raising-to-Subject verbs, they take full CP complements.

2.4.8 ADVERB CLIMBING AND COMPLEMENT SIZE

This analysis shows that many instances of AC do indicate a reduced infinitival complement, but not all of them. With Raising-to-Subject verbs AC shows that the embedded infinitival lacks a CP. AC with Control verbs only applies with temporal adverbs, and only for those Control verbs that undergo T-to-C movement. There is thus evidence that

Control complements have a CP layer, and Raising-to-Subject predicates do not. Raising-to-Object verbs also have a full CP complement. Taking Klooster's (2003) proposal that Neg-Raising involves agreement of the matrix negative with negative features in the CP, both AC and NR reduce to selection of different complement types.

2.5 CONCLUSION

In this chapter I have looked at adverbs with verbs that take infinitival complements. The data on Adverb Climbing have allowed me to develop a theory of adverb distribution in which an adverb must c-command the projection it modifies. That projection must be in the same phase as the adverb, or accessible at the edge of a neighbouring phase. This analysis has allowed me to show that Raising and Control verbs select for different sizes of infinitival complement.

In §2.2 I argued that Wurmbrand's (1999) reduced complement approach better explains Restructuring than Cinque's (2002) monoclausal approach. Central to this conclusion was the evidence that transparency effects are not arbitrarily optional, but situated on an implicational hierarchy which reflects different sizes of infinitival complement.

Section 2.3 showed that, although appealing in its elimination of the theoretical machinery associated with PRO, Hornstein's (1999) Movement Theory of Control does not account for Partial or Split Control, or instances in which the controller is not the closest possible antecedent to the controlled empty category, as with *promise*. I further argued that Jackendoff & Culicover's (2003) proposal that choice of Controller depends on whether complements are actional also does not to explain Partial Control. I concluded that Landau's (2007) observation of a correlation with 'tensed' infinitives, and concomitant proposal regarding T-to-C movement, offered the best explanation for the restrictions on Partial Control.

Section 2.4 laid out the data on Adverb Climbing in French and English. Having established that AC is limited to Raising verbs and certain Control verbs in English, I proposed a set of criteria for adverb distribution.

(106) a. An adverb must c-command the projection it modifies.

AND

b. (i) The adverb must appear in the same phase as that projection. **OR**
(ii) The adverb must have access to the features of that projection at the edge of a lower phase.

AC was thus found to occur in two distinct instances: when a Raising verb selects for a reduced (non-CP) infinitival complement, and when a Control verb selects for a temporally independent infinitival complement with T-to-C movement. I also argued that the lack of AC with RtO verbs indicates that they take full CP complements.

English does not exhibit the transparency effects that Wurmbrand (2001) finds to result from a lack of CP in German: namely, Long Object movement, Non-Focus Scrambling, and Relative Clause Pied Piping. An effect like Non-Focus Scrambling will be impossible because English does not have any kind of scrambling. Other transparency effects may be precluded for independent reasons.

As already discussed, French also does not have the transparency effects seen in other Romance languages, such as Clitic Climbing. This lack of Clitic Climbing does not contradict the availability of AC if the climbing of French manner adverbs is actually a result of V-to-T-to-C movement rather than a lack of structure. This analysis therefore predicts that French will not necessarily have AC with sentential adverbs in the same contexts as English. It also predicts that languages that do not have V-to-T movement will not permit climbing of manner adverbs.

In the next chapter I will examine at a subset of 'verb-modifying' adverbs, determining what projections they may modify. This closer examination will allow me to refine my account of AC in English and French.

CHAPTER 3

Verb-Modifying Adverbs

3.1 INTRODUCTION

Studies of adverb distribution have identified at minimum a distinction between verb-modifying and sentence-modifying adverbs (e.g. Jackendoff 1972; Thomason & Stalnaker 1973; McConnell-Ginet 1982). A wide variety of different types of adverb may arguably be classed as verb-modifying. This chapter will focus on three of these: agentive, subject-oriented, and manner adverbs.

These three types of adverb are all verb-modifying in some sense, yet have overlapping but non-identical distributions in English. An account of their placement must therefore distinguish between them. Those adverbs that may appear postverbally pose an additional conundrum, in that they have right-to-left scope, in contrast to the left-to-right scope seen with preverbal adverbs. Moreover, some verb-modifying adverbs are subject to restrictions on the kinds of verbs they may co-occur with.

I will begin in §3.2 by outlining the different distributions of agentive, subject-oriented, and manner adverbs, followed by a brief look at how their distribution is problematic for a functional specifier approach. I will then look at the problems posed by postverbal adverbs in English, especially their right-to-left scope, and consider several analyses in which such adverbs are treated as complements (Larson 2004; Stroik 1990, 1996; Alexiadou 1997). Comparison of adverbs to PP adjuncts will show that the behaviour of the latter cannot be generalised to account for all adverbials, and that there is insufficient evidence to rule out right-adjunction of verb-modifying adverbs. The following subsection will review 'Split VP' approaches, in which the VP is divided into a number of

projections that reflect subcomponents of event structure, especially those of Ramchand (2008) and Travis (2010). This will lay the groundwork for the proposal in the next section that verb-modifying adverbs modify different VP projections.

In 3.3 I will consider the motivation for head movement in light of the observation that head movement from the lowest projection of the split VP to the phase edge would, according to the criteria for adverb distribution proposed in Chapter 2, incorrectly allow for all verb-modifying adverbs to appear in pre-auxiliary positions. I will propose that heads may have both projecting and non-projecting features, and that head movement results from attraction of a non-projecting feature; furthermore, that in some instances it will be possible for head movement to bypass a head, violating Travis's (1984) Head Movement Constraint. This possibility for violation of the HMC will be shown to be unproblematic.

Based on their distribution and meaning, I will propose that agentive, subject-oriented, and manner adverbs modify different projections within an extended VP structure, and that there is in fact HMC-violating movement from the lowest projection of this split VP to the highest. I will then look at the implications of such a structure for double object constructions, particle verbs, and heavy NP shift. The following subsection will revisit manner adverbs, especially those that are claimed to be obligatorily postverbal, and I will argue that certain postverbal adverbs are complements of the lowest VP, which in some instances contribute a PROCESS feature that is otherwise encoded in the lowest verbal projection. Crucial to this approach will be the surprising conclusion that agency is not exclusively encoded in the highest verbal projection (e.g. *v*P, Chomsky 1995), as is widely assumed, but rather depends on a lower VP. Finally, I will offer an alternative analysis for the structure of the Split VP if right adjunction is banned, and revisit Adverb Climbing in French in view of the extended VP structure argued for in this section.

In essence, this chapter will build upon the previously proposed criteria for adverb distribution to account for the varying behaviour of verb-modifying adverbs. In doing so, I will propose an extended VP structure comprised of three projections linked by feature-checking accomplished both in head-complement configurations and through head movement.

3.2 DISTRIBUTION

It has long been attested that a large set of adverbs, such as *quickly*, *cleverly*, and *happily*, are ambiguous between subject-oriented and manner interpretations (Jackendoff 1972; Travis 1988, and others). Which interpretation is available varies according to position: pre-auxiliary instantiations of these adverbs have only a subject-oriented reading, postverbal instantiations have only a manner reading, and directly preverbal instantiations may have either reading[1].

(1) a. George cleverly has answered the questions
SUBJECT-ORIENTED: 'George was clever to answer the questions.'
b. George has answered the questions cleverly
MANNER: 'George answered the questions in a clever way.'
c. George has cleverly answered the questions
AMBIGUOUS

The difference between the subject-oriented and manner interpretations of these adverbs is especially clear if an instance of each is used in the same clause.

(2) a. John cleverly has answered their questions cleverly
b. John cleverly has cleverly answered their questions
c. John has cleverly answered their questions cleverly
'It was clever of John to answer their questions in a clever way.'

(3) (Cinque 1999: 19)
John cleverly has answered their questions stupidly
'It was clever of John to answer their questions in a stupid way.'

Although homophonous, the two instantiations of *cleverly* in (2) are not redundant, as they have different readings. Likewise, the antonyms *cleverly* and *stupidly* do not make (3) contradictory, because *cleverly* is in this example a subject-oriented adverb, and *stupidly* a manner adverb.

[1]Here I do not include adverbs with 'comma intonation'. Adverbs such as *cleverly* can have a subject-oriented reading postverbally if set off by an intonational break. I will discuss a possible explanation for this difference in §3.3.5.

While reference to 'manner' adverbs is relatively uncontroversial (although this label potentially encompasses a variety of subgroups), some linguists have suggested that the term 'subject-oriented' incorrectly characterises non-manner *cleverly* and its ilk. In Jackendoff's original formulation this designation emphasises the contrast between these and 'speaker-oriented' adverbs, such as *frankly* (e.g. *Frankly, I don't give a damn*). Geuder (2000; cf. Bonami et al. 2004) argues that such adverbs instead should be called 'agentive', as they are 'passive sensitive', meaning that their 'orientation' towards an agent or theme may be affected by passivisation. He claims that this change depends not simply on the syntax, but the introduction of thematic relations mediated by an additional event variable in passives.

(4) PASSIVE SENSITIVITY (McConnell-Ginet 1982)

a. Jane stupidly accosted George
   → Jane was stupid

b. George stupidly was accosted by Jane
   → George was stupid

In his arguments that these adverbs are 'agentive', Geuder groups them with ones such as *intentionally* and *reluctantly*, which have a different distribution (a fact which he does acknowledge in further discussion). If these other adverbs are excluded the agency requirement becomes murkier.

(5) a. ?The package stupidly had arrived a day late
   'It was stupid for the package to arrive late'

b. The apple easily had satisfied Jane's hunger
   'It was easy for the apple to satisfy her hunger'

For some adverbs in this group (e.g. *cleverly*) it is difficult to construct examples with a non-agentive subject. The problem may lie in an animacy rather than an agency requirement, given that such adverbs also require an animate subject in their manner readings.

(6) { Jane / *?The car } got out of the narrow space cleverly

Another alternative is to call such adverbs 'topic-oriented', as in Potts (2005: 143f), who cites (7) as an example of a so-called subject-oriented adverb that does not refer to

the subject (an expletive in this instance). The perception that such adverbs are subject-oriented, he argues, comes from the frequent conflation of subject and topic in English. One immediate objection to his example is that the adverb in this sentence does not seem to apply to a topic any more than a subject.

(7) Thoughtfully, there is a clip on cover for the connector while not in use

This idea deserves further exploration, but the focus of the current work is these adverbs' distribution, rather than very precise semantic nuances. For present purposes, then, the widely used term 'subject-oriented' will suffice for this group.

Like subject-oriented adverbs, those such as (*un*)*intentionally*, (*un*)*willingly*, (*in*)*voluntarily*, and *reluctantly* are passive sensitive, so that they may change their orientation from the active subject (the agent) to the passive subject. This shift is not obligatory; McConnell-Ginet (1982: 147) observes that the sentence in (8) is ambiguous between an 'agent-oriented' reading (in which Joan, the instructor, is reluctant), and a 'subject-oriented' reading (in which Mary, the instructee, is reluctant).

(8) Mary reluctantly was instructed by Joan

Vendler (1984: 304) notes that adverbs such as *intentionally* 'describe the condition of the agent (i.e. his mental state, circumstances, etc.)', while Geuder (2000), in differentiating them from what I have designated 'subject-oriented' adverbs (*cleverly*, etc.), argues that *intentionally*, etc. have an 'attitude' reading. As demonstrated by the interpretation of (8) in which Mary is reluctant, such adverbs may ascribe properties (e.g. reluctance) to a passive subject rather than an agent; at the same time, they must always apply to an agent in active sentences, as opposed to subject-oriented adverbs, which, as shown in (5), can apply to a non-agentive subject (in §3.3.4.1 I shall discuss the fact that these adverbs cannot occur wth unaccusatives, while subject-oriented ones can).

Even when this type of adverb is 'oriented' towards a passive subject, this adverb requires that the subject has the potential for agency. Thus, (9)a is ambiguous, because although George is the agent of presenting Jane, there is a reading in which his acting as that agent depends on her willingness (giving her indirect agency with respect to the actual agent's presenting). *The results* cannot have any agency, and so in (9)b the agentive verb is unambiguously oriented towards the agent, George.

(9) a. Jane was willingly presented by George
→ Jane was willing OR George was willing
b. The results were willingly presented by George
→ George was willing

I will therefore refer to *intentionally*, *willingly*, etc. as 'agentive' adverbs.

Agentive adverbs have a wider distribution than either manner or subject-oriented adverbs. They may appear before auxiliaries, directly before the verb, and postverbally. There is no difference in meaning corresponding to position, as was seen for manner and subject-oriented adverbs in (1)[2].

(10) George (intentionally) will (intentionally) read the book (intentionally)

Because agentive adverbs do not have different interpretations in different positions, they must be classed as a single group (cf. Geuder 2000). While it is possible to have the 'same' adverb twice in the same clause if it has a subject-oriented reading in one place and a manner reading in the other,only one agentive adverb is possible per clause. Contradictory agentive adverbs are also not acceptable when used together.

(11) *George intentionally has insulted Jane (un)intentionally

An analysis of verb-modifying adverbs must therefore account for the relatively free distribution of agentive adverbs, as compared to that of subject-oriented and manner adverbs. I will show in later sections that these three types of adverb not only modify different projections, but that the wider array of positions available to agentive adverbs is a result of how these projections are configured.

While they are not a primary focus of this chapter, frequentative adverbs such as *frequently*, *rarely*, and *often* can also appear both pre- and postverbally. Like subject-oriented/manner adverbs they can be used twice in a single clause non-redundantly.

[2] *Deliberately* has a manner reading as well as an agentive reading. This ambiguity does not represent any kind of systematic correspondence between agentive and manner adverbs, though, especially as both readings are available pre- and postverbally.

(i) George (deliberately) opened the box (deliberately)
AGENTIVE: 'George intentionally opened the box'
MANNER: 'George opened the box slowly/carefully'

(12) a. George frequently has insulted Jane
b. George has insulted Jane frequently
c. George has frequently insulted Jane
d. George frequently has insulted Jane (in)frequently

The two occurrences of *frequently* in (12) can be read as applying to different time scales (e.g. five days a week George insulted Jane once every 20 minutes, where the first *frequently* applies to days, and the second to insults per day). In many instances there is no clear contrast between the different interpretations of frequentative adverbs in different positions. It is nevertheless possible to show that they are ambiguous. For instance, Larson (2004: 15) notes that (13)a has two interpretations, while (13)b does not. Expanding on his examples, a sentence in which *often* precedes an auxiliary, as in (14), has only the reading in which the adverb quantifies the bare plural existential 'Texans', rather than the frequency of barbecue consumption. This quantification of the subject by the adverb is the interpretation that is unavailable when the adverb is postverbal.

(13) a. Texans often eat barbecue
'Many Texans eat barbecue'
'In general for a Texan, his/her barbecue-eatings are many'
b. Texans eat barbecue often
'In general for a Texan, his/her barbecue-eatings are many'

(14) Texans often will eat barbecue
'Many Texans will eat barbecue'
$\neq$'In general for a Texan, his/her barbecue-eatings will be many'

Frequentative adverbs show the same pattern, then, as those adverbs that have both a subject-oriented and a manner reading, in that they have different interpretations in pre-auxiliary and postverbal positions, but are ambiguous when directly before the verb. Many conclusions regarding the distinction between subject-oriented and manner adverbs will thus also be applicable to other types of adverb that share this contrast in reading according to position.

Although I still argue the distribution of adverbs depends on their relationship to specific projections, my analysis will differ from Cinque's (1999), in that not all semantically

distinct groups of adverbs must modify different projections. As such, this proposal assumes neither a one-to-one relationship between adverb type and projection, nor that a given projection is necessarily comprised of only a single feature that must be modified by a particular type of adverb.

3.2.1 A NOTE ON THE FUNCTIONAL SPECIFIER APPROACH

As seen in Chapter 1, there are a variety of reasons to reject Cinque's (1999) approach to adverb distribution. Subject-oriented, manner, and agentive adverbs present yet more data that cannot be explained under a functional specifier approach if the idea of a one-to-one relationship between specifier position and adverb interpretation is to be maintained.

Setting aside the problem of overlapping head movement, the distribution of the three adverb types might be accounted for if agentive adverbs were generated below subject-oriented ones, and above manner ones. The assumption would then be that main verbs could optionally move above manner *cleverly* and agentive *intentionally*, allowing them to appear postverbally, but not as high as subject-oriented *cleverly*, which does not appear postverbally. Auxiliaries would obligatorily move over manner adverbs, which cannot appear in a pre-auxiliary position, but auxiliary movement over agentive and subject-oriented adverbs would be optional, allowing them to appear in pre-auxiliary position. The possible positions of verbs and auxiliaries with respect to the required ordering of these adverbs in a functional specifier configuration is illustrated in (15).

(15)

*V	SUBJECT-O.	(V)	AGENTIVE	(V)	MANNER	(V)	
(AUX)	*cleverly*	(AUX)	*intentionally*	(AUX)	*cleverly*	*AUX	

This fixed sequence (subject-oriented > agentive > manner) is immediately falsified by the actual ordering possibilities for these adverbs. Specifically, *intentionally* may precede subject-oriented *cleverly*.

(16) George intentionally has cleverly answered the questions cleverly

A functional specifier approach could still account for (16) if *intentionally* had two positions of base generation. Given that *intentionally* has only one interpretation, such a solution would contradict an essential tenet of the Cinquean approach. Furthermore, as argued in Chapter 1, having two positions for some adverbs is in many instances

insufficient to deriving all possible adverb orders. Once again, the functional specifier approach cannot account for these data.

3.2.2 POSTVERBAL ADVERBS

Among the verb-modifying adverbs, those that appear in postverbal positions are particularly problematic, as they differ from preverbal ones in scope. Oft cited is Andrews' (1983: 695) example, given in (17), of two sentence-final adverbs, in which the rightmost adverb takes scope over the one preceding it.

(17) a. John knocked on the door intentionally twice
twice > intentionally
b. John knocked on the door twice intentionally
intentionally > twice

These contrast with preverbal adverbs, which have left-to-right scope.

(18) a. John intentionally twice knocked on the door
intentionally > twice
b. John twice intentionally knocked on the door
twice > intentionally

Postverbal adverbs also do not necessarily precede any overt phonological material. The seemingly most straightforward explanation for this fact is that postverbal adverbs are right-adjoined, allowing them to c-command the preceding verbal projections that they modify. Their right-to-left scope also points to right-adjunction, as the rightmost postverbal adverb will be adjoined higher than the one to its left. Ernst (2002) is a strong proponent of this approach, invoking directionality principles which determine which items in a language may be right-adjoined, and which projections allow right-adjunction.

Many authors have argued against right-adjunction on theoretical grounds, most notably Kayne (1994). Under his Linear Correspondence Axiom linear precedence is derived from asymmetric c-command: one element will come before another only if it is hierarchically superior. Right-adjunction is ruled out, as it will result in incorrectly reversed linearisation of constituents.

Kayne argues for a concomitant prohibition on multiple adjunction, based on the idea that the syntax does not differentiate between segments of the same category. Multiple constituents adjoined to the same projection would therefore be in a symmetric c-command relationship, making it impossible to linearise them. Kayne's approach thus virtually necessitates a functional specifier account, in which each adverb appears as the sole specifier of a corresponding functional head (Cinque 1999).

Even if multiple adjunction does occur, right-adjunction of adverbs remains an issue. For one, it is impossible in English for true sentential adverbs (e.g. *fortunately*, *probably*) to appear sentence-finally without an intonational break.

(19) George ate the cake *(,) fortunately

This comma intonation requirement suggests that such sentence-final sentential adverbs are adjoined differently from verb-modifying ones in the same position. One possible implication of this difference is that right-adjunction would have to be confined to verbal projections, so that only verb-modifying adverbs could right-adjoin. On the other hand, the comma intonation required for postverbal sentential adverbs does not prove that they are not right-adjoined; the intonational break could result from other factors unrelated to the direction of adjunction. I will elaborate on this possibility in §3.3.5.

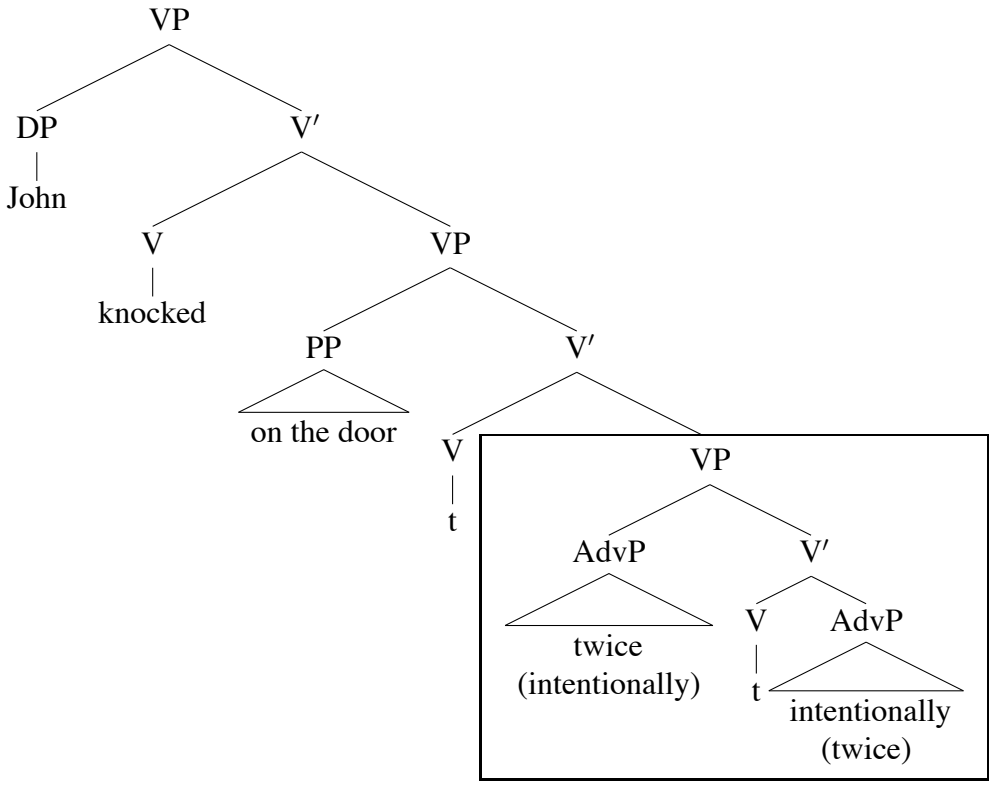
Right-adjunction of any given adverb would also have to be optional, as many postverbal adverbs can also appear preverbally (e.g. manner and agentive adverbs, as seen in §3.2), where they would have to be left-adjoined. Optionality is not intrinsically problematic, but may require additional constraints on particular adverbs regarding whether they can right-adjoin, or on particular projections, regarding whether they allow right-adjunction. The necessity of such stipulations could make right-adjunction unparsimonious as an explanation for the scope of sentence-final adverbs. My analysis of the distribution of verb-modifying adverbs will allow for right adjunction, though, and I will show in §3.3.5 that it is not necessary to restrict where right-adjunction occurs and what adverbs may be right-adjoined.

A postverbal adverb could also be left-adjoined to some phonologically empty final projection, perhaps vacated by movement. On the other hand, this left-adjunction would not on its own account for the right-to-left scope of postverbal adverbs seen in (17).

In consideration of the problems inherent in both right- and left-adjunction explanations for the behaviour of postverbal adverbs, Larson (2004) argues that they are event predicates, which appear either as complements or specifiers of the lowest VP. His analysis is based on Davidson's (1967) proposal that adverbs are predicate of events, acting as conjuncts rather than 'scopal operators'. Thus in 'Mary kissed John quickly' there is a kissing event, the agent of that event is Mary, the theme of that event is John, and the event is quick. Argues Larson (2004: 7) 'Our scope-like intuition that "quickly applies to kissed John" ...arises from the fact that VP denotes an event of John-kissing, and quick is true of this whole event.'

There is little consistency in Larson's account with respect to any connection between the way in which an adverb is integrated into the syntax and the nature of its semantic contribution. Regarding Andrews' examples with *twice* and *intentionally* (see 17), Larson places the final adverb as the complement of the lowest verbal projection, with the preceding adverb as the specifier of that VP. In either position the adverb is to be interpreted as an event predicate.

(20) (Adapted from Larson 2004: 16f)



Assuming that preverbal adverbs are merged as specifiers of higher projections, it is unclear why the calculation of their semantic contribution or scope should change when

they are adjoined in the same way to the lowest projection. In essence, Larson's account requires that merge to the lowest VP make an adverb an event predicate, regardless of how it is merged. An adverb merged to any other projection will be a scopal operator.

Stroik (1990, 1996), and Alexiadou (1997) also argue that sentence-final adverbs are in complement position. Stroik notes that adverbials occurring with objects are subject to the same asymmetries, observed by Barss & Lasnik (1986), found in double object constructions: binding, NPI-licensing, and other scope-based phenomena occur left-to-right. For instance, in (21) the NPI adverbial may be licensed by a negative object, but an NPI object cannot be licensed by a following negative adverbial.

(21) Stroik (1990: 656)
  a. John saw no one anywhere
  b. *John saw anyone nowhere

Larson (2004: 2) cites (22)a, in which the adverb *rarely* binds the NPI *any* within the following PP. The reverse configuration in (22)b does not license the NPI.

(22) a. John spoke rarely during any of our meetings
  b. *John spoke during any of our meetings rarely

These facts do not definitively show that postverbal adverbials are complements; only that they license NPIs left-to-right, in contrast to the right-to-left scope seen in Andrews' examples. While this mismatch is surprising, I think it is an artefact of differences between adverbs proper and other types of adverbial. Adjunct PPs do not behave identically to adverbs in other ways. For instance, the distribution of PPs in English is generally far more restricted than that of adverbs (cf. Haider 2004).

(23) a. George subsequently ate some cake
  b. *George after that ate some cake

An example with two postverbal adverbs, one an NPI (*ever*) and the other an NPI-licenser (*rarely*), is marginal no matter their order, although the difference in acceptability between the two orders does again point to the left one taking scope over the right.

(24) a. ??George eats cake rarely ever
b. *George eats cake ever rarely[3]

I suspect that it is possible for *rarely* to modify *ever*. *Rarely ever* may also be a fixed phrase, used in contrast to *never*, as *hardly ever* is in (25).

(25) (From Gilbert & Sullivan's *H.M.S. Pinafore*)
CAPTAIN: ...And I'm never, never sick at sea
...
CHORUS: What, **never**?
CAPTAIN: Well, **hardly ever**!

Occurrences of a postverbal adverb and PP adjunct (or other type of adverbial) also potentially have more fluid scope than two postverbal adverbs. For instance, Ernst (1994) claims that the examples given in (26)a and (27)a are ambiguous, while those in (26)b and (27)b are not.

Ernst (1994: 329)

(26) a. She kissed him many times willingly
b. She kissed him willingly many times

(27) a. Joe hit him frequently on purpose
b. Joe hit him on purpose frequently

Ernst argues that *many times* and *frequently* may move at LF, unlike *willingly* and *on purpose*, because they are quantificational expressions. He also assumes that they are right-adjoined, so that the sentence-final adverbial c-commands the one to its left. In (26)a and (27)a, then, *many times* and *frequently* may take wide scope by virtue of their movement at LF; they may also raise at LF in (26)b and (27)b, but already c-command *willingly* and *on purpose*, so that they will have wide scope regardless of this movement. According to these arguments, if *twice* is quantificational Andrews' examples in (17)

[3]I did find one example of *ever rarely* with *rarely* licensing *ever* on the Internet, apparently produced by a native English speaker, although it sounds marginal.
(i) Byes are ever rarely good. (On the etymology of 'goodbye')

should be ambiguous when *twice* precedes *intentionally*, but not when *intentionally* precedes *twice*. In fact, I find the latter configuration more clearly ambiguous; that (26)b and (27)b are unambiguous (or less ambiguous than their counterparts) is also not obvious.

The acceptability of particular interpretations may also depend on the potential for one adverbial to modify another. If postverbal adverbials have left-to-right scope the left adverbial may be adjoined to the right one. When such adjunction is impossible for a particular pair of adverbials, a right-to-left reading will be favoured. This idea is supported by the observation that adverbs that otherwise do not occur postverbally may do so if they precede another adverbial which they may modify.

(28) a. *George gave the wrong answer supposedly
b. *George gave the wrong answer on purpose supposedly
c. George gave the wrong answer supposedly on purpose
(supposedly > on purpose)

Again, PP adjuncts license such configurations more readily than adverbs.

(29) a. *George gave the wrong answer intentionally supposedly
b. ?*George gave the wrong answer supposedly intentionally

It is also possible for a negative adverb such as *rarely* to trigger verb movement to C even when followed by a PP. The same negative adverb may be followed by a PP without inversion, but the interpretation will not be the same.

(30) a. Rarely has Jane run into George
b. Rarely at the station has Jane run into George
'It has rarely occurred at the station that Jane has run into George'
c. Rarely at the station, Jane has (nevertheless) run into George
'It is rare for Jane to be at the station, but she has run into George'

The lack of inversion in (30)c indicates that *rarely* cannot be in the same position as in the first two examples. Rather, it is adjoined to the PP *at the station*.

Differences between adverbs and other adverbials thus point to multiple ways in which they might be arranged syntactically in postverbal positions (or elsewhere), so that there is reason to be cautious about drawing conclusions regarding one type of adverbial from

the behaviour of another. Left-to-right scope or licensing with postverbal adverbials may simply result from distributional differences between adverbs and adjunct PPs, or from one adverbial adjoining directly to another. It does not show definitively that any adverb is a complement, or that there is a conflict with the typical right-to-left scope of postverbal adverbs.

As the above evidence does not conclusively rule out right-adjunction of postverbal adverbs, I will pursue an account in which right-adjunction is permitted. In §3.3.4 I will return to the possibility that some adverbs are complements of the lowest VP, but will show that the class of adverbs for which this is possible is more restricted than Larson suggests. I will also argue that only true complement adverbs are not scopal, rather than any adverb adjoined to the lowest VP.

3.2.3 SPLITTING THE VP

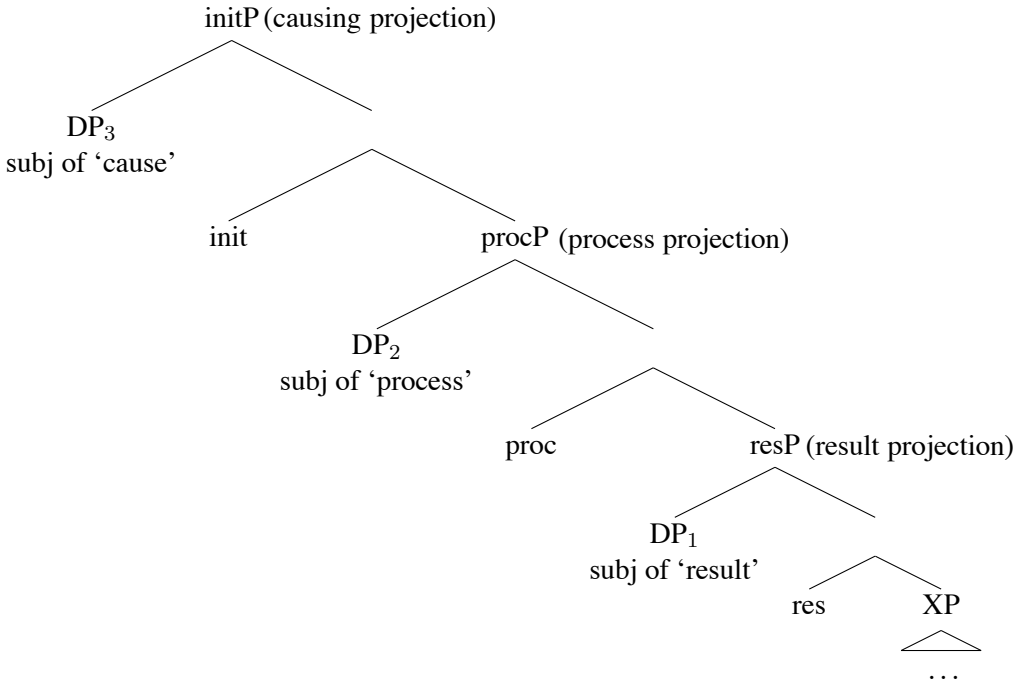
As already mentioned, the different distributions of verb-modifying adverbs suggest that they do not all modify the same projection. This variation points to an analysis in which the verb does not merely project a single VP, but instead a complex of verbal projections. The first step in explaining the differences between different types of verb-modifying adverbs thus involves splitting the VP.

Larson (1988) proposed a divided VP structure in order to account for the asymmetry in double object constructions observed by Barss & Lasnik (1986), namely that the indirect object must c-command the direct object. Under his analysis the verbal structure consists of two VPs, one the complement of the other, with an object in the specifier of the lower VP. The verb itself begins in the lower V, moving up to the higher V head.

Later 'split VP' analyses (Koizumi 1993, 1995; Travis 1992; Harley 1995) have offered an even richer VP structure. Most recently, Travis (2010) presents an account in which a functional 'Inner Aspect' projection is sandwiched between two lexical VP projections; the highest VP is the edge of the phase. She ties this structure to Vendler's (1967) classificatory system of Aktionsart, with each head contributing to the aspectual make-up of the verb. Above ASP, the inner aspect, V_1 is a causative head; below ASP, endpoints are encoded in elements adjoined to V_2P.

Ramchand (2008) also argues for a tripartite verbal structure, consisting of an initiational *init*P, a *proc*P encoding process, and a resultative *res*P.

(31) (Ramchand 2008: 39)



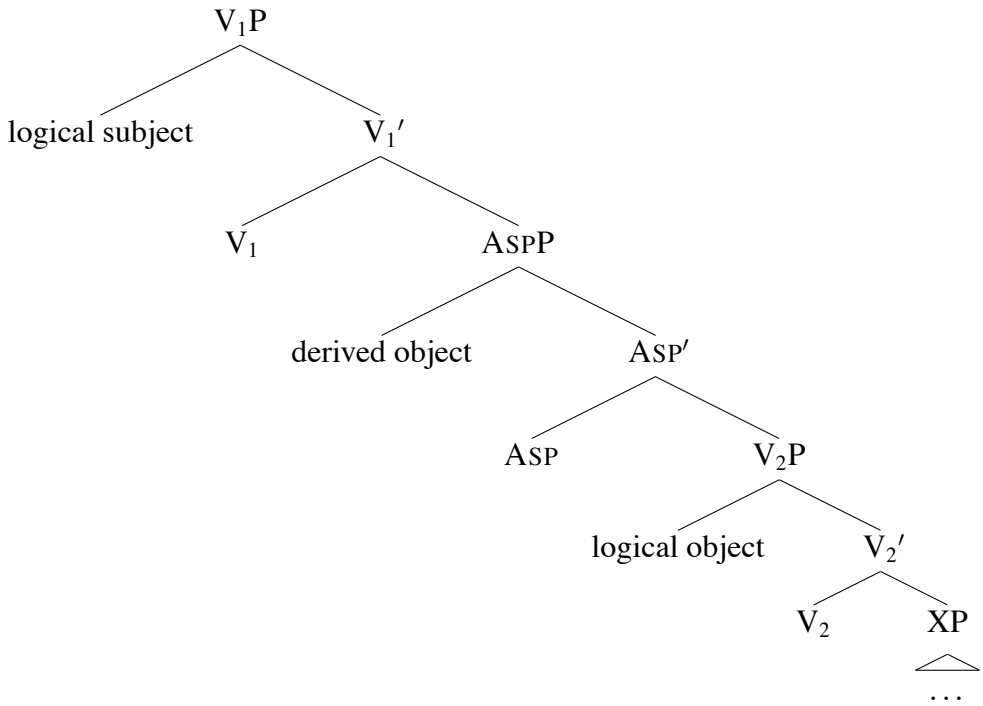
Her proposal roughly coincides with Travis's, inasmuch as the three levels of verbal substructure encode event structure in a similar way, although not necessarily in the same projections. Travis describes her V_1P as instantiating a 'beginning point', analogous to Ramchand's *init*P, and both argue that the lowest verbal projection encodes an 'endpoint' or 'state', specified by its complement. They differ in that Ramchand claims telicity is marked in the lowest verbal projection, while Travis argues that it is marked in ASP.

More generally, Travis proposes a less mutable verbal structure (with the exception of intransitive States, which consist only of a V_2 projection). In Ramchand's conception projections in the verbal structure may be absent according to the type of the verb (e.g. a non-telic verb will lack *res*P), and the heads themselves do not come in different 'flavours'; Travis marks different aspectual types through features on the verbal heads, with V_1 [±PROCESS] and ASP [±TELIC], combinations of which account for Vendler's four types of Aktionsart (States, Activities, Achievements, and Accomplishments). Additionally, it is a central contention of Travis's proposal that ASPP is a functional projection, differentiating it from lexical projections V_1 and V_2.

While they diverge in these specifics, Ramchand's and Travis's accounts are both based on the essential notion that the VP is divided syntactically into several components which reflect the semantic breakdown of any given verb. In terms of argument structure, a

proposal in which the verb is split into three parts has a favourable outcome: it provides three potential argument positions. Travis identifies the specifier of her lowest verbal projection as the 'logical object' position, in which objects may be base-generated, and the specifier of the next projection as a 'derived object' position, to which objects move, as implicated in raising-to-object and object shift constructions.

(32) (Adapted from Travis 2010: 5, 34)



This conception diverges from the traditional view that objects are complements, although it follows Larson's (1988) original proposal that the direct object is the 'subject' (i.e. specifier) of a lower VP. In §3.3.3 I will discuss the implications of such a configuration in terms of the placement of subjects, direct objects, and indirect objects.

The availability of three layers of structure also allows at least a three-way distinction in terms of the distribution of verb-modifying adverbs, as seen in the different restrictions on subject-oriented, manner, and agentive adverbs. Vendler (1984) himself notes the 'convenience' of decomposing the verb into three 'verb-phrase slots' for the semantic classification of verb-modifying adverbs. The following section will explore how this insight can be exploited in the syntax.

3.3 PROPOSAL

The behaviour of different adverbs described above suggests certain requirements regarding the projections with which these adverbs are associated. The projection modified by manner adverbs must be available within the verbal phase, allowing them to appear sentence-finally, and in a directly preverbal position. Recall that this projection cannot be as high as the phase edge, as it would then be accessible outside the phase, incorrectly allowing manner adverbs to appear in pre-auxiliary position. The projection modified by subject-oriented adverbs must be at the phase edge or higher, allowing them to appear in pre-auxiliary position and directly before the verb, but no lower. Finally, the projection modified by agentive adverbs must be accessible at the phase edge, allowing them to appear in pre-auxiliary positions, but also lower than the one associated with subject-oriented adverbs, as agentive adverbs may appear postverbally.

Although the idea of an articulated verbal structure goes some way towards explaining the varying distribution of verb-modifying adverbs, a formulation in which the lowest verbal head simply undergoes head movement to the highest verbal projection is not sufficiently restrictive. According to Travis's (1984) Head Movement Constraint (and later Rizzi's (1990) Relativized Minimality), head movement cannot bypass heads. As a result, if the lowest verbal head moves to the phase edge it will pass through any intervening verbal projections, which will be amalgamated in further head movement. The features of all heads will thus be carried to the phase edge, making them accessible in the next phase. Under the previously proposed criteria in (33), then, it should be possible for any 'verb-modifying' adverb to appear outside the verbal phase.

(33) a. An adverb must c-command the projection it modifies.

AND

b. (i) The adverb must appear in the same phase as that projection. **OR**
(ii) The adverb must have access to the features of that projection at the edge of a lower phase.

As previously discussed, manner readings are not possible for adverbs such as *cleverly* and *quickly* in pre-auxiliary positions. The head relevant to the interpretation of manner adverbs thus cannot be moved to the phase edge.

I will address this problem by proposing a configuration in which the lowest head V in a tripartite verbal structure moves to *v* at the phase edge, skipping an intermediate head, and thereby violating the Head Movement Constraint (HMC). In the next section I will discuss a proposal regarding head movement which will allow me to eliminate the HMC altogether while still adhering to a form of Relativised Minimality.

3.3.1 FEATURE CHECKING CONFIGURATIONS

Abels (2003) argues that feature checking may be accomplished in any configuration that satisfies c-command requirements. Under this reasoning he rejects the complement-to-specifier movement of so-called 'roll-up' constructions, which have been used to explain right-to-left scope in accounts that bar right-adjunction (i.e. those that adopt Kayne's antisymmetric approach). A head and its complement totally c-command each other, meaning that each c-commands every instance of the other. Given this mutual c-command relationship, he argues, there can be no motivation for a complement to move to the specifier of the same projection, as such movement will create no new feature-checking configuration. This complement-to-specifier movement (or, in his analysis, re-merge of the complement in a specifier position) in fact destroys the mutual total c-command relationship, as a head does not c-command its specifier.

Abels uses this 'anti-locality' restriction to account for a number of apparent limitations on stranding. Under his hypothesis a TP, complement of CP, cannot move from its base position to Spec,CP. Because C is a phase head, this anti-locality restriction translates into a restriction against TP moving to the phase edge. Unable to move out of the phase, TP is locked in place, and cannot strand C. The same argumentation applies to, among other phenomena, the impossibility of VP stranding *v*, and the prohibition against preposition stranding in some languages.

Abels claims that head movement is problematic for similar reasons. A complement YP is the highest 'feature-bearer' of Y, and is in a symmetric c-command relation with its selecting head X. X will therefore not attract the head of its complement Y, because it is already in a feature-checking configuration with the maximal projection YP of that complement. In order for head movement to occur, then, there must be some reason for an attractor to look past the maximal projection.

Roberts (2010: 36f) proposes that the path of movement should be redefined 'in terms of nodes, rather than XPs traversed (i.e., "the union of the minimal set containing the target and the nodes dominating the mover")' (Hornstein 2009). One path is 'more minimal' than another only if the set of nodes it contains is a subset of the other. This definition is intended to provide theoretical justification for head movement: although an XP will always seemingly be closer to an attractor than its head, if XPs target XPs and heads target heads, then neither will have a more minimal path, as neither path will be a subset of the other.

Roberts' assumption that heads only attract heads faces the same explanatory hurdle that Abels points out. If a maximal projection has the same features as the head, how is the attracting head to identify that one potential target is a head and the other is not? Equally, why would it not attract some intermediate projection?

Matushansky (2006) argues that head movement is based on categorial-selection, defined as in (34).

(34) *C-selection* (Matushansky 2006: 76)
A head may select the syntactic category (and the lexical content) of its complement.

According to her 'transparence condition' only the head of the complement is available.

(35) *Transparence Condition* (Matushansky 2006: 78)
A head ceases to be accessible once another head starts to project.

This restriction means that two heads will be accessible simultaneously only at the point when a head and a maximal projection are merged, as only in that instance will both heads be present without the higher one projecting. As a result, head movement must always occur before any XP movement, a requirement that is crucial to derive if, as Matushansky proposes, head movement involves movement to spec followed by a morphological merger operation between heads. This criterion also means that head and phrasal movement will always be in complementary distribution, as once a head begins to project, that projection will render lower heads unavailable, so that it will only be possible to attract maximal projections.

C-selection and the transparence condition impose locality constraints on head movement, but they still do not explain why head movement targets heads. There is no reason why c-selection should apply to heads rather than maximal projections; if an XP bears the categorial features of its head X (and with them some indication of the lexical content of that head), why should selection target X rather than XP? This question is especially pertinent in light of Chomsky's (1995b) bare phrase structure, which does not differentiate between heads and maximal projections.

Equating c-selection with head movement is also not the same as a motivation for head movement. If a head can select for the head of its complement, why does the lower head need to undergo head movement? Additionally, not all c-selection results in head movement, so there must be some reason why it is optional. The transparence condition is also stipulative. Why should heads specifically be inaccessible at a certain point when maximal projections remain active despite the presence of other maximal projections? The closest analogy to this transparence condition would be the inaccessibility of a phase once another phase begins, but phases are rendered inaccessible by Spell-Out, a process which presumably does not apply to each head in isolation.

The solution I propose is that not all features of a head are necessarily present in its maximal projection: only some features project syntactically. Abels (2003: 42) in fact makes this suggestion with respect to phase heads, arguing that because the phase head is a 'universal intervener', but the phrase it projects is not, some features of the head must not be projected to the phrase. In his later discussion of head movement he is forced to stipulate that such non-projecting features are also 'non-attractable' (2003: 262n). In this instance the presence of non-projecting features is tied to his notion of the phase. Abels claims that only the phase edge is available for syntactic processes not because the rest of the phase has already been spelled out, but rather because the head of the phase has all features contained within the phase, thereby blocking access to anything within the phase as a result of locality conditions.

Besides the problems having attractable non-projecting features potentially creates for Abels' notion of the phase head, there is no reason why only features that may not be attracted should not project. The idea that some 'attractable' features are non-projecting suggests that the dichotomy between head and phrasal movement arises from the attraction of non-projecting features as opposed to attraction of (maximally) projecting features.

Features on attractors may likewise be non-projecting. Attraction of one non-projecting feature by another will result in head movement; this will occur before phrasal movement not because the lower head will be inaccessible once the higher attracting head starts to project, as in the transparence condition, but because the non-projecting feature on the attracting head will be inaccessible once that head begins to project its other features. In Matushansky's formulation lower heads would not be 'accessible' because they would not be within the search domain of the attractor. In the current formulation non-projecting head features are not 'accessible' once other features project because they can no longer act as attractors.

Presumably only certain features may fail to project: those which may undergo m(orphological)-merge or (defined by Marantz (1988: 261) as the replacement of a relation by two heads by the affixation of one head to another). While head movement will consist of attraction of a non-projecting feature by a non-projecting feature, phrasal movement will consist of attraction of a projecting feature by a projecting feature. The possibility of non-projecting features does not obviate Abels' arguments against roll-up, as any feature that would trigger the attraction of an XP will have been (maximally) projected, and that XP will still be in a mutual c-command relationship with its selecting head.

The idea that only some features project is not unreasonable in light of Chomsky's (1995b) bare phrase structure. He argues that clitics do not project at all, and as such are both heads and maximal projections. If there can be non-projecting features on clitics, and fully projecting features on other types of heads, it is unsurprising that, inasmuch as a head is a feature bundle, some heads consist of a mixture of projecting and non-projecting features.

While attraction of non-projecting features by non-projecting features is head movement, and projecting features by projecting features phrasal movement, there is no reason to rule out attraction of non-projecting features by projecting ones, or vice versa. Clitics may represent the first possibility. Attraction of projecting features by non-projecting ones, on the other hand, would mean a particular kind of phrasal movement would obligatorily occur before other movements, but there would be no m-merger.

Which features are projecting or non-projecting must be stipulated. There is precedence for such stipulation in Chomsky's (1995) strong and weak features, which de-

termine, for instance, that French has overt V-to-T movement while English does not. The difference between projecting and non-projecting features is a syntactic one, while Chomsky's division between strong and weak features applies at PF, but the underlying principle is the same: whether a projection has one type of feature or another is parameterised by language, with the type of feature ultimately determining the position in which a particular lexical item is spelled out.

One apparent problem with this account is the potential it opens up for unrestricted violation of the HMC. In Travis's (1984) original formulation, the HMC was used to account for verb movement in Germanic languages: only the highest in a series of verbs is moved to INFL and inflected. Likewise, in English question formation only the highest in a series of auxiliaries may move.

(36) (Rizzi 1990: 11)

a. They could have left

b. Could they *t* have left?

c. *Have they could *t* left?

Rizzi (1990) argues that the HMC is in fact a result of Relativised Minimality. In essence, C cannot attract the lower auxiliary because the higher auxiliary intervenes. In the current reformulation of head movement a head with a non-projecting feature could bypass one that has only projecting features. I will propose in the next section that head movement does in fact skip a head within the Split VP. For one auxiliary to skip over another, though, the lower would have to have a non-projecting feature that the higher one did not. I assume that movement of a verb to T is motivated by attraction of a verbal feature, and that whether this feature projects or not will be the same for all auxiliary verbs. Subsequent head movement to C will result from attraction of a non-projecting T feature. Relativised Minimality will therefore still apply, not because both auxiliaries are heads, but because they specifically have the same non-projecting verbal feature. T will therefore attract the highest auxiliary, as it has the closest instance of that verbal feature.

The dichotomy between projecting and non-projecting features can also explain verb movement differences observed in English and French. English has head movement of auxiliary verbs but not lexical verbs, as evidenced by the need for *do*-support in questions,

and the ungrammaticality of sentential adverbs between a verb and its object; French has head movement of both auxiliary and lexical verbs (Pollock 1989).

(37) ENGLISH

a. Has he eaten the apple?

b. *Eats he apples?

(cf. Does he eat apples?)

c. *He eats probably apples

(38) FRENCH

a. *A-t-il mangé la pomme?*
Has he eaten the apple?

b. *Mange-t-il les pommes?*
Eats he the apples?

c. *Il mange probablement les pommes*
he eats probably the apples

This contrast is explained if English has a non-projecting verbal feature on auxiliaries but a projecting verbal feature on lexical verbs, while all French verbs have non-projecting verbal features. When the projection of a lexical verb is selected directly by T in English the projected verbal feature on the maximal projection of the verb will be in a c-command relationship with T, so that head movement does not occur. Tense features will instead be realised on the lexical verb. For English auxiliaries and French verbs attraction of a non-projecting verbal feature will trigger V-to-T movement. I will discuss differences between English and French more extensively in Chapter 4.

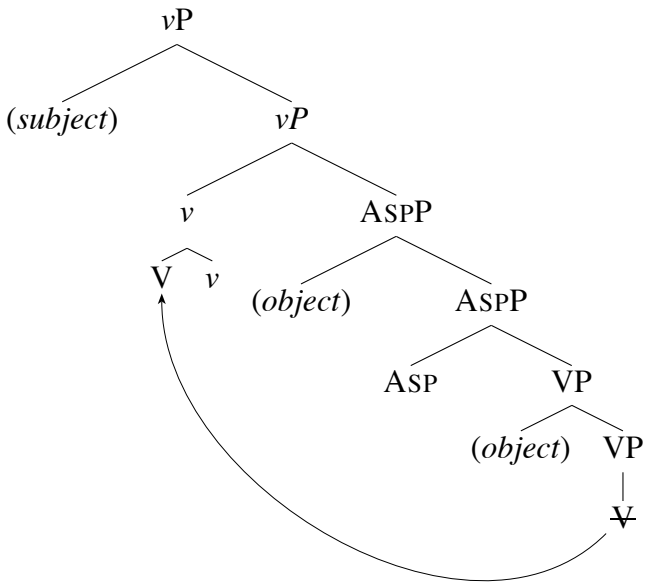
This proposal uses a pre-Minimalist understanding of movement, in that it is not based on the checking of uninterpretable features by interpretable ones (or unvalued features by valued ones). I take the view that inserting lexical items with morphology already determined, which is then checked against corresponding functional heads, is redundant (Bouchard 1995). In the current theory an attractor will simply be checked by the closest instantiation of the feature which it requires. There may be other instantiations of the same feature which do not enter into checking relations, e.g. the non-projecting V feature present on all auxiliaries, only the highest of which will be attracted by the non-projecting

T feature. That said, there is no reason why it should not be possible to apply this view of feature projection under a more Minimalist theory of feature checking.

3.3.2 REVISITING THE SPLIT VP

In Larson's (1988: 343) original proposal head movement of a lower verbal head to one above it 'creates a sequence of coindexed V positions' (cf. Hale & Keyser 1993). Taking this coindexing to in fact consist of feature checking, I propose that the extended VP consists of a tripartite verbal structure in which the lowest head V undergoes head movement to the highest head *v*, bypassing a medial inner aspect head ASP.

(39)

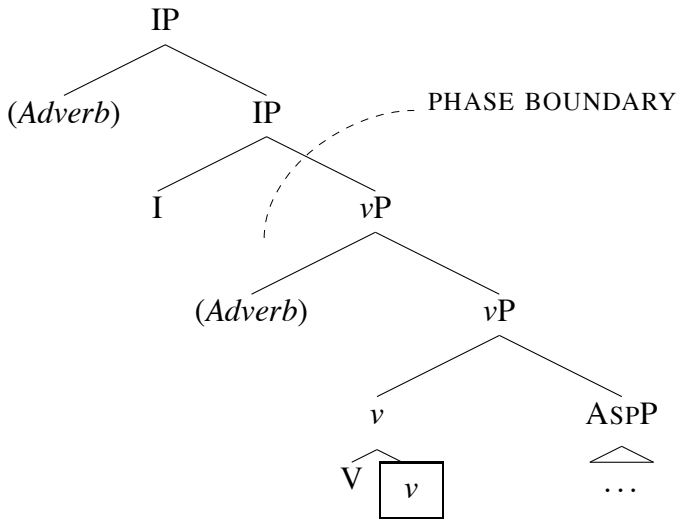


This configuration results from a requirement that the features of every projection within the extended VP be aggregated so that they contribute to the overall event structure of the verb. Both *v* and ASP have features that must be checked by V. V has a projecting ASP feature which is checked in the mutual c-command relationship between ASP and the maximal projection VP. It has a non-projecting *v* feature, which is checked by head movement to *v*. Any feature-checking between *v* and ASP will be accomplished through the sisterhood of *v* and the maximal projection ASPP. As a result, ASP will not be moved to *v*, and will not be accessible at the phase edge to adverbs in a higher phase. If each of these projections within the extended VP is modified by a different type of adverb this structure can explain the different distributions of subject-oriented, manner, and agentive adverbs.

If the highest head (*v*) is an 'initiation' or 'causative' projection, its relevance for subject-oriented adverbs is reasonably apparent, inasmuch as the subject is base-generated

in this projection, and may be an 'initiator' or 'causer'. Because it must c-command *v*, in which the verb is spelled out, a subject-oriented adverb will never appear postverbally; at the same time, because this projection is the phase edge, it will still be accessible to subject-oriented adverbs outside the phase.

(40) POSSIBLE POSITIONS FOR SUBJECT-ORIENTED ADVERBS[4]



The other verbal heads are less straightforward. It is intuitive that if a projection is modified by manner adverbs, which describe the way in which an event proceeds, it should represent 'process', in line with Ramchand (2008)'s proposal. For Ramchand (2008) 'process' is encoded in the middle verbal head, but Travis argues that the middle verbal head is marked [±TELIC], although a specific endpoint may also be defined by the complement of that middle projection. In contrast, Ramchand confines all telicity marking to the lowest verbal projection.

'Process' in itself is a problematic concept. Ramchand (2008: 194) argues that a feature on the medial verbal head 'specifies the nature of the change or process', and that durativity depends on whether verbs 'simultaneously identify process and result' (2008: 78): those that do are punctual, while those that do not are durative. For Travis process and durativity are the same: there is a process feature on the highest verbal head which marks whether it is durative. She states, in fact, that States are [-PROCESS] because they are not durative (2010: 107).

If durativity is synonymous with nonpunctuality, as in Ramchand's account, then States clearly are not punctual. Vendler (1967: 99) argues that verbs that are compatible with

[4]In this and any following trees, IP stands in for any range of sentential functional projections.

the progressive are 'processes going on in time'. Both States and Achievements fail this test, and so by this definition are not processes.

(41) a. *George is { loving Jane / knowing the answer / being tired }
b. *George is { arriving / recognising Jane }

Vendler goes on to distinguish between States and Achievements by use of *for* phrases. Achievements are incompatible with these, as they 'occur in a single moment', while States allow *for* phrases because they 'last for a period of time' (1967: 103).

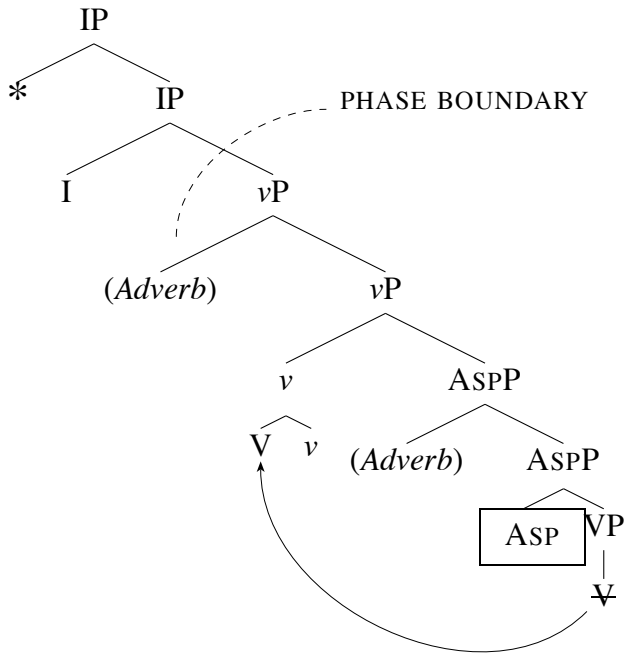
(42) a. George { loved Jane / knew the answer / was tired } for three minutes
b. *George { arrived / recognised Jane } for three minutes

This is crucially not the same criterion as that used for Activities and Accomplishments, which he distinguishes according to whether they have a terminal point.

By Vendler's definition, processes 'consist of successive phases following one another in time' (1967: 99). From this definition it follows that Achievements cannot be processes because they are instantaneous; an Achievement may represent a change from one State to another, but it is only the endpoint that is encompassed in the meaning of the verb, not the transition. 'Process' thus requires duration, but is not synonymous with it. Although it is durative a State is not a process, because it consists of only a single continuous condition, albeit an ongoing one.

I will follow Travis in taking ASP to encode telicity, but additionally assume that it also encodes duration. As manner adverbs are related to the duration of an event, in that they describe the ongoing progression of the event, ASP will be the projection that they modify. Because ASP does not undergo head movement manner adverbs will not adjoin to any projection above *v*, as ASP will not be accessible outside the phase.

(43) POSSIBLE POSITIONS FOR MANNER ADVERBS

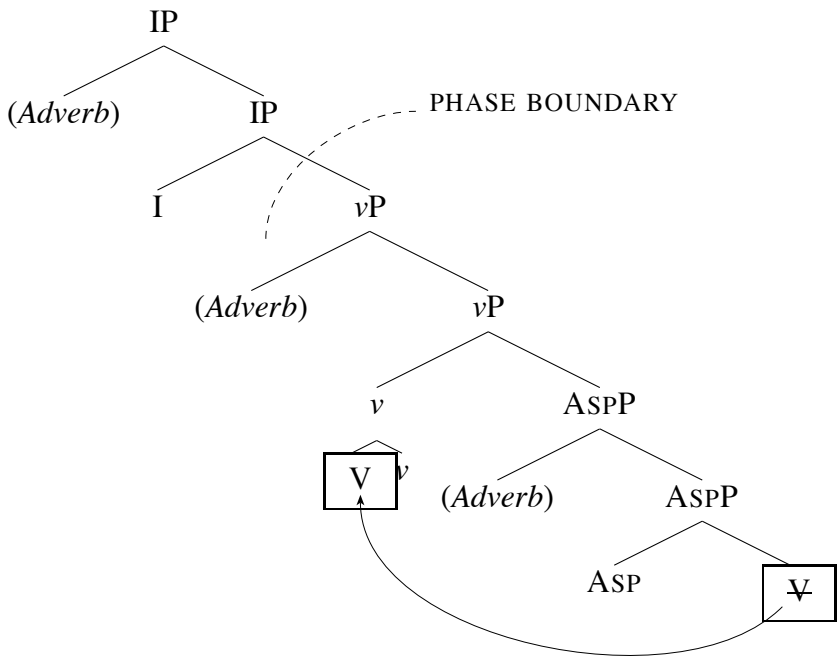


Given that the other verbal projections mark initiation, duration, and telicity, these features cannot be encoded in the lowest verbal projection (V). As these are essentially functional features, this is a desirable outcome: the lowest verbal projection must be a lexical one, encoding the verb's core meaning.

Purely based on their distribution, agentive adverbs appear to have V, which is accessible both within and outwith the verbal phase, as their relevant projection: they may appear postverbally, where they would c-command V in its base position, and they may appear in preverbal and pre-auxiliary positions, where they would have access to V when it has moved to the phase edge.[5]

[5]As I warned in Chapter 2, this revises my previous assumption that *intentionally* modifies TP or some other sentential projection, which was based on the observation that agentive adverbs can appear in the IP range. This amendment allows me to explain the full distribution of agentive adverbs, but otherwise makes no difference to my analysis of AC, as when moved to *v* the head V will be accessible to an adverb in any configuration that T is accessible.

(44) POSSIBLE POSITIONS FOR AGENTIVE ADVERBS



This apparent tie between agentive adverb and V goes against the conventional wisdom that the highest verbal projection is the source of agency (Chomsky 1995). A solution to this issue is suggested by Ramchand's conception of the split VP. She departs from traditional assumptions regarding theta-role assignment, arguing that thematic relations are interpreted in correspondence with different levels of the event structure, sometimes in combination. Thus theta-roles are not simply assigned by a single head, but can result from the relationship between a single argument and multiple heads.

In line with this insight, while a subject may be present in the initiation head, some feature of the lowest verbal head is also required for agency. Because the lowest verbal projection undergoes head movement, the conception of agency results from the confluence of the highest and lowest heads in the verbal structure.

The apparent tie between agency and V points to the need for a separation between the notions of 'initiator' or 'causer' and 'agent'. Many verbs allow for either an animate or inanimate initiator.

(45) a. George (intentionally) knocked over the wall
b. The falling tree (*intentionally) knocked over the wall

While *George* and *the falling tree* perform the same action in (45), and as such are both initiators or causers of the same event (i.e. the wall getting knocked over), only George

can have intention. Agency is therefore not synonymous with initiation, if it is taken to require the ability to have intention (or lack thereof). This distinction underlines that the concept of agency is a composite of several factors, among them initiation and animacy.

Reinhart (2002) looks at the overlap between agent, cause, and instrument external arguments. She notes that some verbs allow only an agent, as in (46), while others can have all three types of subject.

(46) a. The father / *the spoon / *hunger fed the baby
b. Max / the storm / the hammer enlarged the hole in the roof

Based on the apparent necessity that some verbs assign several different types of theta-role to their external arguments Reinhart argues that theta-roles should be broken down into sub-features. An agent would therefore be [+c(ause)] and [+m(ental state)], while an inanimate instrument or cause would still be [+c] but [-m]. A verb which only permits an agent subject specifies a [+c +m] external argument, while one that allows an agent, instrument, or cause specifies only that the external argument be [+c].

Initiation and attribution of intention also do not line up, in that it is possible for an agent to have different intentions regarding different parts of an event. Davidson (1967: 109) observes that, not knowing a gun is loaded, it is possible that someone 'pointed the gun and pulled the trigger intentionally, but did not shoot the victim intentionally'. But a sentence such as (47) cannot have the interpretation that only the pulling of the trigger (the initiation of the shooting event) was intentional.

(47) He intentionally shot the victim

Likewise, it is impossible to separate outcome and intention in (48) when it comes to interpretation of *unintentionally*.

(48) Jane unintentionally poured tea into the saucer

Jane does not intend to pour tea in the saucer. Yet if she does so while attempting to pour tea into cups only the result is unintentional, not the pouring of tea itself. Alternatively, Jane may intend to pour milk in the saucer but pick up the teapot instead of the milk jug; in this instance the saucer is the intended goal but the liquid that is poured in it is unintended. Thus intention (and agentive adverbs) must apply not just to the initiation of the event, but how it transpires.

To summarise, the proposed structure consists of three projections that correspond to different components of event structure, following accounts such as Ramchand (2008) and Travis (2010). The head V of the lowest projection moves to the head *v* of the highest projection, bypassing the middle head ASP. This movement occurs because V has a non-projecting feature which checks a non-projecting feature on *v*. V does not undergo head movement to ASP, because it has a projecting feature which is checked in the mutual c-command relationship between ASP and VP. Subject-oriented adverbs modify *v*, manner adverbs modify ASP, and agentive adverbs modify V. In the next section I will look at the placement of objects within this extended VP.

3.3.3 ADVERBS AND OBJECTS

As already mentioned in §3.2.3, double object constructions, in which a direct object follows an indirect object, are asymmetric. A variety of phenomena show that the first (indirect) object c-commands the second (direct) object. For example, the first NP will be bound by the second, so that an anaphor direct object may be licensed in this position (Principle A), but an anaphor indirect object followed by an R-expression direct object will be ungrammatical (violating Principles A and C).

(49) (Barss & Lasnik 1986: 347)

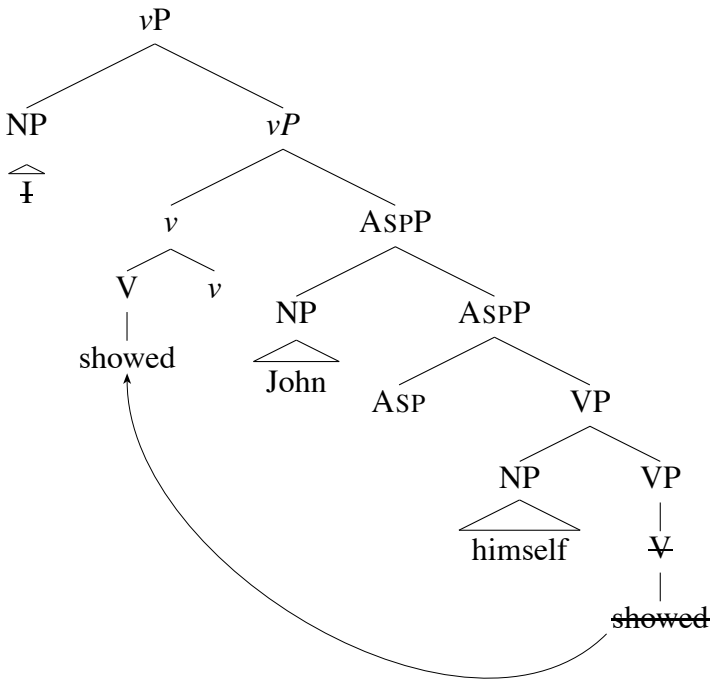
a. I showed { John / him } himself (in the mirror)

b. *I showed himself John (in the mirror)

In the current analysis the two objects will have the correct c-command relationship if they appear in the specifiers of VP and ASP. In double object constructions the indirect object will be in Spec,ASPP, with the direct object in Spec,VP. The position available for indirect objects corresponds to Travis's 'derived object' position. This correlation is not a problem for English, as there are no instances of double object Raising-to-Object constructions[6]

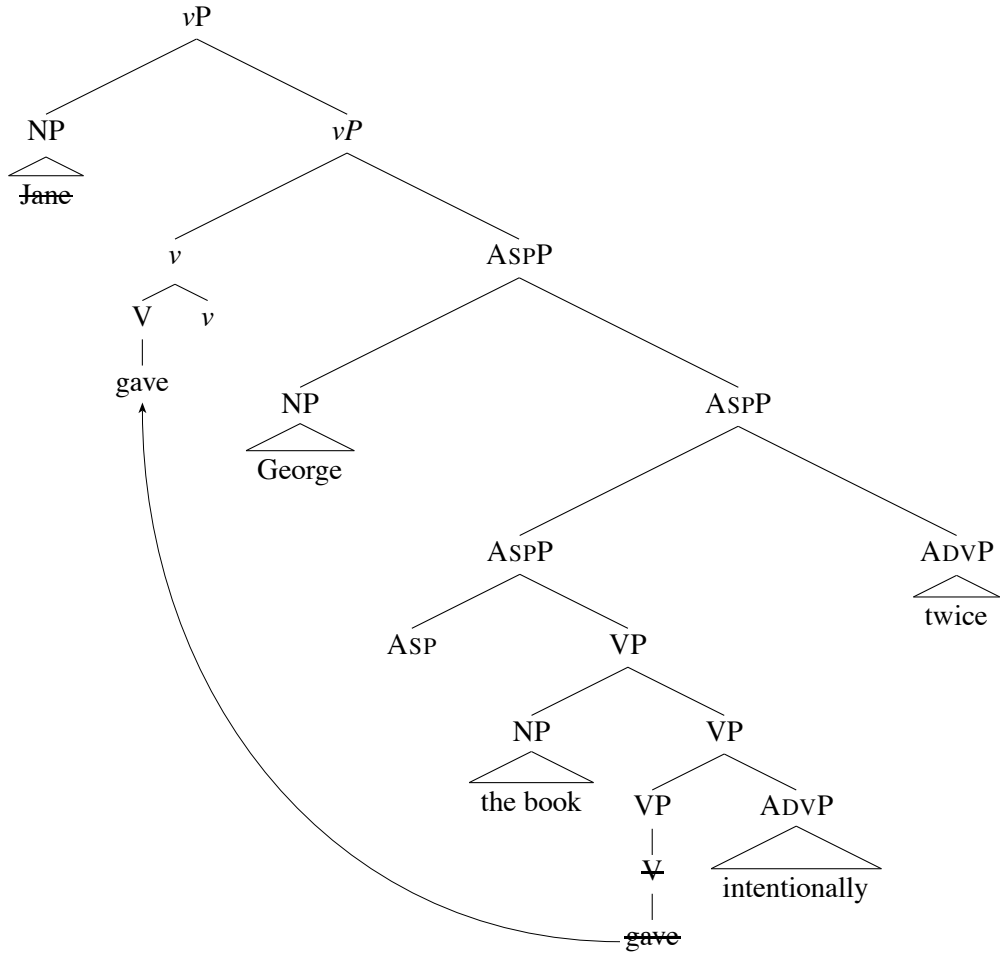
[6]In my account here there will be no movement from one object position to another. Whether this is a correct characterisation largely depends on how seriously one takes the Uniformity of Theta Assignment Hypothesis proposed in Baker (1988), which states that the same thematic relations are always assigned in the same syntactic configurations. I am inclined to disregard this consideration, as it should be sufficient that objects are within the extended VP. Objects in Spec,VP are in essentially local relationships with both V, and ASP, which selects the projection they appear in the specifier of; Objects in Spec,ASPP are also quite local to ASP and V, which moves to the projection V, which selects for ASPP. Ultimately, though, the assumption that these objects are not related by movement makes little difference to the analysis.

(50) DOUBLE OBJECT CONSTRUCTIONS



If adverbs are right-adjoined they will follow objects regardless of where they are merged, thereby deriving the unacceptability of an adverb appearing between a verb and its object(s), and accounting for their right-to-left scope.

(51) Jane gave George the book intentionally twice



3.3.3.1 PARTICLE VERBS IN ENGLISH

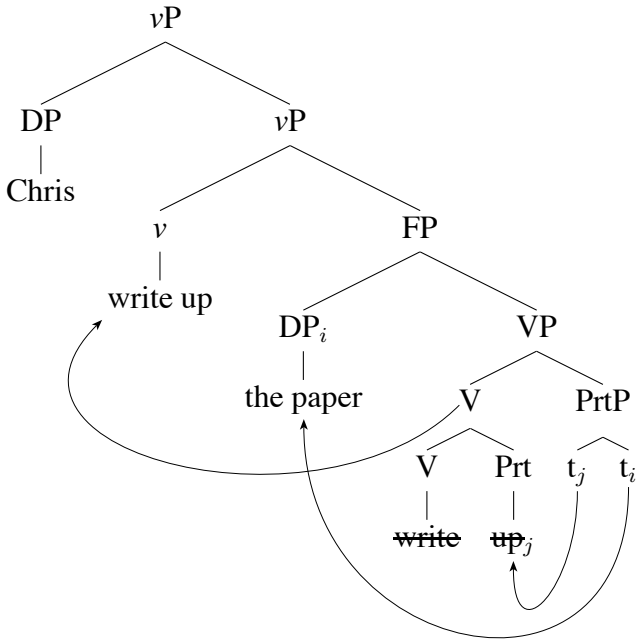
In Chapter 2 I discussed Johnson's (1991) analysis of particle verbs. Recall that it is possible for an NP to precede or follow a particle verb, but a pronominal object will be ungrammatical following the pronoun.

(52) a. Betsy threw out the bicycle
b. Betsy threw the bicycle out
c. Betsy threw it out
d. *Betsy threw out it

Johnson (cf. Koizumi 1993; Dehé 2002) had the verb and the particle generated as a single head. The verb may undergo head movement with the particle and then excorporate, stranding the particle. I find such excorporation dubious: why should the verb in some instances act as a single head with the particle, and in other instances move independently?

Harley & Noyer (1998) give an account in which the verb and particle are generated as separate projections but the particle optionally incorporates into the verb.

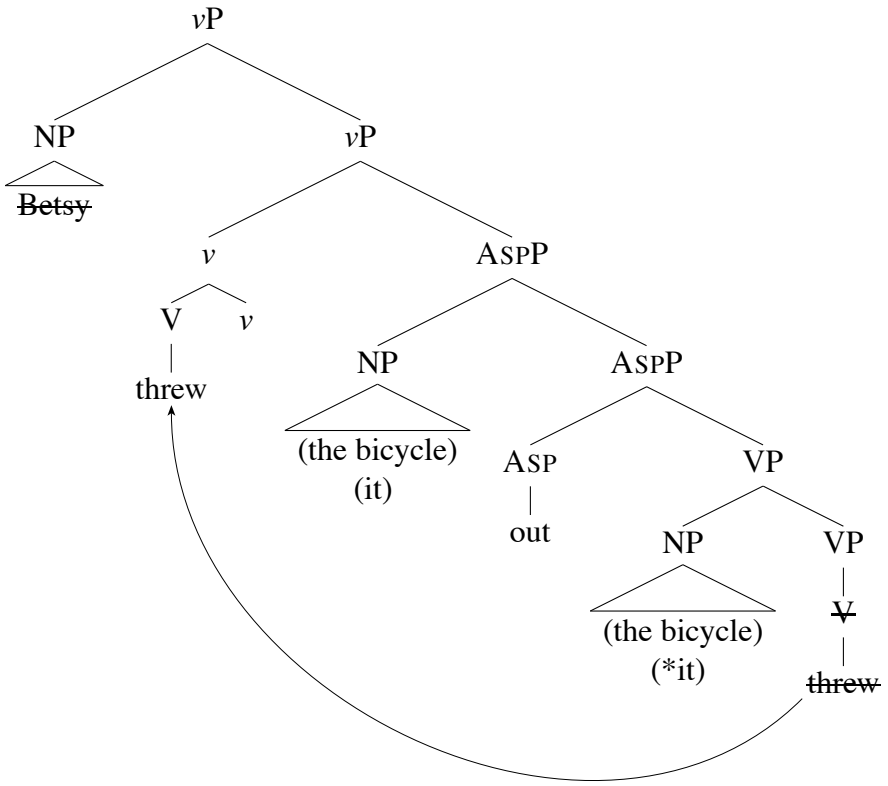
(53) (Adapted from Harley & Noyer 1998)



This type of analysis faces the issue that Johnson attempted to avoid through excorporation of the verb. If the verb and the particle are a single projection it must be left-headed, to avoid incorrect realisation of verbal morphology on the particle (e.g. **write uped* instead of *wrote up*). It is also difficult to determine what motivated the particle to incorporate in some instances but not others.

The current account offers a more parsimonious alternative: the particle is generated in ASP, and the verb undergoes V-to-*v* movement over it. It follows straightforwardly that the particle, which marks an endpoint, should appear in ASP, which encodes telicity (see Brinton 1985 for arguments that the particle is a telicity marker). Since both Spec,ASPP and Spec,VP are object positions, the availability of the two orders depends on which position the object is generated in. Pronominal objects may only appear in Spec,ASPP, making a pronoun following the particle ungrammatical.

(54)



Dehé (2002) argues that whether an object proceeds or follows the particle depends on information structure. Objects that appear to the right of the particle are focussed. Because they almost inevitably refer to entities that are already present in the discourse particles are background information, and so do not follow the particle unless they also receive intonational focus (e.g. *She looked up HIM*). Adapting this idea to my own proposal I conclude that Spec,VP is a focus position while arguments in Spec,ASPP convey background information. For this reason pronouns are limited to Spec,ASPP.

It is worth noting here that Nicol's (2002) analysis is in some respects similar to this one. He posits between V and *v* a projection *w*, in which the particle appears (as well as an additional *x* projection). Like ASP in my analysis *w* hosts the particle. This *w* projection may be marked for verbal and nominal features. If it is [+V], the verb incorporates into *w* and then moves to *v*, so that the particle precedes the object. If *w* is [+N] the verb bypasses this head so that the particle is not incorporated, resulting in object-particle order.

Dehé observes that the Nicol's derivation of object-particle order does not obey the HMC. She reports that Nicol in personal communication claims the HMC 'is somehow "old-fashioned" and need therefore not be part of a modern analysis' (Dehé 2002: 45f). He otherwise provides no justification for his violation of the HMC.

While I agree that it is possible for head movement to skip over a particle generated in a medial head within an extended VP (and can justify contravening the HMC theoretically), I cannot accept the other part of Nicol's account. Having the verb sometimes incorporate into the particle in ASP would not only create problems for the attachment of verbal morphology, but it would also result in movement of ASP to the phase edge. I have already ruled out head movement through ASP, as it would incorrectly allow manner adverbs to appear in pre-auxiliary positions.

One issue that the current analysis does not address is the unavailability of an adverb between the verb and the particle when there is particle-object order.

(55) a. He ate the cake right up
b. *He ate right up the cake

An account such as Nicol's solves this problem by having the verb and particle as a single head in instances where the object does not appear between them. The current analysis would require some limitation on an adverb merging to ASPP in the absence of an argument. I leave this as a remaining issue for my analysis.

3.3.3.2 HEAVY NP SHIFT

Right-adjunction does not entirely explain the behaviour of postverbal adverbs in instances of 'Heavy NP Shift', in which an adverb does appear between a verb and its 'heavy' object (Larson 1988).

(56) Jane read twice the book about syntax that George had got from the library

The current analysis allows an adverb and an argument to merge to the same projection. The simplest account for Heavy NP Shift would therefore be that the adverb left-adjoins above a heavy NP object. This explanation is not sufficient, though, as it gives no reason why non-heavy NPs (e.g. pronouns) disallow a preceding adverb.

(57) *Jane read twice it

I therefore propose two additional constraints on the distribution of adverbs and objects within the extended VP. First, in the absence of an indirect object, a direct object will appear in the 'derived object' position in Spec,ASPP that encodes background information. This position is obligatory for pronouns, but heavy NPs may still appear in the Spec,VP

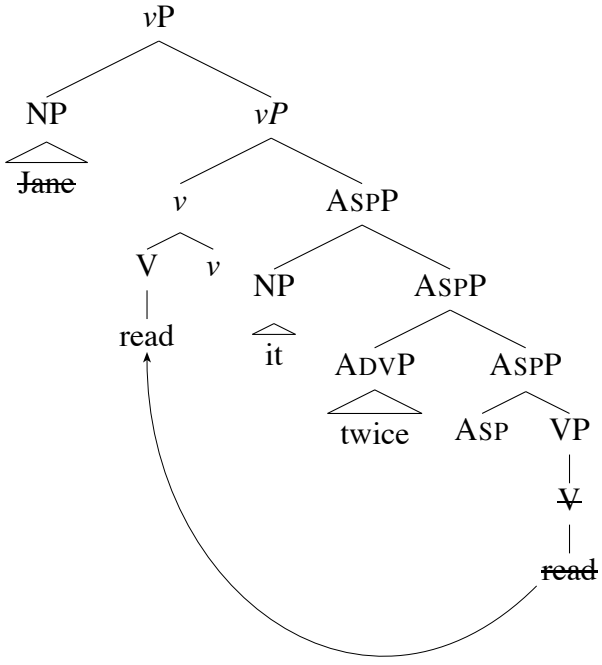
focus position. The requirement that pronouns appear in Spec,ASPP also explains the unavailability of a pronominal direct object in a double object construction.

(58) *Jane gave George it[7]

Second, in instances where an adverb and an object merge to the same projection in English the adverb will merge before the object. In other words, a non-feature-checking element will merge before any features are checked. As a result, even if the adverb is left-adjoined it will not appear between a verb and its pronominal object.

(59) Jane read it twice

(cf. *Jane read twice it)



It is also worth noting that it is grammatical for a heavy NP to not 'shift', although such sentences may be difficult to parse. An example such as (60)a becomes ambiguous because the adverb *twice* could be part of the relative clause complement of the NP (i.e. George could have got the book from the library twice).

[7]Pronominal direct objects become possible in double object constructions if the indirect object is also pronominal.

(i) Jane gave him it

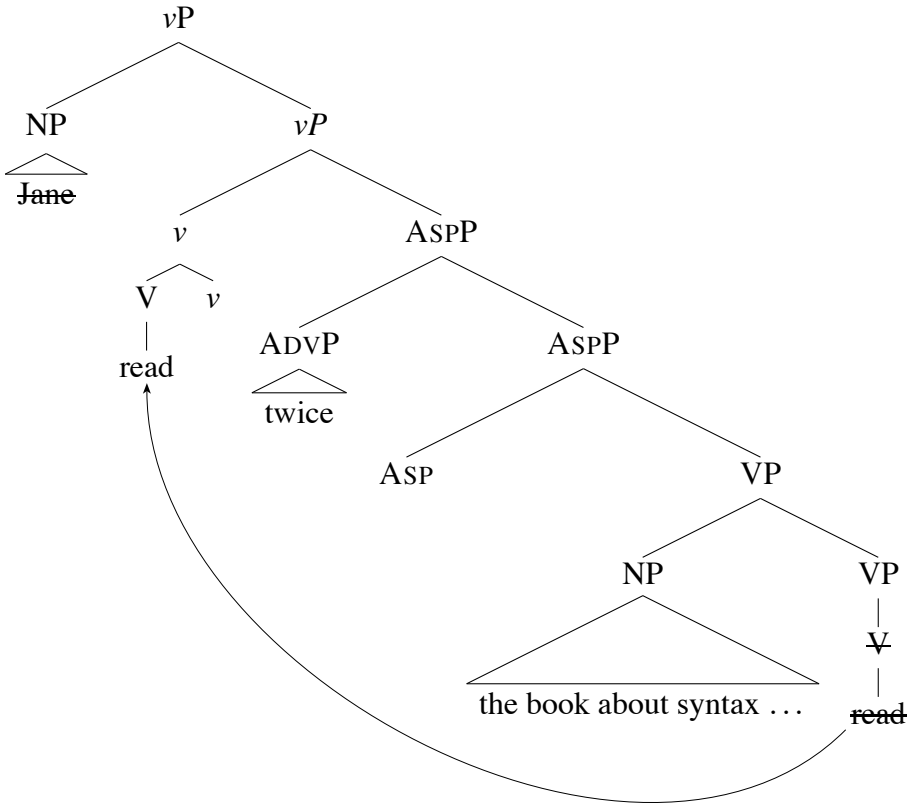
I assume that in such instances both objects are adjoined to ASPP, although it is not immediately obvious what rules out reversal of the direct and indirect objects (e.g. **Jane gave it him*).

(60) a. Jane read the book about syntax that George had got from the library twice

b. Jane read (twice) the incredibly long and confusing book about syntax by George (twice)

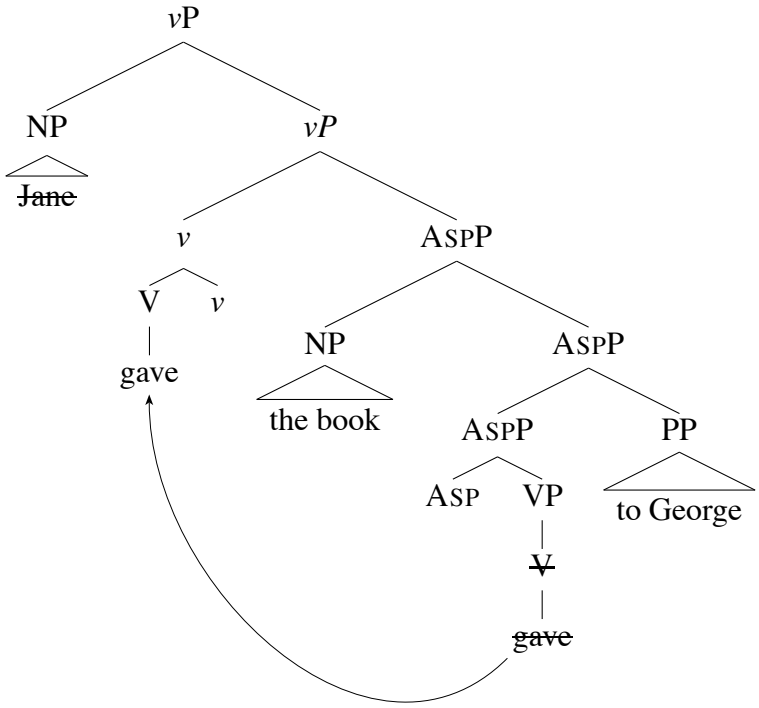
Heavy NP shift is therefore a combination of two phenomena: atypical left-adjunction of an adverb, and generation of the heavy NP in Spec,VP instead of Spec,ASPP. Heavy NPs are presumably more amenable to focus readings because they typically convey more information, which has the potential to be 'new'.

(61)

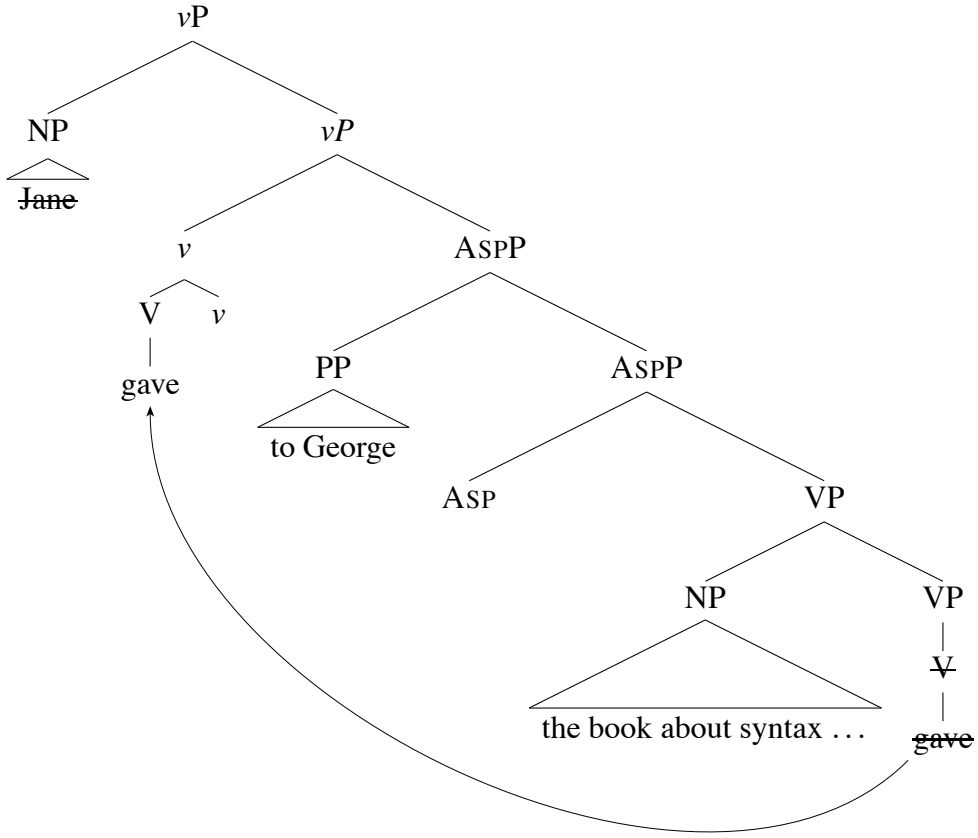


I assume a similar analysis for ditransitives, in which the indirect object is realised in a PP headed by *to*. The PP will right-adjoin to ASPP below the direct object. In constructions where the indirect object PP precedes the direct object it will be left-adjoined to ASPP, with the direct object in Spec,VP. As with Heavy NP Shift it will be impossible to have a pronominal direct object in Spec,VP.

(62) Jane gave the book to George



(63) Jane gave to George the book about syntax she had got from the library
(cf. *Jane gave to George it)



It is tempting to argue that the restriction regarding adverb merge that I have proposed here is crosslinguistically applicable. For instance, once a projection has had all of its features checked it might be closed to further merge of non-feature checking constituents. It is debatable, though, whether this can be a universal generalisation. French allows a verb-modifying adverb to appear between a verb and its object.

(64) *Jean mange rapidement les pommes*
John eats quickly the apples
'John eats apples quickly'

This difference is derivable from V-to-T movement alone, as all verb-modifying adverbs can adjoin to *v*P, and an adverb in this position will precede any objects in Spec,ASPP or Spec,VP, but follow any verb moved out of *v*. That said, to have this order with an adverb merged to ASPP or VP it would have to merge above the object, unlike in English.

It is not clear from only the evidence regarding verb-modifying adverbs whether the order in which French adverbs and arguments merge is different from that in English. In Chapter 4 I will look at differences in adverb placement in the IP range and argue that in instances of multiple merge to the same projection French adverbs merge after arguments, rather than before them. Although the data here are not definitive, it will support my eventual conclusion, following Svenonius (2002), that languages are parameterised according to whether feature-checking or non-feature checking elements adjoin first in instances of multiple merge. In English adverbs adjoin before arguments; in French arguments adjoin before adverbs.

3.3.4 MANNER ADVERBS REVISITED

Given that I have allowed for right-adjunction in this analysis, having some adverbs as complements, as proposed in Larson (2004), is not necessary. Right-to-left scope will result from right-adjunction of one adverb above another. As argued in Chapter 2, the order of two adverbs will not necessarily reflect the order of the projections that they modify. Two postverbal adverbs may therefore occur in either order. They may also have left-to-right scope if left-adjoined, although this configuration is dispreferred.

(65) a. Jane read the book intentionally twice
twice > intentionally; ?*intentionally* > *twice*
b. Jane read the book twice intentionally
intentionally > twice; ?*twice* > *intentionally*

Other data indicate, though, that some adverbs are complements. For instance, there is a set of adverbs that do not appear preverbally. Ernst (2002: 274) classes these in two categories. He argues that those such as *hard*, *well*, and *quick* are intrinsically [+Heavy], resulting in right adjunction.

(66) a. Jane (*well) recited her lines (well)

He then observes that so-called 'degree of perfection' adverbs, such as *poorly*, *horribly*, and *beautifully* are actually not obligatorily postverbal, although they appear to be so in some instances.

(67) a. Joe (*poorly) built the house (poorly)
b. Jane poorly understood what was required of her
c. The house had been (rather) poorly built by Joe

Ernst argues that the distribution of such adverbs is related to 'degrees of transitivity', dependent on a variety of factors, such as telicity, agency, and number of participants. Verbs 'lower in transitivity' permit preverbal degree of perfection adverbs.

Although my analysis also permits right adjunction, the requirement that some adverbs appear postverbally is better explained if they may only appear as complements, reducing this distribution to a selectional restriction rather than a vague notion of intrinsic heaviness. That some adverbs must appear as complements is akin to the restriction of a subset of adjectives to attributive or predicative positions (e.g. *the alleged murderer* v. **the murderer is alleged*).

Where there are two postverbal adverbs the one that is obligatorily postverbal also tends to be the one closest to the verb. Moreover, if the order of the two adverbs is reversed, so that the obligatorily postverbal adverb is second, they exhibit left-to-right scope. A requirement that *fast*, etc. right-adjoin would not explain this asymmetry.

(68) a. Jane recited her lines fast intentionally
intentionally > fast
b. ??Jane recited her lines intentionally fast
intentionally > fast

These examples are similar to those, discussed in §3.2.2, in which some postverbal adverbials (e.g. PP adjuncts) allowed ambiguous scope. They are explained if *intentionally* is in the specifier of VP, and *fast* is its complement. In general, it seems that not only do some adverbials allow specifiers, but it is possible for an adverb in the specifier of VP to take scope over an adverb in the complement of VP, resulting in left-to-right scope. In fact, Phillips (2003: 72) observes that the scope of sentence-final adverbials is especially fluid when there are three or more.

(69) Sue kissed him willingly many times in front of the boss

This ambiguity is attributable to one adverbial appearing in the specifier of another, or one adverbial appearing in the complement of VP, as well as variation with respect to right and left adjunction.

Ernst notes that some adverbs that are supposed to be obligatorily postverbal may appear before certain verbs. Even *well* can sometimes occur preverbally.

(70) Jane well { knew / understood / ?believed } the truth
(cf. *Jane well explained her idea, but George did so poorly)

These examples perhaps represent exceptional distribution of these adverbs in the same way as manner adverbs. Preverbal uses of *well* are only permitted with certain verbs, suggesting that these may be fixed expressions.

Ernst also observes that 'less transitive' verbs more readily permit preverbal instances of adverbs that are supposedly obligatorily postverbal. This suggestion fits well with the current proposal, inasmuch as if these postverbal adverbs may be part of the extended event structure it is unsurprising that the presence or absence of particular features in the verb should affect their realisation.

Geuder (2000) proposes a class of resultative adverbs which may only occur postverbally. He claims, adverbs such as *heavily* and *elegantly* are unacceptable preverbally, or have only a manner reading.

(71) a. They loaded the cart heavily
b. ?They heavily loaded the cart
c. She dressed elegantly
('The final effect of the way she dressed was elegant')
d. She elegantly dressed
('The manner in which she performed the act of dressing was elegant')

The acceptability of preverbal instantiations of such adverbs improves, however, if another adverbial appears postverbally.

(72) a. They heavily loaded the cart with bricks
b. She had elegantly dressed in black

Geuder in fact notes that some such adverbs are ambiguous, as in (71)b, which also allows a manner reading. The distinction between manner and resultative readings thus may result from their modifying different features of ASP: manner adverbs relate to the durative feature on this projection, and resultative adverbs to the telic one. An adverb such as *elegantly* will therefore be ambiguous in both preverbal and postverbal positions, as although its different interpretations correspond to different features it always modifies the same projection[8].

The question, then, is whether only obligatorily postverbal adverbs may be VP complements, or whether manner and agentive adverbs may also be selected as complements. One indication that manner adverbs may be complements is that they license middles.

(73) Zwart (1997: 1)
a. Bureaucrats bribe *(easily)
b. This book reads *(easily)

Based on Condoravdi (1989), who argues that the adverb in these constructions functions as the primary predicate, Larson (2004) takes middles as evidence that postverbal adverbs are predicative, contributing to the verbal event structure.

[8] *Elegantly* also has a subject-oriented interpretation, which will result from its modifying *v*, as for any other subject-oriented adverb

Even with an animate subject, though, middles cannot be licensed by agentive adverbs. If at all possible, (74) takes on an active reading in which 'bureacrats' is the subject ('bureaucrats commit bribery intentionally').

(74) ?*Bureaucrats bribe intentionally

The ungrammaticality of (74) is arguably a question of middles being non-agentive, and therefore not allowing agentive adverbs, rather than agentive adverbs not licensing middles. There are at least some instances, though, in which agentive adverbs are marginally acceptable with middles. The licensing of the middle still depends on a manner adverb rather than the agentive adverb.

(75) a. ?Prisoners intentionally hang easily (Klingvall 2005: 103)
b. *Prisoners hang intentionally
c. ?Bureaucrats intentionally bribe easily

If it is at all possible to have agentive adverbs with middles, then, the impossibility of agentive adverbs licensing middles indicates that they do not contribute to the verbal event structure and therefore, under the current formulation, are not complements.

Further evidence that manner adverbs can be predicational but agentive ones are not comes from other verbs that are ungrammatical without an adverbial. These are again licensed by manner adverbs, but not agentive ones.

(76) a. *Peter was treating Bob[9]
b. Peter was treating Bob badly
c. *Peter was treating Bob intentionally

I therefore conclude that manner and resultative adverbs, but not agentive adverbs, may be selected as complements, contributing to the verbal event structure. To the extent that they are obligatorily postverbal, adverbs such as *well* and *fast* are obligatorily complements. My conclusion here departs from that of Larson (2004)'s, in that only those adverbs that are complements of VP, rather than all adverbs merged to VP, are predicational. A complement adverb will therefore fall within the scope of another adverb adjoined to VP. Right-to-left scope will reflect right-adjunction.

[9]In this instance treat has the interpretation 'behave towards' (see Ernst 2002: 273). The sentences in (76)a and (76)c are actually grammatical, but not on this meaning.

3.3.4.1 ADVERB-VERB CO-OCCURRENCE

In the previous sections I have argued that certain adverbs modify certain projections, based on distribution and meaning. Most surprising is the apparent tie between V and agency, which contradicts the idea that *v*, the highest verbal head, independently assigns an external theta-role. Restrictions on the co-occurrence of agentive adverbs with particular types of verb further suggest that this is a correct conclusion.

Vendler's (1967) Achievements cannot co-occur with agentive adverbs, even with animate subjects

(77) a. *George intentionally arrived (UNACCUSATIVE ACHIEVEMENT)
b. *George intentionally reached the summit (TRANSITIVE ACHIEVEMENT)
c. *George intentionally knew the answer (TRANSITIVE STATE)

For unaccusative Achievements, however, the addition of further modification makes an agentive adverb possible (Truswell 2007; Travis 2010).

(78) George intentionally arrived *({ late / drunk / on a bicycle / whistling })

Other unaccusative Achievement verbs show the same pattern as *arrive* with respect to agentive adverbs.

(79) George intentionally { came / started / ?died / ?fell }
*({ late / drunk / on a bicycle / whistling })[10]

It is more difficult to find transitive Achievements that may be coerced in this way, as many of the standard examples (e.g. *recognise*, *notice*) denote mental processes, which are only marginally acceptable with such modifiers.

(80) a. ?*George recognised Jane late
b. George noticed Jane { drunk / on a bicycle / whistling }
(Possible with interpretation that Jane, instead of George, is drunk, etc.)

However, a transitive Achievement verb like 'reach' allows the same coercion seen with unaccusative Achievements.

[10]There is some variation with respect to which verbs combine felicitously with which secondary predicates. For example, *John died late* seems infelicitous.

(81) George intentionally reached the summit *(late, etc.)

The impossibility of agentive adverbs with Achievements points to a lack of licensing by the lowest verbal projection V. The elements in (81) act as secondary predicates, contributing to the event structure of the Achievement verb.

Of course, *late*, *drunk*, *on a bicycle*, and *whistling* all denote different properties: *late* refers to the timeliness of John's arrival, *drunk* to his state upon arrival, *on a bicycle* to his means of arrival, and *whistling* to an activity concurrent with his arrival. Yet all of them can be predicated with an agentive subject in a copular construction.

(82) John (intentionally) was { late / drunk / on a bicycle / whistling }

Furthermore, *late*, *drunk*, and *whistling* can be used attributively with *intentionally*.

(83) the intentionally { late / drunk / whistling } students

While English does not permit pre-nominal modification by prepositional phrases, it is at least marginally possible for an adverb such as *intentionally* to modify a preposed PP.

(84) ?Intentionally on a bicycle, George impressed Jane

Therefore, all of these can be modified by *intentionally*. The agentive adverb will be licensed by its c-command of the complement modifier, appearing preverbally if left-adjoined and postverbally if right-adjoined. It is also possibly for another adverb to adjoin to VP or directly to the licensing complement.

(85) George arrived [fashionably late] intentionally

Manner adverbs can also license agentive adverbs with unaccusatives.

(86) George intentionally arrived { slowly / cleverly }

I take this as further evidence that manner adverbs can be selected as complements in the same way as *late*, etc., and that they contribute to the event structure of the verb.

Moreover, preverbal manner adverbs are disfavoured with unaccusative Achievements.

(87) Jane ??{ slowly / cleverly } arrived { slowly / cleverly }[11]

[11] *Jane cleverly arrived* does have a (marginal) subject-oriented reading, i.e. 'It was clever of Jane to arrive'.

This discrepancy is explained if preverbal manner adverbs must c-command a [+DURATIVE] feature. If ASP is [-DURATIVE] (as it must be for punctual Achievements) it will not license a c-commanding manner adverb, but it will still be possible for such an adverb to be selected as a complement, allowing it to appear postverbally.

States also generally do not allow agentive adverbs. Like transitive Achievements they also often refer to mental states, which are not acceptable with the type of modification required to license agentive adverbs with Achievements.

(88) a. *George intentionally knew the answer
b. George knew the answer { ?*late / *drunk / ?*on a bicycle / *whistling }

According to Vendler's classification, neither Achievements nor States are processes. Only verbs that are processes license agentive adverbs (and assign an external theta-role), and this information is encoded in V. At the same time, selection of *late*, etc. by V can give a process reading to Achievements, allowing them to license agentive adverbs. Like Travis (2010), then, I conclude that 'process' is encoded in the lowest verbal head V, although my analysis differs from hers in encoding durativity separately in ASP.

3.3.5 AN ALTERNATIVE TO RIGHT ADJUNCTION?

Kayne's (1994) Linear Correspondence Axiom (LCA) allows only one specifier per head, based on a definition of c-command that distinguishes categories from segments; multiple specifiers are disallowed because their adjunction to segments of the same category means that they c-command each other, placing them in too symmetric a relation. The account proposed here obviously violates this restriction.

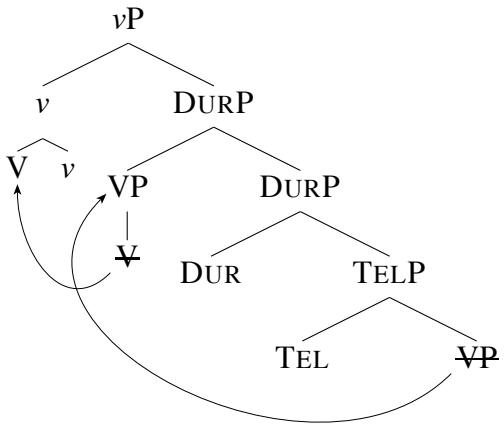
In contrast to this 'representational' understanding of c-command, Epstein (1999) argues for a 'derivational' definition, in which c-command results from concatenation of elements in a bottom-up derivation. This formulation is supposedly asymmetric, in that a head merged with its complement will c-command everything contained within that complement, but not vice versa. I agree with Abels (2003), who claims that this asymmetry is stipulative. There is no reason, given a pair of merged items, each should not c-command the other, and any terms contained therein. At the same time, I accept the insight that c-command is the result of the way in which the derivation proceeds. As a

consequence, later merged specifiers of the same projection will c-command earlier ones, making multiple adjunction possible.

The current account also goes against Kayne's ban on right adjunction. The LCA translates c-command to precedence. Right adjunction is therefore impossible, as a right-adjoined element would incorrectly precede any elements it c-commands.

A small amendment to the current account could accommodate the distribution of verb-modifying adverbs in a framework that only allowed left-adjunction. If the ASP projection were split into duration and telicity projections, movement of the VP followed by V-to-*v* movement would allow the verb to bypass both of these projections (see Roberts (2010) for a proposal involving 'low VP movement').

(89)



This movement depends on the same conception of projecting and non-projecting features proposed in §3.3.1. In this instance V would have projecting TEL and DUR features, but a non-projecting *v* feature. Feature-checking would occur between TEL and VP in its original position, followed by movement of VP to Spec,DURP to check features on DUR. Movement of V to *v* would then be motivated by attraction of a non-projecting feature on V.

Given that my proposal regarding projecting and non-projecting features does not obviate the prohibition against roll-up, this type of configuration could not be accomplished without splitting ASP. Direct head movement of V to *v* over DUR and TEL would also not suffice, as there would be no way for V to check any feature on DUR.

The VP movement in this alternative analysis is also essential to deriving right-to-left scope in the absence of right-adjunction. An adverb adjoined to VP would be moved with this projection to precede any adverbs adjoined to DURP and TELP, reversing their

order. Assuming that adverb scope is generated according to the positions where adverbs are base generated, this movement would result in right-to-left scope.

Whether an analysis that bars right adjunction is superior largely depends on theoretical considerations beyond the scope of this dissertation. The more LCA-friendly approach here requires additional projections, as is often the case (e.g. in Cinque 1999). Given that it is possible to account for the data with only ASP, I cannot find justification for splitting it into DURP and TELP other than the impossibility of roll-up from the complement to the specifier of ASP.

In §3.2.2 I noted that sentential adverbs require comma intonation postverbally, while verb-modifying ones do not. I suggested that this contrast might mean that only verb-modifying adverbs could right-adjoin. On the other hand, there is no reason why sentential adverbs could not also be right-adjoined. The intonational break may in fact result from the way in which Spell-Out proceeds: a right-adjoined sentential adverb will have comma intonation because it is not in the same phase as the material directly preceding it. Since *v*P is spelled out with the a higher phase even a subject-oriented adverb will have comma intonation postverbally, as opposed to a manner adverb, which may right-adjoin to a lower projection. Manner adverbs can also adjoin as high as *v*P, though, so a postverbal adverb with comma intonation could also have a manner reading.

(90) a. George answered the questions **,** cleverly
(SUBJECT-ORIENTED OR MANNER)
b. George answered the questions cleverly (MANNER ONLY)

This idea eliminates possible restrictions on manner adverbs in English: all adverbs may right-adjoin, and all projections allow right adjunction. As such, it offers a reason to favour a right-adjunction account.

3.3.6 ANOTHER LOOK AT ADVERB CLIMBING

I noted in the previous chapter that the status of the data on Adverb Climbing in French is unclear. Kayne (1975), Bok-Bennema & Kampers-Manhe (1994), Bok-Bennema (2001), and Cinque (2006) cite as grammatical sentences such as (91), in which a manner adverb precedes the higher verb but modifies the lower one. All of my own informants rejected the AC interpretations for these examples.

(91) a. *Vous avez mal dû raccrocher*
you have badly must hang-up
'You must have hung up badly.'

c. *Elle a parfaitement su lui répondre*
She has perfectly known him to-answer
'She has known how to answer him perfectly.'

My proposal in the current chapter means that the availability of AC for manner adverbs rests on a single factor. If the feature that checks ASP is non-projecting on French V it will have V-to-ASP-to-*v* movement. As a result, ASP, which is modified by manner adverbs, will be accessible at the phase edge, and will also be carried to higher positions by subsequent head movement of *v* to T or to C. It will therefore be possible for ASP to appear in higher positions in French than in English. AC for manner adverbs will thus be independent from other transparency effects (including AC of other adverb types), as it depends on head movement within the extended VP rather than the absence of projections within the sentential range. The lack of manner AC that Bok-Bennema (2001) observes in Spanish and Italian, which otherwise exhibit indicators of Restructuring, is unproblematic.

Those French speakers who do not allow AC for manner adverbs have a projecting ASP feature on V, and will therefore have direct V-to-*v* movement, as in English. English still allows AC of agentive (and other) adverbs without allowing AC of manner adverbs, because *v*P, the projection that they modify, is accessible at edge of a phase where ASPP, the projection that manner adverbs modify, is not[12].

3.4 CONCLUSION

I have argued in this chapter that the different distributions of verb-modifying adverbs can be captured under an account in which each is associated with a different projection in a split VP structure. This analysis requires that head movement within the extended VP bypass a medial inner aspect projection. I have proposed that this violation of the Head Movement Constraint may occur because head movement depends on the attraction of

[12]While I have not made extensive study of the Norwegian data from Nilsen (2003) and Bentzen (2007), some version of the configuration in which ASP moves to the phase edge can presumably account for the fact that relatively 'low' adverbs such as 'completely' can appear in pre-auxiliary positions. Why they must appear in these positions in Standard Norwegian is a separate question.

non-projecting features, and it is possible for a head to have both projecting and non-projecting features. Some adverbs may also be complements of the lowest projection, but only those that contribute to the event structure, rather than taking scope over it.

Not only does this proposal explain the placement of verb-modifying adverbs and their scope, but it also accounts for the unacceptability of agentive adverbs with particular types of verb, as well as the possibility that their co-occurrence may be 'coerced' in some instances.

In §3.2 I described the different distributions of agentive, subject-oriented, and manner adverbs, as well as considering the right-to-left scope found with postverbal adverbs in English. I argued that differences between PP adjuncts and adverbs proper, as well as the possibility for one adverb to modify another, mean that previous evidence for particular postverbal configurations is not definitive. I also discussed 'Split' VP approaches to extended verbal structure.

In §3.3 I proposed that heads may have both projecting and non-projecting features, and that head movement results from attraction of a non-projecting feature. I then showed that this proposal allowed for head movement to skip a head, and that such an operation was unproblematic for the cases crucial to Travis's (1984) Head Movement Constraint. Different verb-modifying adverbs were shown to correspond to specific projections within a tripartite extended verbal structure: subject-oriented adverbs modify the highest projection, *v*P, which encodes initiation; manner and resultative adverbs modify the medial projection, ASPP, which encodes duration and telicity; and agentive adverbs modify the lowest projection, VP, which encodes process. V has a projecting feature that is checked in the head complement configuration with ASP, and a non-projecting feature that triggers head movement to *v*. As a result, ASP is not moved to the phase edge, and is not accessible to adverbs in pre-auxiliary position, making this position impossible for manner adverbs. Other verb-modifying adverbs may appear before auxiliaries because they modify, *v* or V, which are accessible at the phase edge. Manner adverbs, especially those that are obligatorily postverbal, may also be complements of VP, contributing to the event structure of the verb.

I assume that the way in which adverbs are licensed, and the modification of specific projections by particular types of adverb, is universal. That said, my proposal regarding

projecting and non-projecting features opens up new possibilities with regards to the way movement may vary crosslinguistically. I have also argued that languages have different restrictions on multiple merge of adverbs and feature-checking constituents to the same projections. I will expand on this idea in the next chapter.

CHAPTER 4

Adverbs and Negation in the IP Range

4.1 INTRODUCTION

The previous chapters have focussed on adverb distribution in relation to the structure of infinitival complements and the structure of the extended VP. I now return to the IP range, the domain for which it was originally argued that adverbs could serve as indicators of clause structure and movement.

The account of adverb distribution proposed in Chapter 2 allows adverbs to be base-generated in multiple positions, but a given adverb still has a limited range of positions in which it may appear, the lowest of which is determined by what projection it must c-command, and the highest of which is determined by the edge of the phase that minimally contains that projection (or the edge of the next phase, if the relevant projection is itself at the edge of a phase). It will therefore be necessary to look at whether variation in adverb placement with respect to other constituents ever indicates movement of those constituents, rather than different positions of base generation for the adverb.

This chapter will re-examine what adverbs can indicate about clause structure, given the proposed restrictions on their distribution. Specifically, it will look at whether adverbs can tell us anything about the presence (or absence) of projections in the IP range, the expression of negation, and crosslinguistic differences in verb movement. I will conclude that the facts regarding adverbs and negation in English and French can be accounted for without splitting the IP into multiple projections. Moreover, I will show that the parameters on feature projection and the ordering of multiple merge proposed in Chapter

3 can also be extended to account for certain restrictions on adverb placement in the IP range.

In §4.2 I will discuss the distribution of sentential adverbs, arguing that they modify *v*, and sometimes T. I will also briefly look at the difference between the scope of adverbs with respect to each other, and with respect to functional projections. Section 4.3 will assess the arguments, especially from Pollock (1989), that have been made for verb movement in French and English based on the placement of adverbs and negation. Following the criteria I have proposed for adverb distribution I will conclude that the occurrence of postverbal sentential adverbs does indicate verb movement in French

Section 4.4 will explore previous accounts of negation, discussing *not* and *n't* in English, and *ne* and *pas* in French. I will consider arguments for a functional projection NEGP, and the idea that negation must be either the head or specifier of such a projection. I will then propose that negation is in fact a feature that may be projected by any functional head below T, and that NEGP is only instantiated as an independent head if no such other functional projections are present. *Not* and *pas* will be argued to appear adjoined to a projection with a negative feature. I will also propose that *n't* appears as an inflection on a finite T in a local relationship with a negative feature, and *ne* is a clitic on T. The next subsection will focus on negation in infinitives, and I will argue that variation in the placement of negation reflects projection of a negative feature by different functional heads, rather than variation in verb movement. In the final part of this section I will reconsider, and reject, the possibility that *v*P can project a negative feature.

In §4.5 I will consider the observation that English allows an adverb between a subject and a following verb, while French does not. I will also discuss the prohibition against an adverb appearing between auxiliary *do* and *not* in English. These differences will be shown to result from a slightly revised version of parameterised restrictions on the order of multiple merge proposed in Chapter 3.

Overall, this chapter will offer a novel proposal regarding the behaviour of sentential adverbs and negation, and show that it is possible to account for their distribution with minimal functional structure in the auxiliary range.

4.2 SENTENTIAL ADVERBS

In Chapter 3 I argued that subject-oriented adverbs, which are often homophonous with manner adverbs, must c-command *v*P. An adverb such as *cleverly* may only have a subject-oriented reading if it precedes the verb, which moves to *v*P. Subject-oriented readings are possible postverbally, but only with comma intonation.

(1) a. George cleverly has answered the questions
SUBJECT-ORIENTED: 'George was clever to answer the questions.'
b. George has answered the questions cleverly
MANNER: 'George answered the questions in a clever way.'
c. George answered the questions **,** cleverly
SUBJECT-ORIENTED: 'George was clever to answer the questions.'

Other types of sentential adverbs lack a verb-modifying counterpart, and only appear in the IP range. For example, modal adverbs such as *probably*, *possibly*, and *necessarily* have only one reading, and require comma intonation if sentence-final. Like agent-oriented adverbs they cannot appear twice in the same sentence

(2) a. George has read the book *(**,**) probably
b. *George probably has probably read the book

Evidential adverbs such as *evidently*, *apparently*, *obviously*, *allegedly*, and *supposedly* are also sentential. *Obviously* can have a somewhat forced manner reading postverbally, but there is generally no systematic correspondence between evidential and manner adverbs. Like modal adverbs, evidential adverbs require comma intonation postverbally, and cannot be doubled.

(3) a. Jane stole the book **,** obviously
'It is obvious that Jane stole the book.'
b. Jane stole the book obviously
'Jane stole the book in an obvious way.' (e.g. by making lots of noise)
c. George has read the book *(**,**) supposedly
d. *George supposedly has supposedly read the book

The first question for sentential adverbs is whether they modify some head in the IP range, or whether, like subject-oriented adverbs, they modify *v*P.

Cinque (1999) claims that a sentential adverb cannot follow two auxiliaries, as in (4).

(4) George will have probably read the book

His assertion that *probably* is ungrammatical in this position appears to be based on the problems that low sentential adverbs pose for his head movement analysis, and is easily falsified by examples from the British National Corpus and the Internet (see §1.3.3 Chapter 1 for examples). While speakers may prefer the adverb to precede the second auxiliary, it is certainly grammatical for a sentential adverb to follow multiple auxiliaries. The fact that sentential adverbs do not have to appear before specific auxiliaries indicates that they modify *v*P, rather than some sentential projection.

Recall that in Chapter 2 certain temporal adverbs (e.g. *always*, *never*, *soon*) were argued to have T as their relevant projection, based on the finding that they allow Adverb Climbing with those Control verbs whose infinitival complements have T-to-C movement. Such adverbs can also appear below T.

(5) a. I always have liked Jane
b. I have always liked Jane

As with the sentential and verb-modifying instantiations of frequentative adverbs in the previous chapter, there is not always a clear interpretational difference for temporal adverbs in different positions. At the same time, it is possible to get different readings with some modals.

(6) a. Jane always must leave early
b. Jane must always leave early

There are two possible interpretations for these sentences: one in which *must* takes scope over *always*, and one in which *always* takes scope over *must*. In the first instance Jane always has an obligation to leave early, while in the second she has an obligation to always leave early. These readings arguably have the same meaning. An indication that they do not is the possibility of using multiple temporal adverbs twice within the IP range.

(7) a. Jane always must always be smiling during George's lectures
b. Jane sometimes must always be smiling during George's lectures

As I explained in Chapter 3 for frequentative adverbs, the two instances of *always* in (7)a can operate over different time scales. The contrast with (7)b makes this clear: in (7)a Jane is obliged to smile continuously for the entire duration of every one of George's lectures, while in the second she need smile continuously only for the duration of some lectures (perhaps because other ones are serious, making smiling inappropriate).

These data indicate that temporal adverbs such as *always* can modify both T and *v*. In Chapter 2 I differentiated these from 'frequentative' adverbs such as *frequently*, *often*, and *rarely* on the basis that it was harder with the latter to get Control verb AC readings, which depended on the adverb modifying T. Frequentative adverbs otherwise show the same behaviour as temporal ones, so it is likely that they too can modify T, even if they are less likely to in configurations permitting AC.

(8) Jane rarely must frequently be smiling during George's lectures

In short, temporal and frequentative adverbs should be classed together, although there may be some idiosyncratic variation in what different adverbs within this group are more likely to modify.

Some speaker-oriented (e.g. *frankly*, *honestly*, *truthfully*) and evaluative (e.g. *fortunately*, *unfortunately*) adverbs might also modify T.

(9) a. Frankly **,** I could have explained it better
b. I frankly could have explained it better
c. I could (??frankly) have (??frankly) explained it better

The status of such adverbs in the IP range without comma intonation is murky, as is the apparent need for such adverbs to have comma intonation sentence-initially. Because a precise determination of where adverbs require comma intonation is beyond the scope of this dissertation, I observe only that a requirement that they precede the highest auxiliary could indicate that they too must c-command T.

Some modal adverbs also appear to modify modal verbs, as in (10).

(10) a. George probably must speak to Jane
b. George must probably speak to Jane

Probably takes scope over *must* in both instances, because there cannot be an obligation for something to be likely. In general, deontic modals cannot take scope over epistemic ones (Cormack & Smith 2002). It is apparent that the adverb modifies the projection of the modal verb rather than T, as adverbs c-command what they modify, meaning that the inverse scope in (10) cannot result from the adverb modifying T itself, as the adverb does not c-command T. Furthermore, while it is also possible for modal adverbs to modify *v*, it is not possible to have the same modal adverb (or conflicting ones) twice in a single clause, as would be expected if there could be one modifying T and another modifying *v*. As for having two modal adverbs in the presence of a modal verb, even if one could modify the modal projection and the other *v*, the second one is ruled out by the modal verb taking scope over it.

(11) a. *George probably has probably spoken to Jane
b. *George probably must probably speak to Jane

In sum, sentential adverbs modify *v*P. Temporal/frequentative adverbs may also modify T. Modal adverbs can modify modal verb projections as well as *v*P, but not T. It is also presumably possible for temporal/frequentative adverbs to modify modal projections, as they may take scope over modal verbs, even when they appear after them.

(12) a. Jane must frequently rarely be smiling during George's lectures
'Jane frequently has an obligation to not smile very much during George's lectures'

At this point there is no indication that any adverb modifies any sentential functional projection other than TP or MODP. I will show later in this chapter that there are in fact no sentential functional projections other than TP that are present in all clauses.

4.2.1 MODIFICATION AND SCOPE

In allowing some types of adverb to modify different projections, and some projections to be modified by different types of adverb, I have departed from a functional specifier approach. That said, I have proposed that each adverb has a particular set of projections

it can modify. In Chapter 3 I argued specifically that there was a relationship between the meaning of an adverb and the semantic contribution of the projection it could modify within the extended VP. Following Costa (2004), who posits that adverbs that are inherently ambiguous exceptionally derive their meaning from the syntax, I assume that adverbs that change interpretation according to what they modify are to some extent semantically underspecified.

While I do not adopt Ernst's 2002 FEO-Calculus, then, I take up the idea that an adverb has certain semantic input requirements which determine what projections it may modify. Since c-command within the same phase is sufficient for modification, this is not the same as determining what projections an adverb may adjoin to.

My analysis of adverb modification in fact contradicts the Scope Principle (Aoun and Li 1993; see also Aoun and Li 1989, Ernst 1991).

(13) SCOPE PRINCIPLE
An Operator A has scope over an operator B in case A c-commands a member of the chain containing B

An adverb takes scope over the projection it modifies, but not every projection it c-commands, as shown most clearly with AC constructions.

Adverbs do take take scope over other adverbs that they c-command, as shown by restrictions on ordering. Just as deontic *must* cannot take scope over epistemic *probably*, the deontic adverb *obligatorily* cannot take scope over *probably*. As a result, *obligatorily* cannot come before *probably*.

(14) a. Jane probably has obligatorily eaten the cake
b. *Jane obligatorily has probably eaten the cake

The presence of a following semantically incompatible adverb may prevent adjunction of another adverb, but a following semantically incompatible projection may not prevent adjunction of an adverb, because it may not fall within the scope of that adverb. Only the projection the adverb modifies will be relevant.

4.3 VERB MOVEMENT IN FRENCH AND ENGLISH

Following Emonds (1978), Pollock (1989) proposed that certain syntactic differences between French and English could be accounted for by splitting the IP into Tense and Agreement Phrases (TP and AGRP). Primary among these contrasts is the fact that an adverb can appear between a verb and its object in French, but not in English.

(15) a. *Jean embrasse souvent Marie*
John kisses often Mary

b. *John kisses often Mary

Moreover, all French verbs may precede negation, but English lexical verbs are impossible in this position.

(16) a. *Jean (n') aime pas Marie*
John (*ne*) likes not Mary

b. *John likes not Mary

Diverging from the idea that some adverbs have a [+transportable] feature that allows them to move (Keyser 1968; Jackendoff 1972), Pollock argued that adverbs and negation occur in fixed positions, with verb movement accounting for differences in word order. Under his analysis all French verbs move to T, allowing them to precede adverbs and negation. In English, auxiliaries have the same behaviour as French verbs, but lexical verbs do not undergo V-to-T movement, meaning that they do not precede adverbs and negation.

According to Pollock infinitives introduce another pattern. French auxiliaries optionally precede negation, but French lexical verbs do not. English exhibits the same contrast.

(17) a. *{Ne pas être / N' être pas} heureux est une condition*
{*ne* not to be / *ne* to be not} happy is a prerequisite
pour écrire des romans
for writing novels

b. *{Ne pas sembler / *Ne sembler pas} heureux est une*
{*ne* not to seem / **ne* to seem not} happy is a
condition pour écrire des romans
prerequisite for writing novels

c. {To not be happy / ?To be not happy} is a prerequisite for writing novels

d. {To not seem happy / *To seem not happy} is a prerequisite for writing novels

English also allows *not* to precede non-finite *to*.

(18) Not to { be / seem } happy is a prerequisite for writing novels

Non-finite French lexical verbs may precede adverbs, as in (19)a, although it is also possible to have an adverb preceding a non-finite lexical verb, as in (19)b.

(19) a. *Paraître souvent triste pendant son voyage de noce, c'est*
to look often sad during one's honeymoon that is
rare.
rare

b. *Souvent paraître triste pendant son voyage de noce, c'est*
often to look sad during one's honeymoon that is
rare.
rare

Given Pollock's assumption that verb-adverb order results from verb movement over a VP-adjoined adverb, he concludes that instances such as (19)a represent 'Short Verb Movement' (SVM) of the non-finite lexical verb, which may move to a head AGR, below NEG, but not as high as T, above NEG. Non-finite lexical verbs in English do not undergo SVM, and thus are forbidden preceding not only negation, but also adverbs.

(20) a. *To look often sad during one's honeymoon is rare

b. To often look sad during one's honeymoon is rare

The main motivation in this analysis for positing the projection AGR below T is the need to explain why non-finite French lexical verbs can come before adverbs, but not negation.

Pesetsky (1989) argues that instances in which adverbs have left-to-right scope between a lexical verb and its PP object demonstrate that English does have optional leftward verb movement to a μ projection (approximately equivalent to AGR), as this scope is the same as that seen with such adverbs preverbally. Example (21)b would therefore have the same structure as (21)a, but with movement of the verb to μ.

(21) a. Sue has been very cleverly completely staying in bed
b. Sue has been staying very cleverly completely in bed

Such examples are at best marginal (Pesetsky himself marks all but the one cited above as ?), and easily handled in a split VP approach: in (21)b *very cleverly* and *completely* may both be left-adjoined to projections within the split VP. As such, this postverbal left-right adverbial scope does not constitute good evidence for movement of the English lexical verb beyond *v*P.

The idea that variation in the placement of adverbs and negation indicates particular movements and the presence of particular functional projection underlies 'cartographic' approaches such as Cinque's (1999) functional specifier analysis of adverb distribution. However, as observed in many early responses to Pollock's account (e.g. Iatridou 1990; Ouhalla 1990; Williams 1994), if there is more than one position in which an adverb may be base-generated, then the placement of an element in relation to an adverb does not necessarily indicate movement (or lack of movement) at all.

The current account allows more than one position for any given adverb. On the other hand, the distribution of an adverb still depends on its position in relation to a specific projection. It is therefore impossible to rule out the presence of particular functional projections without considering the implications for the placement of adverbs that might be distributed in relation to them. What is more, because adverb distribution is not entirely unconstrained in relation to clause structure, some configurations remain problematic. For example, French allows postverbal occurrences of sentential adverbs without comma intonation, an apparent contradiction to the claim that a sentential adverb must c-command *v*P.

(22) Laenzlinger (2002: 73)

Jean	*a*	*mangé*	*probablement*	*une*	*pomme*
John	has	eaten	probably	an	apple

Given the analysis of the VP in Chapter 3, Pollock's data are insufficient evidence for V-to-T movement in French, as an adverb such as *souvent* has a possible verb-modifying reading, and could be merged below *v*P. The English equivalent, *often*, can appear postverbally without comma intonation.

(23) John kisses Mary often

I suggested in Chapter 3 that a French adverb may merge to a a verbal projection after an object, so that it precedes that object. If *Marie* is merged to VP or inner ASP, and *souvent* is merged above it, then the verb need only move to *v*P in order to get a string such as *...embrasse souvent Marie*.

Adverb placement will therefore only indicate movement out of *v*P if the adverb is one that must c-command *v*P, such as *probablement* 'probably'. French lexical verbs can precede such sentential adverbs both in participle form, as in (22), and when tensed, as in (24).

(24)

Jean	*mange*	*probablement*	*une*	*pomme*
John	eats	probably	an	apple

Examples of such adverbs with infinitives are difficult to construct, partly because of their meaning. Some speakers also seem generally to disfavour the non-finite clausal subjects in Pollock's examples. One speaker I consulted did accept (25)a (although she preferred the alternative with the adverb preceding the verb). Sentences such as (25)b are also possible.

(25) a.

Croire	***possiblement***	*un*	*mot*	*de*	*ce*	*qu'*	*il*	*dit,*	*c'est*
to believe	possibly	a	word	of	this	that	he	says,	that is

la folie!
madness

b.

On	*peut*	*voir*	***finalement***	*émerger*	*ici*	*un*	*réseau*	*de*
one	is able	to see	finally	to emerge	here	an	array	of

concepts	*qui*	*définit*	*l'existentialisme*
concepts	that	define	existentialism

The placement of sentential adverbs in French therefore does point to movement of the verb out of *v*P in both finite and non-finite contexts.

The primary evidence I have cited to show that sentential adverbs must c-command *v*P is the requirement that they precede lexical verbs in English. In theory an approach initially based on the French data might indicate a different constraint: i.e. that a sentential adverb such as *probablement* c-command a lower verbal projection than *vP*, allowing it to appear after any verb that has moved to *v*P.

Such an analysis of French would force us to posit that equivalent French and English adverbs modify different projections, as otherwise a sentential adverb that modified a lower projection than *v*P would appear postverbally without comma intonation in English, contrary to fact. Furthermore, an account in which sentential adverbs c-command *v*P and French verbs all undergo V-to-T movement garners support from other indicators of verb movement, such as the availability of subject-verb inversion in questions for all French verbs (as opposed to just lexical *have*, *be*, and auxiliaries in English). The idea that sentential adverbs are outside the extended VP is also theoretically superior, in that such adverbs take scope over the whole proposition denoted by the *v*P, rather than modifying the verb itself, as seen with manner adverbs.

Although adverbs are not in fixed positions, then, their distribution is limited enough that the position of a verb in relation to particular adverbs can still indicate movement. In the next section I will look at the distribution of negation, which Pollock argues can also indicate verb movement, and consider the consequences of the differences between negation and sentential adverbs.

4.4 NEGATION

Even if adverb distribution is freer than argued for in Pollock's or Cinque's accounts, this conclusion does not automatically extend to negation. Indeed, unable to fit negation into his hierarchy, Cinque must posit that it is unlike adverbs in having several positions of base generation. The issue for the current analysis is whether multiple positions are indeed permitted for negation and, if so, whether they are subject to the same principles as those which determine the positions available to adverbs.

Negation raises other questions regarding both verb movement and the placement of adverbs. In English and French it has a more limited distribution than sentential adverbs, suggesting it is not a typical adverbial[1]. If negation is in a fixed head position, then the word order contrasts between French and English may still indicate differences in verb movement. On the other hand, it also shows some adverb-type behaviour: English adverbs take surface scope with respect to *not*, while they do not always take scope over heads that follow them. The same is true for French *pas*, but not *ne*.

In this section I will explore previous accounts of negation, and develop an analysis that explains its distribution. In doing so I will argue for a view of French and English verb movement different from Pollock's, and show that it is possible to account for the placement of sentential adverbs and negation with an unsplit IP.

4.4.1 NEGATIVE HEADS

There has long been debate about whether negation is an independent projection within the IP range, and whether negative elements such as *not*, *ne* and *pas* are heads or specifiers of that projection. The presence of a NEGP is immediately problematic, in that it presumably interferes with head movement. While English lexical verbs apparently do not move to T, the fact that English auxiliaries and French verbs can precede negation supposedly indicates that they have undergone V-toT movement over it, in the same way that a French lexical verb preceding a sentential adverb does.

If NEG is located between V and T, then this process would violate the Head Movement Constraint. Pollock (1989: 397) addresses this potential problem by claiming that NEG is 'intrinsically inert for government', and thus not subject to Relativised Minimality. In other words, NEG does not intervene in V-to-T movement because it does not fulfil the criterion in (i) (where X = T, Y = V, and Z = NEG).

(26) RELATIVISED MINIMALITY (Rizzi 1990: 7)
X α-governs Y if there is no such Z such that
(i) Z is a typical potential α-governor for Y,
(ii) Z c-commands Y and does not c-command X.

[1]The fact that negation can appear in fewer (surface) positions than other sentential adverbs at least superficially contradicts Cinque's claim that it may be generated in more positions than adverbs.

In a later section Pollock suggests that this stipulation can actually be avoided if English *not* and French *pas* are in fact in the specifiers of NEGP, leaving the NEG head 'empty' so that the verb is permitted to pass through it on its way to T.

As shown in Chapter 3, it is possible to bypass heads (contrary to Travis's (1984) Head Movement Constraint) without violating Relativised Minimality. If NEG does not have the same non-projecting (head) feature that attracts an auxiliary to T, then it should not intervene in V-to-T movement. The presence of NEGP itself is thus not necessarily a problem in terms of head movement.

However, some approaches to negation have the verb passing through a non-empty negative head. Haegeman (1995; see also Haegeman & Zanuttini 1991; Zanuttini 1997) claims that French *ne* is the head of NEGP, while *pas* is in its specifier. Head movement of the verb through NEG results in cliticisation of *ne* so that it comes to immediately precede the verb, which in turn comes to precede *pas*. This cliticisation is affirmed by the fact that *ne* precedes the verb even in questions, indicating that *ne* and the verb move to C as a single head.

(27) (Haegeman 1995: 27)

Ne	*mange-t-il*	*pas*	*de chocolat?*
Ne	eat he	not	chocolate?

Haegeman also argues that English *not* is a specifier of NEGP, but *n't* is the NEG head, as it is also moved with the (auxiliary) verb in questions, while *not* may be 'stranded'.

(28) a. Hasn't he eaten the chocolate?
b. Has he not eaten the chocolate?

When NEGP is instantiated, V-to-T movement would then become V-to-NEG-to-T movement. Given that it is possible under my assumptions to bypass heads, the V-to-NEG portion of this sequence would require motivation independent from that for V-to-T movement. For English, this requirement could be fulfilled by a non-projecting feature on NEG, which attracts the same non-projecting feature on auxiliary verbs that is attracted by T.

The very existence of *n't* is a strong indicator that negation is not purely adverbial, inasmuch as this form of negation shows head behaviour not seen with any English

adverb. Zwicky & Pullum (1983) demonstrate that *n't* is an inflectional affix: in contrast to clitics it attaches only to items of a specific category (finite auxiliaries), results in idiosyncratic forms (e.g. *will* + *n't* = *won't*), and also exhibits scope idiosyncrasies (e.g. in *can't* negation takes scope over the modal, while in *mustn't* the modal takes scope over negation). The first of these properties is particularly striking, as even in instances in which *not* is permitted following (or preceding) an auxiliary, that auxiliary cannot be realised with *n't* unless it is finite.

(29) a. To { not have / have not } eaten the cake is unacceptable
b. *To haven't eaten the cake is unacceptable
c. George will { have not / not have } eaten the cake yet
d. *George will haven't eaten the cake yet

The inflectional properties of *n't* do not necessarily indicate that it is a separate functional projection, rather than simply an additional feature realised on some other functional projection, such as T. Unlike tense inflection, which can be realised on a lexical verb as long as it is not blocked by negation, *n't* is limited to auxiliaries.

(30) a. George likes cake
b. *George likesn't cake
c. *George does liken't cake

The realisation of *n't* is thus sensitive both to tense and the auxiliary/lexical verb distinction, suggesting there are more factors at play than a simple projection/non-projection dichotomy. I will return to this issue with further discussion of NEGP.

French *ne* is realised as *n'* preceding a vowel (e.g *je* ***n'****ai pas*...), but otherwise does not produce the changes to the verb form seen with English *n't*. It also need not adjoin directly to the verb, as it must precede object clitics.

(31) *Je ne l' ai pas vu*
I *ne* it have not seen

Unlike *n't*, then, *ne* functions as a clitic rather than an inflectional affix. The different behaviour of *n't* and *ne* suggests that they cannot both act as the of head NEGP, as we would expect head movement of the verb through NEG to T to produce the same results in both languages.

More troubling for arguments that *ne* is the head of NEGP is the requirement that it always precede *pas*. If *pas* is in the specifier of NEGP, *ne* must always move over it, regardless of whether verb movement takes place. Negation in infinitives therefore exhibits *ne pas* rather than *pas ne* order, even when no verb precedes *pas* (see (17)a and (17)b)[2].

Ouhalla (1990) claims that *pas* moves to adjoin to *ne* in NEG, permitting this movement on the basis that NEG m-commands its specifier. This explanation contradicts Baker's (1988) ban on a head incorporating its own specifier, which he rules out because a head does not c-command that specifier. Ouhalla's motivation for *pas* adjoining to *ne* is also weak, in that it supposedly does so to satisfy morphological requirements of *ne*. Why *pas* in particular fulfils this function rather than any other constituent is mysterious. His justification for movement of *pas* appears to be no more than a restatement of the fact that *ne* must always come before *pas*.

Even in true double negatives *ne* must precede *pas*. Rowlett (1998: 23) cites examples of double negation in French, which he describes as suggesting 'two fully fledged fully negative NegPs, one canceling out the other.'

(32) *...il serait criminel de ne pas ne pas partir*
...it would be criminal to *ne* not *ne* not leave

Rowlett claims that such instances are actually biclausal, allowing two NEGPs, with each *ne* moving to a separate AGRS projection. This approach is to be preferred to one in which multiple NEGPs are permitted in a single clause, he argues, as such an explanation fails to account for the fact that double negation only occurs in non-finite contexts.

In contrast, English permits double negation in finite contexts. Only one instantiation of *n't* is possible, in line with the restriction of this form to finite auxiliaries.

(33) a. He will not have not left
b. He won't have not left
c. *He won't haven't left

If Rowlett's explanation is correct, French permits only one NEGP per clause, while English allows for two. More generally, it is notable that the requirement that English

[2]Although Rowlett (1998: 55) notes that it was possible for *pas* to precede *ne* in Old French.

n't appear on auxiliaries is similar to the requirement that *ne* precede *pas*: both *n't* and *ne* apparently cannot be realised below a certain point. I will explore this parallel further below.

Bouchard (1995, 1997) argues that *pas* is actually the head of NEGP. He claims that *ne* is a scope marker (although he does not specify what this means in structural terms) because it is often omitted, and because it may appear with elements that are not negative. Zeijlstra (2004a: 254, see also 2004b) likewise observes that 'n-words' such as *ne* are not in themselves sufficient to negate a clause, concluding that they are 'semantically non-negative, but syntactically negative'.

While I agree that there is indication that *ne* is not the head of NEGP, it does not amount to evidence that *pas* is the head of NEGP. For one, it takes surface scope in relation to other adverbs, much like English *not*: an adverb preceding *pas* takes scope over it, even if it follows *ne*, while *pas* takes scope over a following adverb.

(34) a. *Il ne l'a pas souvent compris*
he *ne* it has not often understood
pas > *souvent*

b. *Il ne l'a souvent pas compris*
he *ne* it has often not understood
souvent > *pas*

Merchant (2006) offers another test for whether a negator is an adverb or a head: those that can be used in questions with 'why' are adverbial. Both *not* and *pas* pass this test, while *ne* does not.

(35) a. Why not?

b. Pourquoi pas?

c. *Pourquoi ne?

I conclude from these data that *pas* is not the head of NEGP.

4.4.2 NEGP

While there is evidence that *n't* is a head, the realisation of negation as *not*, which has adverbial properties, has led to proposals that sentential negation does not always entail a NEGP projection. Iatridou (1990) argues that occurrences of negation between an auxiliary and a participle are in fact 'constituent' negation, with *not* adjoined to the verb

rather than a NEGP. Notably, given a series of auxiliaries, *not* can appear before all but the highest.

(36) a. ?The cake will have been being not eaten
b. The cake will have been not being eaten
c. The cake will have not been being eaten
d. The cake will not have been being eaten
e. *The cake not will have been being eaten

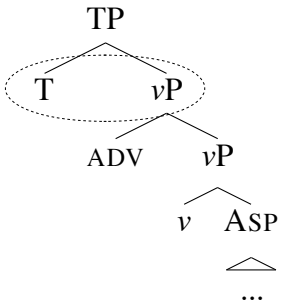
Zeijlstra (2004a; 2004b) argues that languages in which negation is realised as an adverbial (e.g. *not*) do not necessarily require a NEGP at all (although they are not precluded from having one). This argument depends on the assumption that a negative element such as *ne* is in fact that head of NEGP. He cites as diagnostics for the head status of 'n-words' such as *ne* the facts that they block clitic climbing and verb movement. Clitic movement, including clitic climbing, is not necessarily blocked by other types of head, though. For instance, a French object clitic can come to precede an auxiliary even though there is presumably at least a verbal head between the clitic in its original object position and the auxiliary to which it cliticises.

(37) *Je l' ai vu*
I it have seen

Ne also specifically blocks T-to-C verb movement, rather than verb movement in general. If anything, then, this evidence indicates that *ne* is a clitic on T, rather than the head of an independent functional projection.

Ernst (1992) claims that English never has a NEGP. Instead, *not* may adjoin to any auxiliary projection. The most obvious objection to an account without NEGP is that it provides no straightforward explanation for *do*-support in English. I assume that English lexical verbs have a projecting verbal feature, which may be checked in the mutual c-command relationship between T and *v*P; when *v*P is selected by NEG this mutual c-command relationship no longer obtains. If *not* is only ever an adverbial, then the c-command relationship between *v*P and T should still be possible, as it is when any other type of adverb directly precedes a main verb.

(38) George { frequently / recently / cleverly / slowly / *not } baked cakes



Ernst (1992: 127) circumvents this problem by stipulating that *not* can only adjoin to auxiliary verbs, thereby excluding realisations such as **Jim not left*. *Do*, he argues, 'acts like any other modal, taking *not* as its Spec and then moving to Tense'.

Given that auxiliary *do* appears almost exclusively with negation, the auxiliary *do* projection comes to look suspiciously like a a reformulation of NEGP (or, in instances of non-negated emphatic *do*, a 'Polarity Phrase'). What is more, Ernst has later examples in which *not* follows multiple auxiliaries.

(39) Ernst (1992: 136)

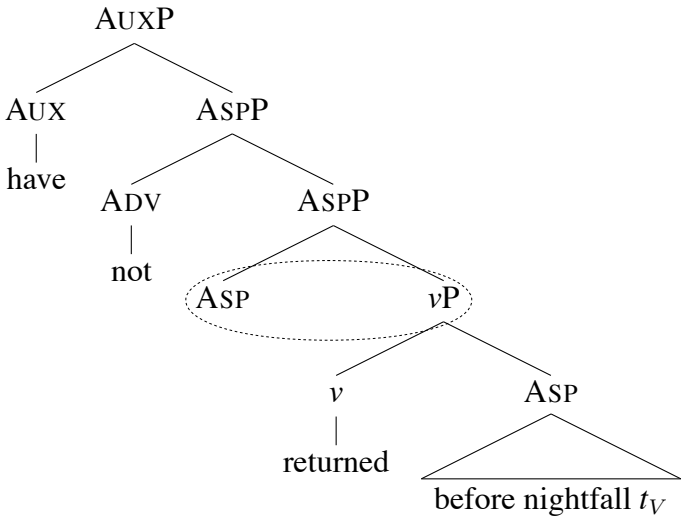
a. She will have been *not* singing "La Marseillaise"

b. Frank will have *not* returned before nightfall

In order for this position of *not* to be possible without it adjoining directly to the lexical verb, it would have to adjoin to the lower of the two auxiliaries, which would then move over it. As Ernst himself points out, the auxiliary takes scope over negation in these instances, in constrast to *not* following a single auxiliary, which sometimes has inverse scope, presumably because the auxiliary has moved to T over negation. He does not explain where negation is adjoined in these instances, if not to the lexical verb.

The alternative is that *not* is adjoined to some silent projection directly above *v*P. Again, such a projection seems a good candidate for a NEGP. On the other hand, *singing* and *returned* are both participles, which may be licensed by an aspectual projection ASP. If *not* adjoined to this projection it would still directly precede the lexical verb. As in instances where tense is realised on a lexical verb ASP will be in a mutual c-command configuration with a verbal feature in *v*P, allowing its participle morphology to be realised on the verb.

(40)



This explanation can be extended to a limitation on French negation. In Pollock's work he notes that *pas* (and other negative adverbials) must precede the participle.

(41) a. *Jean n'a pas mangé*
John *ne* has not eaten

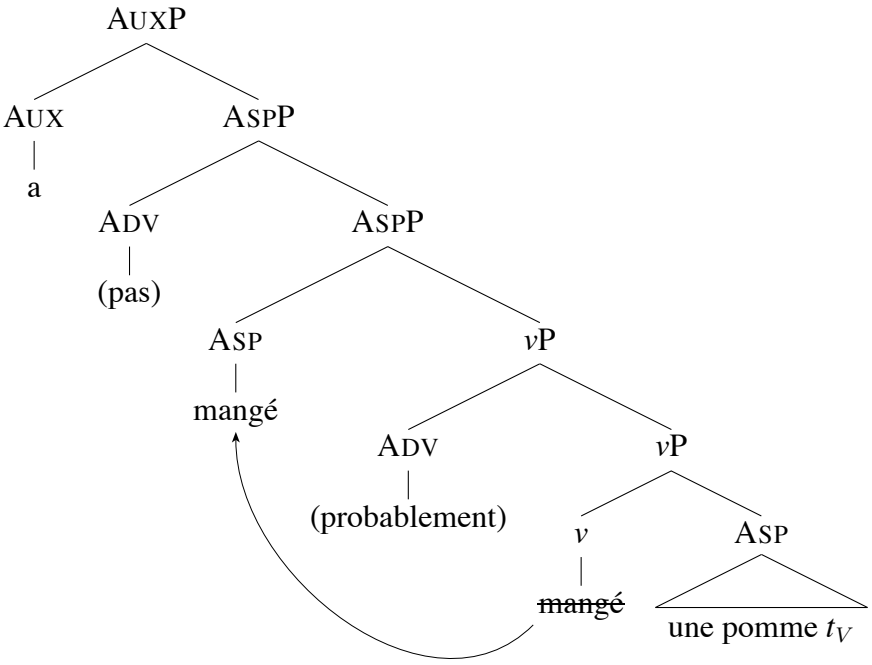
b. **Jean n'a mangé pas*

If *pas*, like English *not*, cannot adjoin to a lexical verb, then in this instance it may adjoin to ASP. As a result, even if the participle undergoes head moves to ASP, as it presumably must do in order to precede a sentential adverb, as in (42), it will not precede *pas*.

(42) *Jean a mangé probablement une pomme*
John has eaten probably an apple

In this sense participles do undergo a sort of Short Verb Movement, allowing them to come before adverbs but not negation.

(43)



Zeijlstra (2004b) argues that *pas* is a *v*P adjunct. In this he follows Rowlett (1998), who further claims that it moves covertly to the specifier of a NEGP headed by *ne*. According to Zeijlstra (2004b: 169) the idea that *pas* is generated in this position is appealing because *v*P 'is the smallest syntactic domain that contains the proposition'.

If negation must apply directly to *v*P I would also expect a requirement that NEGP select directly for *v*P. If *pas* is truly an adverb (or adverbial-type) element then it should adjoin to NEGP rather than, as Zeijlstra proposes, to *v*P directly, assuming that its modification of *v*P is mediated by NEGP.

Zeijlstra (2004b) also cites a historical development as evidence that *pas* originates in the specifier of *v*P: it was formerly possible for a lexical infinitive to precede *pas*.

(44) (Zeijlstra 2004b: 171)

c'est	*de*	*ne*	*s'ábandonner*	*pas*
that is	to	*ne*	abandon	*not*

This difference could easily represent a change in verb movement, rather than generation of *pas* in a low position. Or it may have previously been possible for *pas* to be generated in a lower position because it did not have to check a negative feature. This historical possibility does not mean that *pas* is still base generated in the same position.

One drawback to adjoining *pas* directly to functional projections such as ASP is that it leaves no obvious position for *ne*. In fact, any account that treats negation as purely adverbial fails to capture the insight that negation may consist of two parts.

Haegeman & Zanuttini (1991: 244; see also Haegeman 1995; Zanuttini 1997, 2001) propose the Neg-Criterion, analogous to Rizzi's (1996) *wh*-criterion.

(45) THE NEG CRITERION

a. Each Neg X^0 must be in a Spec-Head relation with a Negative operator;

b. Each Negative operator must be in a Spec-Head relation with a NegX^0.

This criterion puts *pas* in the specifier of a NEGP headed by *ne*; languages that have only one overt negative element will have either a silent NEG head or a silent negative operator.

As already discussed, it is difficult to explain why *ne* should always precede *pas* if *ne* must always move over *pas* in order to do so, sometimes with the verb, and other times independently. Given that a specifier-head configuration is not the only way to accomplish feature-checking/agreement, however, it should be possible for *ne* to be generated preceding *pas* so that the two elements are in a local relationship. I will consider this possibility in the next section.

4.4.3 A PROPOSAL FOR NEGATION

The proposal I adopt is similar to the NEG-Criterion: English *not* and French *pas* are in a feature-checking relationship with a negative feature projected by a head. The projection to which *not* or *pas* adjoins need not be an independent NEGP; the negation feature can be realised on any functional projection within the IP range. For English the outcome is similar to that of Ernst's (1992) analysis: *not* may adjoin to any functional projection. In the current analysis this freedom is permitted because *not* checks a feature which may be projected by any of these functional heads.

Although NEGP is not required in all instances, I will not rule it out entirely, as it is crucial in accounting for the blocking effect that negation has on tense. Because the functional negation feature cannot be generated in the head of a lexical verb, it will only be possible for *not* to directly precede a non-participle lexical verb if that verb is selected by a NEGP. That NEGP will in turn be selected by T, preventing the mutual c-command

relationship between T and the maximal projection of the verb that otherwise occurs if a NEGP does not intervene. Tense cannot be realised on the verb in this configuration, so *do* will be inserted into T to allow for the realisation of tense and agreement features.

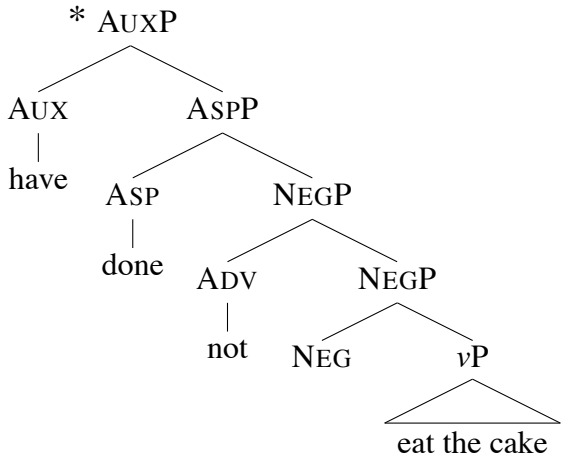
A negative feature will only be realised as an independent NEGP if there is no other functional head that may project a negation feature. In practice, this means that there will only be a NEGP if a clause has only a lexical verb; the lack of *not* preceding finite auxiliaries indicates that finite T itself cannot project a negative feature. Baker (1991) and Ernst (1992) claim that NEGP is problematic, in that it introduces a slew of complex selectional requirements. In the current account, though, it requires only two: that T, which already selects for a variety of projections (e.g. auxiliary *have* and *be*, modal verbs, lexical verbs, etc.), may select for NEGP, and that NEGP must select for *v*P.

I posit that there is in fact a special selectional relationship between the negation feature and T in English. Specifically, only T can select for a NEGP, but negation need not be selected by T. When the negation feature is projected by a functional head that has features other than pure negation (e.g. ASP rather than NEG) selection will be the same as when a negative feature is not present. There will thus be no selectional relationship between T and the negation feature in instances of relatively 'low' negation. For instance, *have* intervenes between *must* and *not* in (46).

(46) George must have not eaten the cake

The selectional relationship between T and negation will therefore only be necessary when the negation feature is the only possible feature that may be selected for. Selection of NEGP must be restricted to T, as otherwise it would be possible for NEGP to intervene between a verb and the aspectual projection that selects for it, blocking feature checking and incorrectly triggering *do*-support.

(47) *George must have done not eat the cake



In some instances, of course, *do*-support occurs with *n't* rather than *not*. Thus, even though *n't*, unlike, *not*, is a head, it must still be instantiated in a syntactic configuration where a NEGP blocks the local relationship between tense and the verb. There are various ways in which *n't* might be realised with respect to this NEGP. One possibility is that *n't* is the head of NEG and *do* is generated directly in T, so that T has to attract *n't* independently. Another is that *do* is generated in NEG along with *n't* and moved to T.

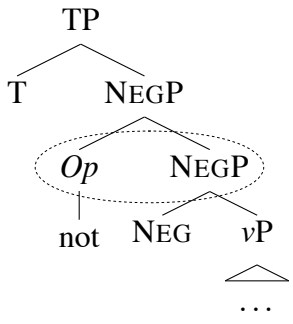
Neither of these alternatives is a viable solution, as movement of *n't* to T is still problematic. The affix *n't* is apparently dependent on tense morphology, which always appears closer to the verb root. If we take seriously the idea that the ordering of morphology reflects the order of syntactic derivation (Baker's 1985 Mirror Principle), then the verb would have to move to NEGP after T in order for tense morphology to be attached first.

Several authors have argued that correct configurations of tense and negation could be accomplished by having NEGP above T. Ladusaw (1992) suggests this type of structure with the goal of accounting for the fact that negation takes scope over tense. Such an approach means that the subject must move out of Spec,TP to Spec,NEGP in order to precede any auxiliary which has been moved to the NEG head *n't*. Moreover, it may not exactly be tense that sentential negation takes scope over, but rather the highest auxiliary, which moves to tense. If negation is generated in a higher position than that auxiliary, then negation taking scope over the element in T will reflect their reconstructed scope.

Zanuttini (1996) also proposes that NEGP selects for T in Romance and English, based on a variety of dependences between the two categories (such as the fact that *n't* only occurs on tensed auxiliaries). Again, if an auxiliary moves to a higher NEG the subject must also move. If *n't* is in a NEG head above T, it will also not block assignment of tense to the verb, as no projection NEGP will intervene between T and *v*P. Therefore, although Zanuttini's observation that there is a close relationship between T and NEGP appears fundamentally correct, it will be better accounted for in a system where (only) T selects for NEGP, rather than the other way round.

I thus propose that *n't* is an instantiation of the negative operator *not*, which may be generated directly in T when it selects for a NEGP. The negative feature projected by NEG may be checked by *not* in its specifier, with *not* and NEGP in a sisterhood relation. Alternatively, the negative operator will be realised on T as *n't*. Because T selects directly for NEGP, *n't* and the negation feature on NEGP will still be in a mutual c-command configuration. In instances of *do*-support with *n't* there will still be a NEGP intervening between T and *v*P, but negation will be overtly expressed as an affix on T, rather than as an adverb in the specifier of NEGP.

(48)



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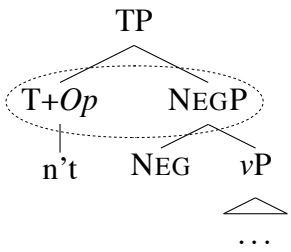


4.4.4 *Ne* AND TENSE

French has no exact counterpart to *n't*, for although *ne* exhibits head characteristics, it co-occurs with *pas*, while *n't* and *not* are in complementary distribution. The status of *ne* therefore remains an issue. If *ne* is expressed in a head that projects a negation feature, and it is possible for a negation feature to be projected from any functional head as in

English, then *pas ne* order would occur in instances in which *ne* is instantiated in a non-T functional projection. For instance, *pas* might be in the specifier of an aspectual head ASP which licenses a past participle, but if *ne* is already in the head of that projection we would get (50), assuming that the participle undergoes head movement to ASP.

(50) *Il a pas ne mangé la pomme

The placement of *ne* can still be accounted for if *ne* is not the head of NEGP at all, but rather is always generated as a clitic on T. As previously discussed, various other clitics can intervene between a tensed French verb and negation, suggesting that *ne* is neither an affix nor the head of T itself. *Ne* does precede the verb in questions, as was shown in (27), indicating that it has undergone head movement with the verb. The facts about French imperatives also indicate that *ne* is cliticised to T. Specifically, a verb will precede a clitic object in a positive imperative, but follow it in a negative imperative.

(51) (Abeillé & Godard 1997)

a. *Lis-le!* / **Le lis*
read it / *it read

b. *Ne le lis pas!* / **Ne lis-le pas*
ne it read not / *ne* read it not

According to Han (1998) the verb moves to C without its object clitic in positive imperatives. In negative imperatives *ne* and the verb 'function as a unit', so that it must move with the verb, forcing any intervening pronominal clitic to move as well[3].

Since the facts about questions and imperatives indicate that *ne* is a clitic on T, the question then arises whether T must be in a local (selectional) relationship with the negative feature, which itself is checked by *pas*, in order to have a *ne* cliticised to it.

In many instances such a configuration would be possible. For example, in (52) *pas* might be in the specifier of the functional projection headed by the auxiliary *a*, which then

[3]This explanation is complicated by the fact that pronominal clitics do sometimes move with the verb in the absence of negation.

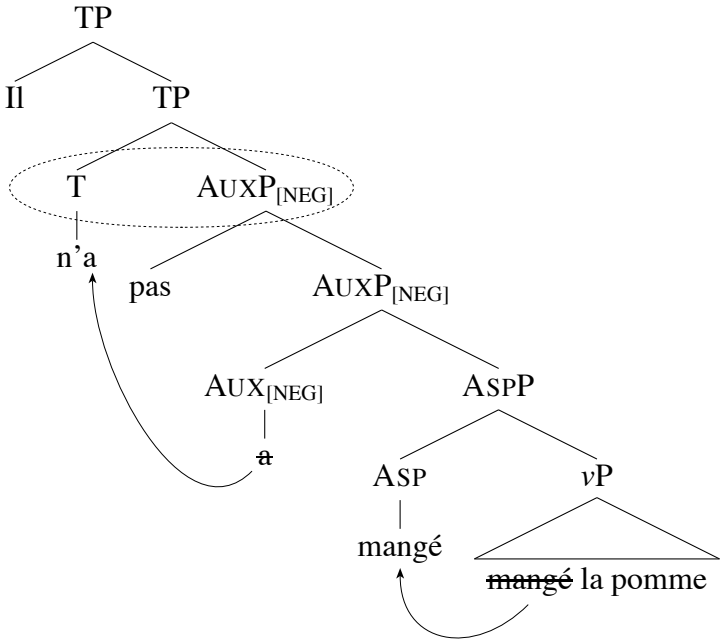
(i) *L' a- t- il lu?*
it has he read?

The precise nature of clitic movement is beyond the scope of this dissertation.

moves over it. If T has selected for that auxiliary projection, which also has a negative feature, then it would be in a local relationship with negation.

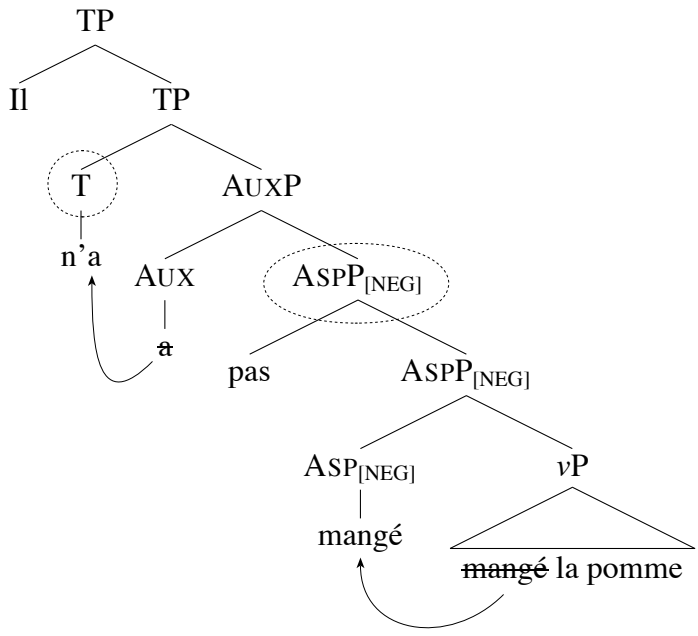
(52) *Il n' a pas mangé la pomme*
he *ne* has not eaten the apple

(53) LOCAL



If the negation feature were in the specifier of the ASP which licenses the participle *mangé*, T would not be in a local relationship with that feature.

(54) NON-LOCAL



There are certainly instances in which *ne* appears when T has not selected for a negative feature. For example, *ne* is used with other negative adverbs, which may occur lower than *pas*. *Ne* also appears in clauses selected for by certain verbs, with no negative adverb at all.

(55) a. *Je n'ai mangé plus*
I *ne* have eaten more
'I have not eaten more'

b. *Je doute qu'il ne vienne*
I doubt that he *ne* comes
'I doubt that he will come'

I attribute the unavailability of *pas* in a position as low as *plus* to the fact that *pas* must check a negation feature, which may only be realised in a functional head. An adverb such as *plus* can adjoin to *v*P so that it follows a lexical participle, which moves to ASP.

It is not possible for *pas* to follow multiple verbs (auxiliary or otherwise). This prohibition is unexpected if negation can be expressed on an aspectual projection not selected by T. For example, (56)c should be acceptable if *pas* is adjoined to the aspectual projection that licenses *été*[4].

(56) a. **Je n'ai mangé pas le gâteau*
I *ne* have eaten not the cake

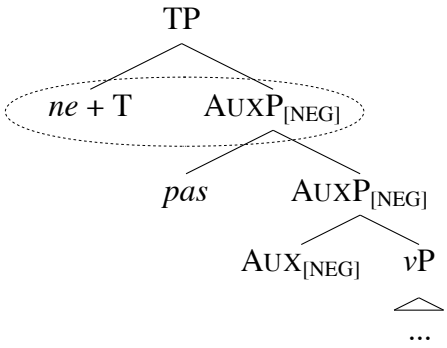
b. *Le gâteau n'avait pas été mangeé*
the cake *ne* had not been eaten

c. **Le gâteau n'avait été pas mangeé*
the cake *ne* had been not eaten

I take this evidence to indicate that the negation feature must be selected by T in French. It may still be projected by any functional projection, and will be checked by *pas* in its specifier, but that projection must be one that is selected by T. *Ne* will then cliticise to T. *Ne* differs from *n't* in that it is not an affix, and does not in itself express negation, but the configuration which licenses *ne* in instances of negation is similar to that which licenses *n't*: it appears as part of a T head which selects for a negative feature.

[4]One speaker I consulted said that in informal speech a sentence such as (56)c would be acceptable if *ne* were absent. I take this observation to indicate that for some speakers *pas* can be used as a negative adverbial that does not check any negative feature, akin to *plus*.

(57)



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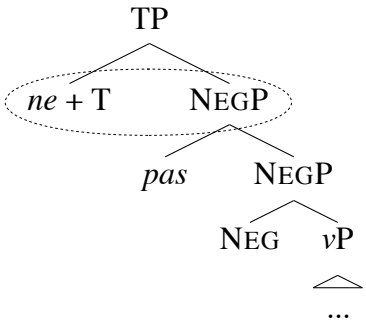


Presumably there is a requirement that *ne* take scope over *pas* or, more specifically, that finite T c-command the negation feature. I assume this is also the case for English negation, even though it has no direct equivalent to *ne*. It is impossible for *not* to precede T, in the same way that it is impossible for *pas* to precede *ne*, which I have argued is generated in T. These restrictions suggests that T and the negation feature cannot be generated on the same head in English or French, perhaps because this configuration would not allow negation to be within the scope of finite T.

As for instances in which *ne* occurs in the absence of *pas*, I have no good explanation. *Ne* is often referred to as a scope marker, yet the scope of negation may be determined by the position of *pas* alone. Although *ne* precedes finite auxiliaries that precede *pas*, such auxiliaries have moved over *pas* to T. Negation will take scope over the highest auxiliary not because the auxiliary follows *ne*, but rather because the auxiliary originated in a position below *pas*. *Ne* also makes no apparent semantic contribution, and is often omitted in speech.

I therefore conclude that there are a variety of reasons why *ne* may occur, only one of which involves selection of NEGP by T, but that it always cliticises to T. This restriction may be a remnant of a previous stage in French, when *ne* was a semantically negative element. Preverbal n-words which do carry negative force, such as Italian *non*, may represent a stage of development in which T selects for NEGP and its negative features

are always checked by a clitic on T, rather than an adverbial type element in Spec,NEGP. I leave a more extensive discussion of this possibility to further research.

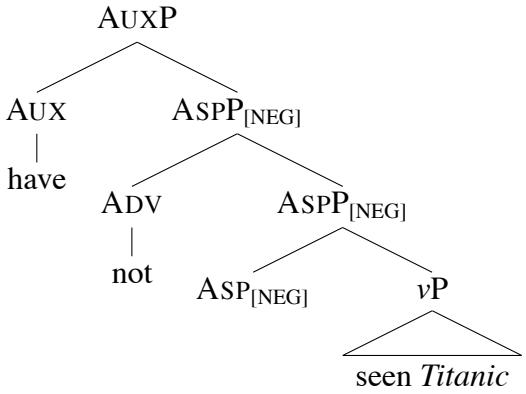
4.4.5 NEGATION IN INFINITIVES

Returning to negation in infinitives, I will argue that the differing positions permitted for French auxiliary and lexical verbs in relation to negation are in fact the result of the limitations on which projections a negative feature may be generated on, rather than movement differences. I will begin, though, by examining the placement of negation with respect to non-finite verbs in English.

Examples in which *not* directly precedes a participle are easily explained if the negative feature may be generated on the aspectual head ASP that licenses the participle. In these instances the (non-)finiteness of the selecting auxiliary will have no effect on the realisation of *not*.

(59) a. She must [have not seen *Titanic*]

b. It is unusual to [have not seen *Titanic*]



There then remains the difference between lexical *be*, which moves to T when finite, and other lexical verbs. Pollock (1989) claims that in non-finite contexts they also show a distinction in grammaticality.

(60) a. {To not be happy/?To be not happy} is a prerequisite for writing novels

b. {To not seem happy/*To seem not happy} is a prerequisite for writing novels

The unacceptability of *seem* preceding *not* in non-finite contexts is debatable. Many speakers find (60) acceptable, and it is possible to find quite a few examples of this type on the Internet.

(61) a. The point of philosophy is to start with something so simple as *to seem not worth* stating... (Bertrand Russell quotation)
b. This guy is either not happy aboout owning a gun..., or wants *to seem not happy* about it. (Gun rights website)

As Iatridou (1990) argues is the case for various adverbs, the availability of *not* between a verb and its object may come down to how easy it is for *not* to modify that object. Pollock (1989) already marks the example with *to be not* as '?'. This example may be questionable because it is easier to negate *happy* with the prefix *un-*, so that modification by *not* is dispreferred for this adjective.

The acceptability of non-finite *be* preceding negation also breaks down when *be* takes a non-adjectival complement. While negation can appear between finite *be* and a nominal complement, it is marginal between non-finite *be* and the same complement.

(62) a. Jane is not an idiot
b. *Jane seems not an idiot
c. ?/*To be not an idiot is a prerequisite for getting into this course
d. ?/*To seem not an idiot is a prerequisite for getting into this course[5]

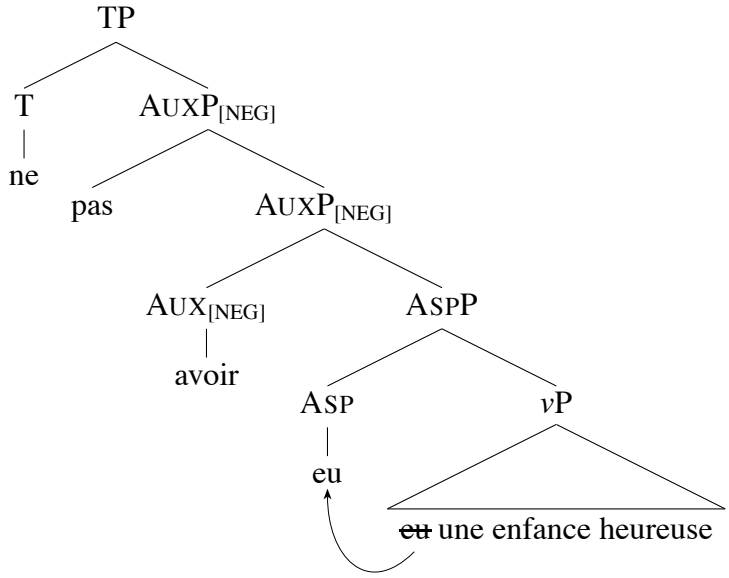
I therefore propose that English has no movement of auxiliary or lexical verbs to T in non-finite contexts, and that infinitival *to* occupies T, as is often assumed. If the negative feature is generated in a functional head below T *to* will precede *not*. If it is generated in T *not* will precede *to*. Instances of *not* appearing between a verb and its complement reflect *not* modifying that complement.

The alternative to selection of NEGP by non-finite T is an analysis in which *to* is not generated in T, but rather moves from a projection of its own to to T. The negation features could then be generated in the *to* projection, so that *to* comes to precede *not*. I will assume that this is the case, for reasons to be discussed in the next section. As a result, it will be possible to have negation in non-finite contexts without requiring NEGP at all. As already evidenced by the availability of *not* before non-finite *to*, non-finite T can instantiate negation in its specifier, unlike finite T. I thus infer that only finite T may select for NEGP, and that in non-finite contexts negation is always projected by some other functional head.

[5] A speaker I consulted accepted (62)c, but found (62)d equally grammatical.

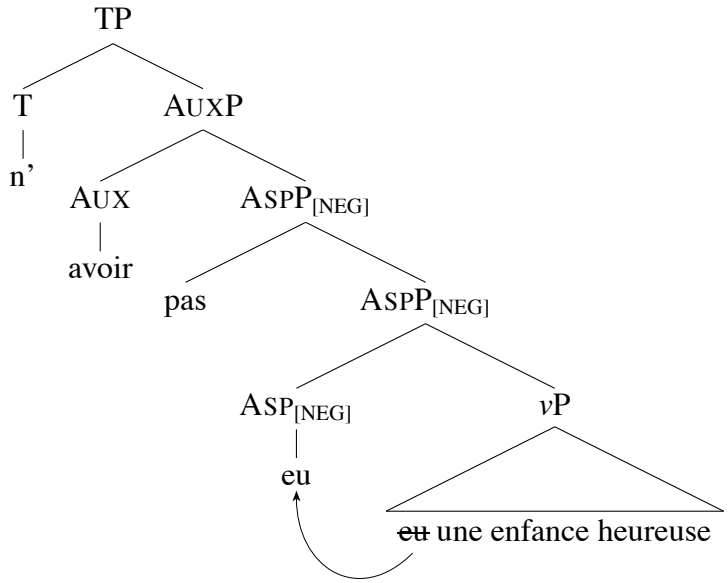
In sum, the only element that moves to T in non-finite contexts in English is infinitival *to*. Looking again at French, it would still be possible for the position of negation to vary with respect to auxiliary verbs if they did not move to T. For instance, if the negation feature is generated in the same projection as the auxiliary, while *ne* cliticises to T, both *ne* and *pas* will precede the auxiliary.

(63) Ne pas avoir eu une enfance heureuse…



If the negation feature were generated in ASP, which selects for a participle, *pas* would appear in its specifier, below the auxiliary verb, while *ne* would still be cliticised to T. The auxiliary would therefore precede *pas*.

(64) N'avoir pas eu une enfance heureuse…



This approach, in which the non-finite verb does not move, brings us back to the question of whether negation and T must be in a local relationship in French. If the negation feature is projected by ASP in (64) it will not be selected by T. It may be that the requirement that NEGP be selected by T only applies in finite contexts. This is possible, inasmuch as there are other clear differences between negation in finite and non-finite contexts (e.g. *n't* only occurs on finite verbs). However, I will ultimately opt for an account that does not require this differentiation.

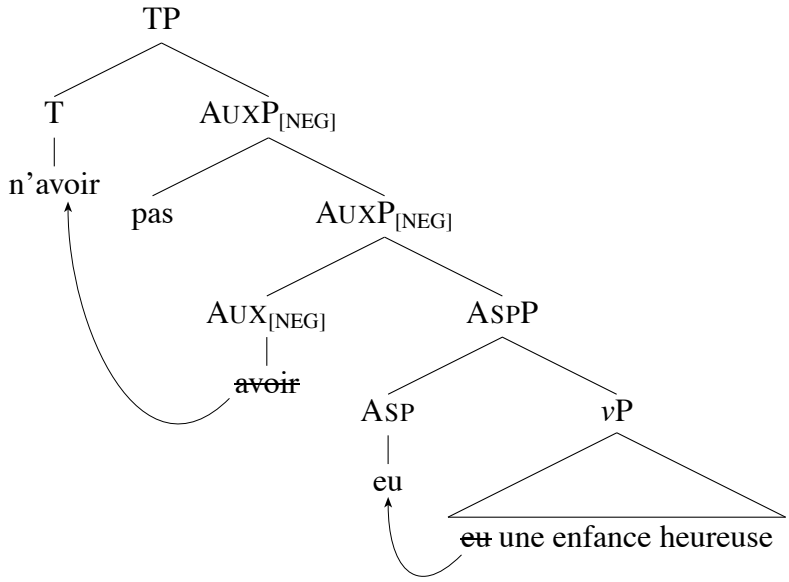
An analysis in which French non-finite verbs universally move or don't move is preferable to one in which non-finite auxiliaries, but not lexical verbs, move to T. For one, it eliminates the optional movement required in such an account. It also means that no distinction need be made between auxiliary and lexical verbs in terms of movement to T. If V-to-T movement of finite French verbs is motivated by attraction of a non-projecting verbal feature, there should be no difference between auxiliary and lexical verbs in non-finite contexts if there is no difference between them in finite contexts, as they would always have the same non-projecting verbal feature.

Given that it is possible for a non-finite lexical verb to precede sentential adverbs such as *possiblement*, they must undergo some movement out of *v*P. Consequently, if French auxiliaries do not move to T lexical verbs must undergo Short Movement to a functional projection (e.g. AGR) below T (and below any auxiliaries). Below I will propose an alternative which makes it possible to eliminate this extra projection altogether.

At this point French and English look dissimilar in that French has no movement to non-finite T, while English does, albeit of non-finite *to*. Assuming that French infinitival endings and *to* are essentially equivalent, this difference is perhaps unexpected.

The alternative is that French does have movement of both auxiliary and lexical verbs to non-finite T, but, like English, does not permit NEGPs in non-finite contexts. The functional projection of an auxiliary verb may also have a negative feature, so that the auxiliary precedes *pas* when it moves to T.

(65) N'avoir pas eu une enfance heureuse…

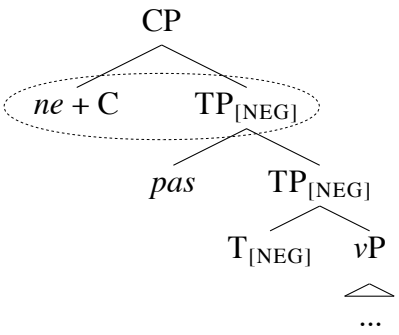


The negative feature may also be projected by T, so that *pas* adjoins to T, preceding the auxiliary that has moved into it. Without the possibility of a NEGP in a non-finite context, this will be the only option with a non-finite lexical verb. Even though lexical verbs always move to T, then, they will be preceded by *pas* in non-finite contexts, as it will be in the specifier of infinitival T.

This analysis of French is also in line with another anomaly in English, namely that non-finite T seems to allow projection of a negative feature, allowing *not* to precede *to*, while finite T does not. The same is apparently true for French, given that *pas* can precede auxiliary verbs.

As for *ne*, I assume that if the negation feature is projected by T then it cliticises to C, which selects for T. As argued in Chapter 2, French always has full CP infinitives. *Ne* may be realised as the result of a combination of negation and tense features, but must also be cliticised to a head; in this instance C is local enough to T to allow cliticisation of *ne*.

(66)



There is no immediately obvious reason why *ne* cliticises to C rather than T itself. I tentatively take it that *ne* must c-command *pas*, although this is essentially a descriptive generalisation.

4.4.5.1 REVISITING PROJECTION OF NEGATIVE FEATURES

I have argued that negation features must be selected by T in French. This requirement alone rules out *pas* appearing below participles. Whether French *v*Ps can project negation features thus has no bearing on the (un)grammaticality of such examples, raising the possibility that French *v*, unlike English *v*, can actually project negation.

(67) **Je n' ai mangé pas la pomme.*
I *ne* have eaten not the apple

The only instances in which negation features could be selected by T if they were projected by *v*P would be those in which the clause has only a lexical verb.

(68) *Je ne mange pas la pomme*
I *ne* eat not the apple

If the *v*P in French projected a negation feature, *mange* in (68) would simply move over *pas* in its specifier to T. Because French does not have NEGPs in non-finite contexts, if French *v*Ps could also project a negation feature French would not require NEGPs at all.

We know that English *v*P cannot project negation features, as if it did NEGP would not block the sisterhood relation between T and *v*P, and *do*-support would not be required. No such consideration exists in French, because even if a NEGP intervenes between tense and *v*P it should be possible for the verb to move to T for its tense features. French lacks an equivalent to *do*-support because all verbs undergo head movement, and so even if a NEGP intervenes between T and the verb V-to-T movement will still be possible. Equally, if the French lexical verb could project a negative feature it would unproblematically move to T over *pas* in its specifier.

Allowing French lexical verbs to project a negative feature reintroduces the problem solved by eliminating NEGPs in non-finite contexts: namely, if a non-finite lexical verb can project a negation feature it will incorrectly come to precede *pas* when it moves to

non-finite T. Limiting selection of negative features to T is thus not enough to explain the distribution of negation of French; I must therefore conclude that, like English, French does not permit the projection of negative features by lexical verbal projections, and so must have a NEGP in a clause with no auxiliary verbs.

Here I will also invoke Zeijlstra's (2004b) observation that the *v*P is syntactically the smallest element that encompasses the whole proposition. Although I did not find this a compelling reason to put *pas* in the specifier of *v*P, I do think that it might constitute a reason not to have *v*P project negative features, as it is not clear that negation generated in *v*P would necessarily take scope over the proposition it denotes.

An outstanding question for this account is why selection of negative features is limited to finite T. I have already shown that a negative feature is projected in an independent NEGP only if there is no functional head from which it can be projected. Selection of the NEGP by T follows from the fact that negation features cannot be projected by T, as in these instances T is the only projection that is available to select for NEGP. The only other possible head that could select for NEGP is C, but this option is presumably precluded by the requirement that C select for TP. The impossibility of T projecting negation features may result from its being the only obligatory functional projection in finite clauses, making it less mutable than other functional projections.

It is more difficult to explain why in French a negative feature must be in a local relationship with T in finite clauses. This limitation points to a lack of true constituent negation in French, at least when sentential negation is possible. One noteworthy outcome of this selectional restriction is that it means there can be only one negative feature per finite clause, allowing us to account for Rowlett's observation, discussed in §4.4.1, that double negatives are possible only in non-finite contexts in French.

4.5 ADVERBS, NEGATION, AND MULTIPLE MERGE

According to the account outlined in the preceding sections, the availability of postverbal sentential adverbs and negation in French does indicate that French has V-to-T movement of lexical verbs, in contrast to English. Another frequently noted contrast between English and French is that English permits an adverb between a subject and verb, while French does not.

(69) a. John often kisses Mary

b. **John souvent embrasse Marie*
John often kisses Mary

It is tempting to argue that this difference results from movement as well, with the French verb, but not the English one, in a position too high to permit an adverb intervening between the verb and its subject. However, English allows an adverb between a subject and auxiliary verb. Given that English auxiliaries otherwise exhibit 'French' behaviour, the ungrammaticality of an adverb between the subject and verb in French cannot be attributable to V-to-T movement.

(70) John often has kissed Mary

Williams (1994) takes this discrepancy between French verbs and English auxiliaries to indicate that, for any given language, whether it is possible to realise an adverb in this position must be unrelated to whether it is possible to realise an adverb between a verb and its object. Pollock (1989: 370n8) himself is forced to claim that English has an 'extra' base position for adverbs between the subject and INFL, although he does not elaborate on whether this is simply and extra adjunction position, or an additional projection. Laenzlinger (2002) proposes that there is in a SUBJP projection above T, to which the subject moves crosslinguistically. French verbs also move to SUBJ, while English auxiliaries remain in some lower position. Because Laenzlinger does not permit multiple adjunction, French cannot allow an adverb between the subject and verb, while English can.

Given that multiple adjunction is in fact possible, the explanation for this difference between French and English is relatively straightforward. In Chapter 3 I proposed that in instances of multiple merge English requires non-feature-checking elements to merge before feature-checking ones. An adverb that appears between the subject and verb will therefore simply have merged to T before the subject. French, on the other hand, requires feature-checking elements to merge before non-feature-checking elements. It will therefore be necessary for the subject to merge to T before any adverb, making it impossible for an adverb to appear between the subject and verb.

Even permitting feature-checking and non-feature-checking elements to adjoin to the same projection, another issue arises pertaining to the placement of adverbs in the auxiliary range. Pesetsky (1989) observes that it is impossible to have an adverb between auxiliary *do* and negation, even though such adverbs can precede negation (and follow *do*). Other auxiliaries, such as *have*, may precede an adverb followed by negation.

(71) Pesetsky (1989: 15)

a. Sue cleverly has not opened her present

b. Sue has cleverly not opened her present

c. Sue cleverly did not open her present

d. *Sue did cleverly not open her present

It is also possible for an adverb to intervene between a modal verb and negation.

Pesetsky classifies this restriction as a movement difference. In his conception each verb (auxiliary or lexical) has an optional μ projection above it to which it moves, resulting in verb-adverb orders. Because *do* is inserted directly into INFL it cannot move, and cannot precede an adverb. In the current analysis the movement or non-movement of *do* should make no difference to whether an adverb can appear between this auxiliary and *not*, as it should be possible to merge both *cleverly* and *not* to a single projection, whether *do* is the head of that projection or not.

That said, given that there is a feature-checking relationship between the head of a NEGP and *not*, an adverb should not be able to adjoin to a NEGP (or any projection with a negation feature) after *not*. If T selects for NEGP and *do* is generated directly in T (or even moved from NEG to T), then it will be impossible for the adverb to appear directly after *do* because it must be merged to the NEGP before *not*.

At the same time, it is possible for an adverb to appear between any modal verb and negation, as well as non-finite *to* and negation.

(72) a. To often not eat breakfast is unhealthy

b. AJ can always not read the newspaper (Flagg 2002: 103)

If these elements are generated directly in T, or even moved to a T which directly selects for a projection with a negative feature, then the restriction on merging an adverb between the verb (or *to*) and *not* should still apply, contrary to fact. There thus cannot be a

global restriction on merging adverbs after *not*. Rather, the specificity of this limitation to auxiliary *do* appears to come down to the fact that *do*-support only occurs with a NEGP that has no other functional features. In essence, once *not* has checked the negative feature projected by NEG the NEGP will cease to project. Further adjunction of non-feature-checking elements such as adverbs will be disallowed.

Where the negative feature is projected by some other functional head, projection may continue after *not* has merged, so that it will be possible for an adverb to adjoin above *not*. To slightly modify the proposed multiple merge requirement for English, then, a non-feature-checking element may merge after a feature-checking one if the projection has features other than the one checked by the feature-checking element. An auxiliary projection with a negation feature will have some auxiliary feature not checked by merge of *not*. Further projection of the auxiliary feature will still be permitted when the negation feature is checked, so that it will be possible for an adverb to merge after *not*, even though the adverb itself checks no features.

Instances where an adverb intervenes between non-finite *to* and *not* represent the projection of a negative feature on the same projection as *to*. The availability of an adverb between non-finite *to* and negation thus confirms my previous assumption that *to* heads a projection separate from T, and undergoes head movement to T.

Modals also head their own projections and move to T. It has often been noted that negation takes inverse scope following a modal (Horn 1989; Palmer 1979; Palmer 1995; Ernst 1992). For some modals, this inverse scope is optional (if preferred); for others, it is required.

(73) (Horn 1989: 259)

a. You can not work hard and still pass
   'It is not the case that you can work hard and still pass.' (*not* > *can*)
   'It is possible that you can still pass if you do not work hard.' (*can* > *not*)

b. You must not fail
   'It is required that you not fail.' (*not* > *must*)
   *'It is not required that you fail.' *(*must* > *not*)

Cormack & Smith (2002; see also Cormack & Smith 1998), observe more specifically that modals divide into two groups with respect to negation: those that express necessity

(e.g. *should*, *must*, *would*) take scope over negation, while negation tends to take scope over those that express possibility (e.g. *can*, *could*, *may*). They claim that there are two functional projections that pertain to modals, one above NEGP and one below. Modals that take scope over negation are generated in the higher projection, while those that fall under the scope of negation are generated in the lower projection.

Given that only T can select for NEGP such a configuration is impossible in the current analysis. I therefore propose that all modals are generated in the same position directly below T, and then undergo head movement to T. A modal head may also host a negative feature, allowing for adjunction of *not* (or realisation of the affix *n't* in T). Whether a modal takes scope over negation depends on whether its scope is interpreted in its base position or in T. Although this analysis is largely idiosyncratic, it is no more so than, for instance, having different modals appearing in different functional projections.

English thus need only have a NEGP if finite tense is followed by a lexical verb; otherwise the negative feature will be projected by the same head as some auxiliary or non-finite *to*.

According to the proposal made in this chapter negative French sentences with only a lexical verb have a structure equivalent to English *do*-support sentences: a TP selects for a NEGP, which in turn selects for a *v*P. An adverb between the verb and negation would therefore have to be adjoined to NEGP above *pas*, unlike in English. It is possible to have an adverb directly preceding *pas*, with the adverb taking scope over negation.

(74) a. *L'étudiante n'aime probablement pas lire les journaux*
the student *ne* likes probably not to read the newspapers
'The student probably does not like to read newspapers.'

b. *Il ne mange souvent pas très bien*
he *ne* eats often not very well
'He often doesn't eat very well.'

The appearance of an adverb between the lexical verb in T and negation is consistent with the proposal that in French non-feature-checking elements may merge to a projection only after all of the features of that projection have been checked. In this instance *pas* checks the negation feature on NEGP, followed by merge of the adverb.

The parameter settings for multiple merge in French and English cannot be the only ones possible crosslinguistically. Languages such as Italian and Spanish allow both an

adverb between the verb and its object and a verb and its subject. For such languages there may be no ordering constraints on the multiple merge of feature-checking and non-feature-checking elements. On the other hand, as I mentioned in Chapter 3, V-to-T movement is enough to derive the appearance of any adverb between a verb and its object. It is also possible, then, that Italian and Spanish have the same parameter setting as English (with non-feature-checking elements merging before non-feature checking ones), with the addition of V-to-T movement.

4.6 CONCLUSION

In this chapter I have re-examined the idea, put forth in Pollock (1989), that the placement of adverbs and negation indicates that the IP must be split into separate TP and AGR projections. The longstanding claim that all French verbs undergo V-to-T movement while English lexical verbs do not still holds true in the current analysis, even though at least some variation in adverb placement occurs because a given adverb may be base generated in more than one position. However, it is still possible to account for variation in the placement of adverbs and negation (both within each language and crosslinguistically) with an unsplit IP.

In §4.2 I proposed that sentential adverbs modify *v*, and sometimes T. Reviewing Pollock's (1989) arguments, I concluded in §4.3 that the occurrence of postverbal sentential adverbs does indicate verb movement in French

Section 4.4 explored previous accounts of negation in English and French. I developed a novel theory of the syntax of negation, based on the essential idea that negative features can be projected by any functional head, except for finite T. As a result, the realisation of NEGP will be limited to instances in which no functional head other than T is available. English *not* and French *pas* appear adjoined to a projection with a negative feature. English *n't* is inflected in a finite T that has a projection with a negative feature as its complement. French *ne* can be cliticised to T, or, in non-finite contexts, C. This approach allowed me to capture the fact that negation may occur in more than one position in English, but has a more limited distribution than sentential adverbs. I also showed that there is a special connection between negation and tense, whereby negation features must be in a local relationship with T in French, and finite tense must c-command negation in

both languages. Under this analysis non-finite verbs in English do not move to T, which is occupied by non-finite *to*, but non-finite verbs in French always do.

In §4.5 I argued that French does not allow adverbs between the subject and verb because it has a parameter setting which requires feature-checking elements to merge before non-feature-checking ones in instances of multiple merge. In English the parameter setting for multiple merge allows merge of non-feature-checking elements only up to the point when all features of a projection have been checked; this restriction rules out merge of an adverb between *do* and *not*.

The placement of adverbs and negation does, then, provide some indication of verb movement and functional structure. That said, if they are to be taken as evidence for these aspects of the syntax, the other factors that influence their distribution must also be taken into consideration.

CHAPTER 5

Summary and Conclusion

5.1 SUMMARY

The goal of this dissertation has been to account for the syntactic distribution of adverbs. This topic has been broached before, receiving a variety of treatments, some of which are quite extensive. Here I have presented an alternative proposal which captures the wide range of positions adverbs may appear in, as well as more specific limitations on particular types of adverbs appearing in particular positions. Because adverb placement has often been used as a diagnostic for the availability of certain syntactic projections or types of movement, my account also encompasses a view of what structure is present in various syntactic configurations, and what syntactic movement is permitted.

In Chapter 2 I looked at Adverb Climbing, in which an adverb that precedes a verb with an infinitival complement modifies the embedded verb rather than the matrix verb. This phenomenon, which has received only limited attention in the literature, provided fresh insight into the constraints on adverb distribution. Based on the fact that AC is limited to Raising verbs and a particular subset of Control verbs, and following previous work on Restructuring that indicates that different predicates select for different sizes of infinitival complement, I proposed the following criteria for adverb distribution.

(1) a. An adverb must c-command the projection it modifies.

AND

b. (i) The adverb must appear in the same phase as that projection. **OR**
(ii) The adverb must have access to the features of that projection at the edge of a lower phase.

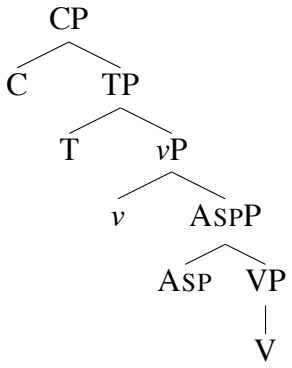
In Chapter 3 I applied these criteria for adverb distribution to verb-modifying adverbs, giving particular attention to agentive, subject-oriented, and manner adverbs. I showed that the different distributions of these adverb types can be accounted for if each modifies a different projection within a tripartite 'extended VP' structure. In developing this analysis I proposed a head movement from V to *v* which violates the Head Movement Constraint by skipping over an intervening head ASP. I argued that phrasal movement occurs when an attractor targets a feature which projects, while head movement occurs when an attractor targets a feature which does not project, and showed that it is possible to violate the Head Movement Constraint in certain instances where a head has a combination of projecting and non-projecting features. In this chapter I also preliminarily set forth conditions on the order in which multiple merge of arguments and adjuncts to a single projection may occur.

In Chapter 4 I looked at the distribution of adverbs and negation in the IP range. I proposed a new analysis of the distribution of negation, arguing that a negation feature can be projected by any sentential functional head except for finite T, and that negation is only projected as an independent NEGP if there is no other functional head that can project a negative feature. Using this account of negation in conjunction with the one proposed for adverb distribution, I showed that it is unnecessary to split the IP into separate tense and agreement projections in order to account for the placement of adverbs and negation. In addition, I expanded on the proposal in the previous chapter that English and French had different constraints on multiple merge, arguing that English allows no adjunction of an adverb to a projection if all of its features have been checked by feature-checking elements (e.g. arguments or *not*), while French requires that adverbs merge after feature-checking elements.

5.2 STRUCTURE AND MOVEMENT

The structure necessary to explain adverb distribution according to the criteria I have proposed is much less extensive than that needed for functional specifier accounts (Cinque 1999; Alexiadou 1997). Finite clauses need have only CP and TP projections, while the extended VP consists of *v*P, an inner aspect projection ASPP, and VP.

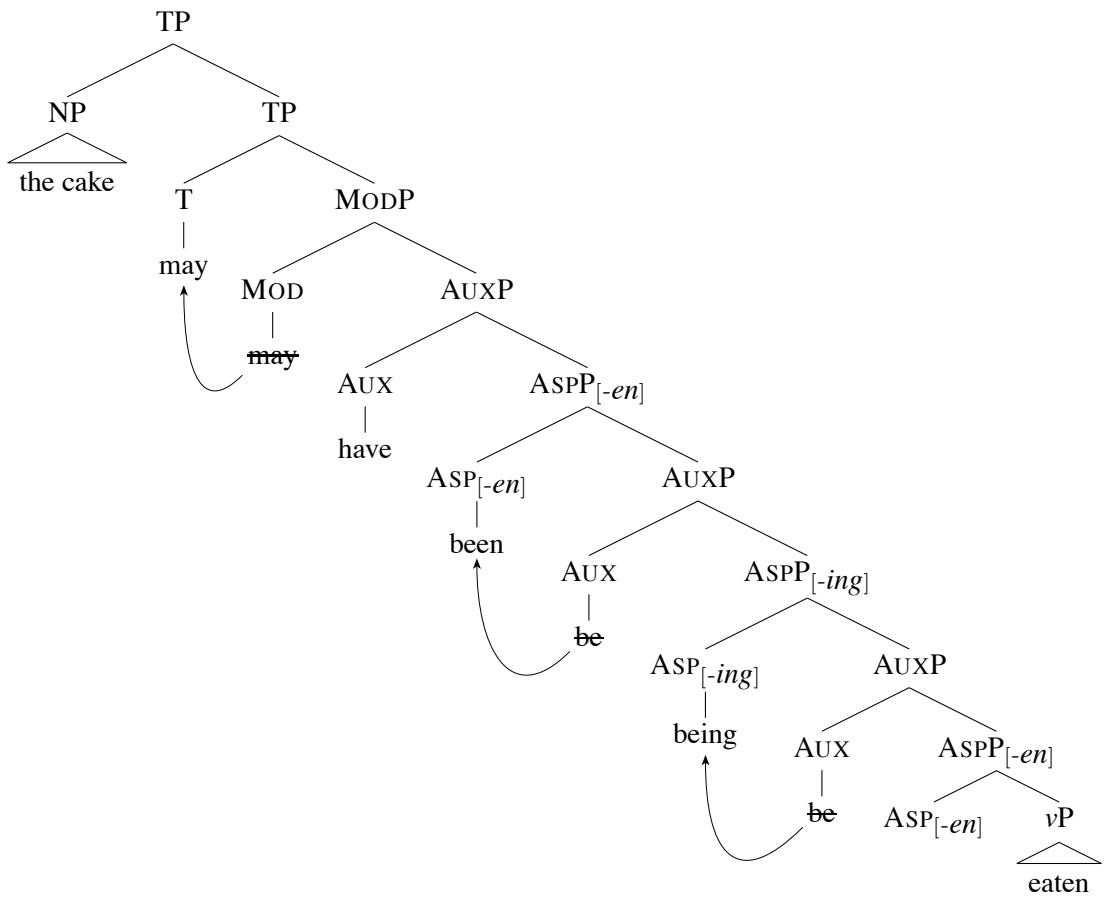
(2)



Other auxiliary projections may appear between tense and *v*P. As indicated by the discussion of modal verb projections in Chapter 4, it is possible for certain adverbs to modify these optional projections. Such adverbs may modify other projections (e.g. *v*P), though, so not all sentential functional projections need be present for those adverbs to appear. In some instances CP is also optional, as indicated by the evidence from infinitival complements in Chapter 2.

From a cartographic perspective, a possible objection to this approach is the amount of optionality in selection it involves, as without a fixed structure each projection will permit more than one type of complement. I assume that auxiliary projections are interspersed with aspectual projections, with each auxiliary selecting a type of aspectual projection which will assign the correct verbal morphology to its complement. Thus auxiliary *have* selects an *-en*-assigning projection, progressive *be* an *-ing*-assigning projection, and passive *be* an *-en*-assigning projection.

(3)



As illustrated in (3), English auxiliary verbs undergo head movement into selecting aspectual projections, while lexical verbs do not. This movement difference between auxiliary and lexical verbs follows if aspectual projections attract the same verbal feature as T. As this feature is non-projecting for auxiliaries, they will move. The projecting instantiation of this feature will be checked in the mutual c-command relationship between the maximal projection of *v* and any selecting aspectual head, so that the aspectual morphology will be realised on the lexical verb without head movement.

According to this schema, each aspectual projection can select for both auxiliary and lexical verbs, as can tense and modals. I find this variation in selection unproblematic, as all verbs share a verbal feature, which may check tense and aspect. If it is non-projecting, this verbal feature will not be directly selected by tense or aspect. This is also not a problem, because it will be sufficient for that feature to be in the head of the complement of a functional head for it to be attracted by that functional head for feature checking.

At the same time, projections must be ordered: modal verbs precede other auxiliaries, perfective *have* must precede progressive and passive *be*, and progressive *be* must precede

passive *be*. I take these constraints to result from underlying semantic considerations. There may also be language-specific syntactic requirements. For instance, German, unlike English, permits tense and aspect to be realised on modals.

(4) a. *He has not can read it

b. *...daß er es nicht lesen gekonnt hat*
...that he it not read can has
'that he has not been able to read it' (Haider 2000: 66n13)

Crosslinguistic differences of this type suggest that a fixed clausal cartography cannot fully explain restrictions on auxiliaries and verbal morphology, just as it cannot explain the ordering of adverbs. Instead, interaction between semantic and syntactic selectional constraints will determine the way functional projections are configured and how they are instantiated.

The information that adverbs can provide about the presence of particular projections is therefore quite limited. One exception may be that the three-way difference in the distribution of verb-modifying adverbs indicates a tripartite verbal structure, as seen in Chapter 3. On the other hand, factors such as the c-command relationship between objects in double object constructions and the behaviour of particle verbs help to justify this structure. In general, then, the distribution of adverbs cannot serve as the sole motivation for positing a given syntactic configuration.

Like Ernst (2002), then, I assume syntax depends on semantic restrictions, which at least partially determine the order of projections, and the order of adverbs. Ernst's FEO-Calculus applies to the syntax in such a way that the same projection may have different types of semantic input or output, depending on what it selects for, and the points at which adverbs are adjoined. In contrast to this view, I take the semantic contribution of a given projection to be essentially invariant, although a feature may have different values (e.g. telicity), or additional features may be projected (e.g. negation).

In essence, without a fixed clausal cartography, semantics must play a role in determining the order of syntactic projections. However, if there is a kind of semantics-based hierarchy, it cannot work for adverbs and clause structure together, as in Ernst (2002). There instead must be two similar but separate sets of semantic sequencing constraints: one that applies to adverbs and one that applies to clause structure. The

relationship between these is mediated by criteria which are largely syntactic, although what projections an adverb can modify is determined semantically.

As with any analysis that does not rely on a fixed syntactic cartography, the proposal I have made provides a less transparent link between the order of adverbs and the order of verbal elements than Cinque's account, in which they are ordered in the same way because they correspond closely to the same structure. As noted by Abels (2003: 109), though, restrictions on adverb order apply even across clause boundaries. Thus *no longer* cannot take scope over *already*, even though both are permitted in matrix and embedded clauses.

(5) a *He no longer already goes to school
b. *It is no longer the case that he already goes to school

This evidence confirms the conclusion that, although related, any 'hierarchy' that determines the order of adverbs operates over a different domain from the one that determines the order of verbal morphology and auxiliaries. Cinque's observation regarding the similarity of their ordering really only indicates that they are subject to similar ordering constraints, not that those constraints are syntactic. Limitations on adverb order also operate over a different domain from those on adverb position, which I have shown to be restricted by phase boundaries.

In this dissertation I have focussed on English and, to a lesser degree, French. The proposed criteria for adverb distribution deals less well with, for example, the Norwegian data from Bentzen (2007). She compares Standard Norwegian, in which all adverbs must precede all verbs in subordinate clauses, and Northern Norwegian, which allows adverbs the appear below auxiliary and lexical verbs.

(6) STANDARD NORWEGIAN (Nilsen 2003: 72)

...at	*det*	*ikke*	*lenger*	*alltid*	*helt*	*kunne*	*ha*	*blitt*
...that	it	not	any.longer	always	completely	could	have	been
ordnet								
fixed								

The placement of adverbs in Standard Norwegian could be accounted for with an additional language-specific criterion for adverb distribution, namely, a requirement that all adverbs c-command T. This solution is obviously inelegant.

Alternatively, the proposals I have made regarding projecting and non-projecting features allow for a variety of phrasal and head movements. It is thus feasible that Norwegian obeys the criteria I have proposed for adverb distribution, but also has some version of the remnant movement proposed in Nilsen (2003), motivated by features which have different parameters on their projection from those in English and French. An analysis of what movements occur in Norwegian is beyond the scope of this thesis, but it is worth noting that although my proposal regarding adverb distribution does not not entirely account for these data, the evidence from Norwegian is not prima facie incompatible with my analysis. In general, there is still work to be done on applying this account crosslinguistically, but I see no reason why the proposal outlined in this dissertation could not provide a foundation for explaining the syntactic distribution of adverbs in a variety of languages.

In sum, the question of adverb distribution speaks to the question of optionality in the syntax. More than any other category of syntactic constituent, adverbs exhibit optionality with respect to what positions they can appear in. Many authors have taken this variation to actually arise from optionality in other parts of the syntax: e.g. in what syntactic movements are permitted, or in what the semantics of particular projections are. In this proposal I have shown that the locus of this optionality really is the constraints specific to adverbs: although the position of an adverb is subject to specific syntactic criteria, these criteria are not restrictive enough to limit the adverb to a single syntactic position. This is is not to say that there is no optionality elsewhere in the syntax, but simply that other types of optionality are not the source of language-internal variation in adverb distribution. Therefore, while adverbs can tell us about movement and clause structure, it is only in the context of what we know to be independent restrictions on their distribution.

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