Dimensions of Movement
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Volume 48
Dimensions of Movement: From features to remnants
Edited by Artemis Alexiadou, Elena Anagnostopoulou, Sjef Barbiers and Hans-Martin Gaertner
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Chapter 1

Introduction

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This volume presents a collection of chapters of recent generative research into the properties of phrasal and feature movement, which explore these key syntactic phenomena from different angles. The volume has its origin in a workshop on (remnant/feature) movement organized by the Research Centre for General Linguistics (ZAS, Berlin), the Linguistics Department of the University of Potsdam and the Dutch Graduate School in Linguistics (LOT) and hosted in Potsdam in July 1999 during the LOT Summer School. In Section 1 of our introduction we introduce the theoretical background and outline the main issues and questions that have been the object of much debate in the syntactic literature on the triggers and the properties of movement. In Section 2, we offer a summary of the chapters.1

1. The theoretical background

In the development of generative syntax, one can recognize the following attempts in constraining the theory of movement, which has been a major concern of syntactic theory at least since Ross ([1967], 1986).2 First, construction-specific movement transformations like Passive, WH, SAI, Relativization etc. were replaced by the general operation Move-α (Chomsky 1981). Informally speaking, this operation permitted syntax to move anything anywhere.3 Crucially, Move-α involves creation of a trace in the original position of the moved element. Descriptive adequacy was attained by means of a set of constraint-modules (e.g. Binding Theory, Bounding Theory, Case Theory, Theta Theory) governing the shape of input and output
representations. Construction-specific details were integrated in the (functional) lexicon.

Second, locality conditions on Move-α were microscopically scrutinized (cf. Chomsky 1986; Cinque 1990; Rizzi 1990). In Barriers Chomsky seeks an adequate definition of barrierhood aiming at a unification of Subjacency and the Empty Category Principle. A question that arose within the Barriers framework was whether the barrierhood of constituents persists under displacement. This rekindled interest in “freezing” effects (Ross 1986) and led to research into remnant movement, to which we return. An important development of Barriers was Relativized Minimality, a locality system in which minimality barriers are relativized according to the type of intervening material. This has led to a typology of movement and locality which separates X₀-movement from XP-movement and splits up the latter into A- vs. A-bar-movement.

Third, recent research being pursued within the framework of minimalism, focuses on the operation Move-α as such. Most importantly, every application of Move-α is taken to be triggered and leads to feature-checking (Chomsky 1995). Taking the idea that movement targets the functional domain of the clause (CP, AgrP, TP) seriously, the need arises to address questions dealing with the kind of triggers, the types of features (see Alexiadou and Anagnostopoulou’s contribution) and the nature of optionality operations. Looking at movement this way leads to a view of movement according to which an element that has features matching the feature of a functional head F is displaced into the local domain of F. This has arguably provoked one of the most fruitful questions minimalist syntacticians are currently investigating: How much material is subject to displacement under which circumstances? In other words: What is the range of α in Move-α? Most minimally, one might expect exactly the features to be checked to undergo movement. AgrS₀, for example, could force just the φ-features of an appropriate DP to move somewhere into AgrSP. (1) captures this idea.

(1) Nothing but features matching the attracting functional head ever moves.

Call such an operation Move-Fmin. The availability of such an option would be expected under the Least Effort principle governing minimalist research. However, feature movement in (1) has been interpreted as affecting not just isolated features but the full set of formal features introduced by a lexical item into the syntactic computation. Taking these X₀-categories to be ⟨p, f, s⟩-
triples, including (sets of) phonological, formal and semantic features, we can call the variant of feature movement actually implemented in minimalist syntax Move-F\textsuperscript{f}.

At the same time, more solid evidence for displacement is standardly taken to be provided by word-order effects detectable on PF-strings. Trivially, the minimal unit of word-order manipulation is the linguistic counterpart to “words,” i.e. lexical items. These constitute the input to minimalist syntactic computation and may be represented as terminal (X\textsuperscript{0})-nodes in phrase-markers. Assuming the integrity of these minimal PF-detectable syntactic building blocks, something like (2) can be postulated to govern the “overt” part of syntax.

(2) Before Spell-Out, nothing less than X\textsuperscript{0} ever moves.\textsuperscript{7}

Thus, the computation feeding PF requires movement of a feature F to “pied-pipe” at least the minimal X\textsuperscript{0} containing F. As a consequence of (1), (2) can only hold of “covert” movement. This is expressed in (3).

(3) After Spell-Out, nothing but features matching the attracting functional head ever moves.

While (2) is largely accepted,\textsuperscript{8} (3) is highly controversial. Certain researchers attempt to show that there should be no covert movement at all. Thus, Chomsky (Chomsky 2000: 147, n. 71) points out that assuming Move-F\textsuperscript{f} to alter binding domains, one could interpret the unavailability of anaphor binding in (4) as counting against the raising of features of many men into the domain of matrix I\textsuperscript{0}:

(4) *There seem to each other [ to be many men in the room ].

In a similar manner, Brody (1995: 133) argues that nothing ever moves covertly because covert XP movement might yield the wrong results for binding theory. He points out that covert Wh-movement does not extend the binding domain for the anaphor himself in (5).

(5) *John wondered when Mary saw which picture of himself.

Both (2) and (6) could account for this.

(6) After Spell-Out, nothing more than X\textsuperscript{0} ever moves.

On the other hand, the necessity of covert XP-movement has been argued for by e.g. Kennedy (1997), Wilder (1997), Fox (1999), and Pesetsky (2000). QR,
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for example, which is taken to be involved in the construal of ACD cases of VP-ellipsis, seems to bleed principle C effects (Fox 1999: 185).

(7) You introduced him, to everyone Johni wanted you to.

This, of course, directly contradicts the above mentioned principles. The case for \textit{Move-F} in connection with the syntax-semantics interface remains somewhat under-explored. An exception to that is Ruys (1997) who analyzes its relation to QR, arguing that quantification over choice function variables goes some way toward eliminating the need for moving restrictive material along with the features of asymmetric quantifiers. Another exception is Lasnik (this volume) who suggests that overt \textit{Move-F} may be instrumental in an account for certain ellipsis facts.

On the technical side, the typology of features and the status of features calls for a number of clarifications. As soon as isolated features or feature sets are introduced into the group of syntactic objects (Chomsky 1995: 262), a question arises as to whether they are accessible only to Move or to both Move and the structure building operation Merge. Chomsky (1995) and others assume that there is a universal set of features, and each language draws from that pool. The types of features that are present in the syntactic terminals are those that are relevant for semantic interpretation at LF e.g. Tense. Languages will differ as to whether they will realize the feature at all, and whether they will realize it by means of an auxiliary, an affix, a particle and so on. Other features such as case are merely present to trigger displacement (see Alexiadou and Anagnostopoulou’s contribution for some discussion on Case and Agreement relations). A number of further questions arise in connection with the operation \textit{Move}. In terms of phrase structure, \textit{Move-F} has been treated on a par with \textit{Move-X0}, at least as far as its landing site (but not the kinds of intervening elements) is concerned. This is indicated in the following structure (Chomsky 1995: 360).

(8) $\left[\right]_{\text{FF(Obj)}} \left[\right]_{\text{Vb T}}$

Here the formal features of a direct object, FF(Obj), are adjoined directly to $T^0$. Under the Chomskyan construal of \textit{Move-F}, this could potentially lead to an atomization (and multiplication) of operations. Earlier, successive-cyclic $X^0$–movement could pied-pipe all of the functional features associated with a lexical head and thus make the whole collection available for checking in a higher functional projection. Assuming \textit{Move-F}, however, one could assume that once \textit{Move-F} has applied to one feature then another feature
will not be affected but be stranded in the position of $Y_0$. This problem does not arise in Chomsky (1995), as he assumes that features can only move in bundles, and never independently. A further way of dealing with this question would be to generalize the notion of modified lexical item (MLI) (cf. Chomsky 2000), such that moved features integrate into the feature structure of the target. Alternatively, one could adopt a radical late insertion theory in the spirit of Jackendoff (1997). There (narrow) syntax is all and only about formal features. Phonological and semantic features are inserted at the respective interfaces. This would allow an identification of sets of formal features with $X_0$ categories. Consequently, Move-$X_0$ would equal Move-$F$. This second perspective is attractive only to the extent that Move-$X_0$ continues to be part of syntactic theory. In fact, there have been attempts to abolish this operation. One way of doing so is to attribute its effects to the PF-component (cf. Chomsky 1999). Another technique takes $X_0$-movement to be re-analyzed in terms of XP remnant movement, an issue to which we return in more detail below.

In view of the empirical, technical and conceptual difficulties with feature movement mentioned above, an altogether different alternative which is recently being explored by Chomsky is to replace feature movement by a different operation. Viewing functional heads as “attractors” which “probe” their c-command domain for compatible features opens the possibility to eliminate feature movement entirely and to dissociate checking from movement. In such a conception, if a matching item is found, checking can take place “long-distance.” This first subroutine of Move-$\alpha$ is called Agree (Chomsky 1999, 2000). Specifically, Agree establishes a long distance checking relation (agreement, Case-checking) between a lexical item and some feature F in some restricted search space (its domain). In addition, there may be “displayable” effects of Agree (Frampton and Gutmann 1999). Minimally, nothing other than feature elimination occurs. Locality conditions yield an intervention effect if probe $\alpha$ matches $\beta$ which is closer to $\alpha$ than matching $\Gamma$, barring Agree($\alpha, \Gamma$). Of course, independent evidence distinguishing Move-$F$ (or Move-$F_{\text{min}}$) from Agree may be hard to come by.

Feature movement (or, for that matter, Agree) takes syntactic operations to not manipulate exclusively what is traditionally known as “syntactic constituents” but rather features, elements which by their very nature are invisible to the eye. On the other extreme, there is a recent family of analyses which take syntax to manipulate very large constituents, so large that the operations yield outputs which are once again hard to detect. The latter analyses make use
of extensive remnant movement. This approach generalizes an earlier treatment of German VP-fronting by den Besten and Webelhuth (1990). Remnant movement has the following general format:

\[(9) \quad [ZP \ldots Z \ldots t_i \ldots], X, t_j\]

First a constituent or head \(X\) is extracted from the constituent \(ZP\). Subsequently, the entire \(ZP\) including the trace of \(X\) is moved across \(X\). A definition of remnant movement could look as follows:\(^{16}\)

\[(10) \quad \text{A constituent } \alpha \text{ is a remnant iff }
\quad \text{there are constituents } \beta \text{ and } \gamma, \beta \text{ a trace and } \gamma \text{ the antecedent of } \beta, \text{ and such that } \alpha \text{ includes } \beta, \text{ and } \alpha \text{ excludes } \gamma.\]

Consider the analysis of VP-topicalization in German and Dutch, involving scrambling of one or more arguments out of VP and subsequent preposing of the remnant VP. Den Besten and Webelhuth (op. cit.) suggest that what looks like \(X^0\)-fronting of a non-finite verb is actually VP-fronting preceded by direct object scrambling. The reasoning presupposes that only XPs move into the highest specifier of German clauses. The relevant structure is given in (11).

\[(11) \quad \begin{align*}
\text{a. } & \text{Gelesen hat Hans das Buch. } \\
\text{b. } & \quad [CP, \text{hat}, [IP, \text{Hans}, [VP, \text{das Buch gelesen } t_i ]]]. \\
\text{c. } & \quad [CP, \text{hat}, [IP, \text{Hans}, [VP, t_i, \text{gelesen } t_i ]]]. \\
\text{d. } & \quad [VP, t_i, \text{gelesen } t_i, \text{hat}, [IP, \text{Hans}, [VP, \text{das Buch } t_i ]]].
\end{align*}\]

Kayne’s antisymmetry framework has given rise to analyses of phenomena such as extraposition, right dislocation and heavy NP-shift in terms of remnant movement. A consequence of antisymmetry is that constituents cannot occur in a right-peripheral position as a result of rightward movement or right-adjunction. Complements aside, a constituent can only end up in right-peripheral position if all material c-commanded by it moves across it to the left. One way of obtaining this result is remnant movement, as depicted in (9).

The theoretical possibility of remnant movement makes it necessary to reconsider the syntactic status of all right-peripheral constituents, including complements. Kayne (2000), for example, argues that in the wide scope interpretation of the complement \(\text{no one}\) in \(I\ will\ force\ you\ to\ marry\ no\ one, [\text{no one}]\) has moved overtly to a position preceding \(\text{force}\). After that, the surface order is derived by movement of the remnant introduced by \(\text{force}\) as depicted in (12) (Kayne 2000: 232):
Thus, remnant movement not only makes it possible to dispense with rightward movement and right-adjunction, but also with covert movement. Note that recent minimalist considerations on the status of feature movement (see above) also lead to the same result, i.e. abandoning covert movement.

A system that makes use of extensive remnant movement also does away with head movement, although the line of approach taken radically differs from the one put forth in Chomsky (1999). Let us briefly summarize such an attempt. Koopman and Szabolcsi (2000) account for the different word order and constituency of verbal complexes in Hungarian, Dutch and German in terms of a derivational theory which relies on overt (remnant) XP movement only. Since all orders are derived by remnant movement, large structures are necessary, so that the relevant XP remnants can be created. The authors exploit these structures, and argue that they allow for a substantial simplification of the computational system. Movement is XP movement only, it is feature driven, and of overt phonological material only. Movement is not subject to economy conditions such as the Minimal Link: the computational system is fully automatic. Such a system relies on the use of complexity filters formulated on the representations that are generated; they hold for designated Spec positions, and express how much structure is allowed to dominate overt material. Complexity filters seem a natural way to control the size of allowable pied-piping. This approach is further developed in Koopman’s contribution to this volume.

If the grammar makes only use of remnant movement, the next task is to develop a restrictive theory of remnant movement and to find supporting evidence. The following issues arise. First, for every movement proposed the trigger and the landing site must be established. A recurrent idea is that the trigger of remnant VP or TP movement can be a Topic or Focus feature in a left-peripheral functional head (e.g. Zubizarreta (1998), Kayne and Pollock (1998), among others). Another idea is that certain cases of remnant movement are triggered by the need to restore canonical word order (Müller, this volume, Noonan, this volume).

Secondly, diagnostics are needed to distinguish head movement (if it exists; see above) from movement of a remnant constituent consisting of the head an a number of traces. Ban’ski (this volume) proposes a prosodic diagnostic. Another diagnostic that comes to mind is the distribution of adverbs.
If a remnant VP is fronted we expect VP-internal adverbs to be carried along, while verbal head movement should entail stranding of VP-internal adverbs.

Thirdly, diagnostics must be found to establish whether a constituent is in its base position or in a derived position, since this cannot be deduced from its surface linear position. For example, Longobardi in recent work argues on the basis of the distribution of the different interpretations of subjects that Italian has two types of postverbal subjects, VP-internal subjects and subjects that occur postverbally as a result of subject movement to SpecIP followed by remnant movement of the verbal predicate across the subject. Other possible diagnostics are scope and classical tests for A-bar movement.

Fourthly, it is necessary to find diagnostics to decide whether certain orders are derived by a combination of independent movement operations or by remnant movement. For example, the VOS order in Portuguese can be derived by object shift and verb movement or by movement of the subject and subsequent movement of a remnant containing V and O. See Costa (this volume) for diagnostics to distinguish between these derivations.

Finally, there are questions concerning the size of remnants, i.e. does any XP qualify as a potential moving remnant? Den Besten in recent work observes that a remnant VP can move across the antecedent of the trace contained in the remnant VP in Dutch, while a remnant PP cannot. Still there are issues concerning the circumstances under which extraction from moved remnants is possible.

The above discussion summarizes some of the main issues raised in recent models of movement which capitalize either on generalized feature movement or on generalized remnant movement. Both approaches attempt to develop a restrictive theory of movement aiming at a simplification of the operations of the computational system. At the same time both approaches face important difficulties on both the conceptual and the empirical side, some of which have been highlighted in this introduction. Interestingly, despite the fact that they are so different technically, generalized feature movement and generalized remnant movement both push the theory of movement to the same direction in two important respects: (a) Elimination of head movement. (b) Elimination of covert movement. This is why we chose to juxtapose them in this book.

2. The chapters

Alexiadou and Anagnostopoulou discuss the role of Agreement in the computational system on the basis of Greek Raising. Their point of departure is
Chomsky’s claims that (i) structural Case (nominative/accusative) is associated to phi-features in the sense that complete subject-verb and object-verb agreement checking results in structural Case checking and (ii) successive cyclic movement depends on incomplete feature checking on T (EPP but not Case). The authors provide evidence for the presence of Raising in Greek. They further show that in Greek agreement does not correlate with Case because nominative Case is not assigned in Raising subjunctives which nevertheless show full agreement. In Portuguese and English, however, full agreement does correlate with Case and for this reason nominative Case is assigned in inflected infinitives and Raising is impossible. This flexibility of Agreement-Case relations across languages leads the authors to the proposal that Agreement is a PF reflex of formal feature checking either Case or EPP. There are two features associated with T: an EPP feature (D) and a Case feature (N). Both are formal features of the same type, i.e. [−interpretable] nominal features on functional heads and both are responsible for the movement operations performed by the computational system. Agreement spells-out at the PF branch of the grammar these formal feature checking relations. Cross-linguistically then there are at least two types of Agreement-Case relations: (i) Agreement is a reflex of N/Case-checking. This is the case in English and Portuguese. (ii) Agreement is the reflex of EPP checking. This is found in Greek and potentially in other Balkan languages which lack infinitives.

Bański’s contribution addresses the question of how to distinguish empirically between remnant movement of a phrase from which all non-head material has been extracted on the one hand, and movement of the head of that phrase alone on the other. Bański shows on the basis of present tense predicative adjectival constructions in Polish that prosodic properties of auxiliary clitics make it possible to distinguish between head-movement and phrasal-movement, and thanks to that it is possible to determine that in Polish, whenever the head of an adjectival phrase ends up in the clause-initial position, it is actually the entire AP projection that fronts, with all its non-head material having been previously extracted. Furthermore, the chapter highlights the importance of prosodic phenomena for diagnosing the output of syntactic operations.

Barbiers investigates the possibility to strand remnants of phrasal movement in intermediate landing sites of successive cyclic movement. Presenting new data from Dutch, he shows that remnant stranding is possible in the matrix vP but not in the highest Spec of an embedded complement clause. He
argues that the latter stranding is impossible because the highest Spec of an embedded complement clause can never serve as an intermediate landing site in Dutch. Propositional complement clauses in this language are incomplete, hence not phases, and therefore they cannot attract any constituent to their edge. Factive complements are strong islands, so the highest Spec of such a complement can only serve as a final, not as an intermediate landing site. Matrix vP dominating a propositional clause is a phase and when v has a focus feature it can attract a constituent from the embedded clause. The fact that remnant stranding in matrix vP is possible is claimed to be an instance of the broader generalization that extraction from constituents is only possible when these constituents are inside vP.

Costa provides eight arguments against a remnant movement analysis of the VOS order in European Portuguese. According to the remnant movement analysis (e.g. Ambar and Pollock 1998), the VOS order is derived in two steps. First the subject moves out of VP, secondly the remnant VP, containing the verb, the object and the trace or copy of the subject, moves as a whole to the Spec of a functional projection higher than the landing site of the subject. Costa argues that the remnant movement analysis faces serious problems in view of restrictions on VP-preposing in other constructions, the VP-internal distribution of adverbs, floating quantifiers, pronominal doubling and question tags, the discourse function of the subject, scope and c-command, clitics, and properties of the object. Costa shows that no such problems arise in his own analysis of VOS, according to which VOS order is the result of V to I movement and object scrambling (adjunction to VP).

Fanselow criticizes the remnant movement analysis of incomplete category fronting as applied to VP, e.g. geküsst hat sie Peter nicht ‘kissed has she Peter not’. The primary motivation for the remnant movement analysis of such structures is crucially linked to two background assumptions concerning phrase structure and thematic theory. Fanselow compares the remnant movement analysis to its predicate raising alternative and argues that the latter is superior. The results reported in this chapter should not be interpreted, however, as evidence against remnant movement as such, and not as evidence against the application of remnant movement in German in other contexts. Rather, the crucial point is that the string geküsst hat sie Peter nicht does not have a remnant movement analysis — because there is no movement operation that could evacuate the VP before topicalization.

The remnant movement analysis of such strings is also criticized in Hinterhölzl’s chapter. Hinterhölzl deals with two questions: whether specific
cases of incomplete category dislocation be better explained in terms of conditions on movement or in terms of conditions on deletion, and whether the grammar allows for both remnant movement and partial deletion to occur, since both operations yield similar results. He shows that there are cases of incomplete category dislocation, namely PPs-out-of-NPs and Discontinuous NPs, that cannot readily be explained in terms of remnant movement and call for an analysis in terms of partial deletion. On the other hand, there are also cases of incomplete category dislocation, namely the cases of conflicting structural requirements that cannot readily be explained in terms of deletion and call for an analysis in terms of remnant movement. Thus both operations can coexist in the grammar. The two operations differ in the conditions of their application. Partial deletion occurs when the checking position for the feature of the constituent that may pied-pipe the whole phrase (typically the head and agreeing positions) is closer. Remnant movement occurs when the checking position for the feature of the constituent that may not pied-pipe the whole phrase (typically the complement) is closer.

Koopman builds on and extends aspects of the framework introduced in Koopman and Szabolcsi (2000), which makes use of a derivational theory which relies on overt (remnant) XP movement only. In particular Koopman establishes the need for complexity filters and discusses the role they play in the grammar. These filters act on the representations that the derivations generate, and are sensitive to overt material only. They impose restrictions on the 'size' or 'internal complexity' of certain constituents in specific locations (designated Spec positions) at the end of the derivation. The patterns that filters exclude are anomalous from a broader Dutch internal point of view, from a crosslinguistic point of view and from a theoretical point of view. If correct, complexity filters must be part of UG. This bound on 'complexity' is expressed and integrated with the basic syntactic derivations and representations. As a consequence of the derivations, the internal representations of the different VPs vary in very precise ways. They differ in internal complexity, where complexity is measured by counting the number of nodes dominating the most deeply embedded overt element. Their internal complexity further varies as a function of the length of derivations.

Lasnik constructs a non-trivial way of distinguishing overt feature movement from agreement at a distance, showing the former to be superior to the latter, at least in one empirical domain. The argument is based on a suggestion by Ochi (1999) that a constituent from which overt feature movement has taken place is PF-deficient, leading to PF-crash unless deleted. Thus, overt
feature movement either pied-pipes an entire category or must be “compensated” by PF-ellipsis. The latter strategy, Lasnik suggests, is what we find in Pseudogapping and Sluicing. An additional argument for preferring (covert) feature movement to agreement at a distance comes from the ill-formedness of remnant Wh-movement across an expletive in cases like *How likely to be a riot is there. While Agree would have incorrectly established the expletive-associate relation before Wh-movement, covert feature movement from a riot to there can correctly be ruled out, given the lack of c-command. Finally, Lasnik explores consequences of the theory for the EPP.

Müller distinguishes between two types of remnant movement on principled grounds. Thus, “primary remnant movement,” i.e. remnant movement of the den Besten and Webelhuth (1990) type, is feature driven. Kayne (1998)-style “secondary remnant movement” is argued to be “repair driven,” i.e. it answers a need for “shape conservation” in the sense of Williams (1999), where word order is the crucial factor determining shape. The distinction is empirically motivated on the basis of five criteria, involving independent availability of movement operations, secondary object fronting, extraction, movement types, and successive cyclicity. The account is worked out in an OT-syntax employing local optimization.

Nakamura offers arguments for the existence of feature movement based on null operator constructions (NO) (see Takahashi 1997). At the same time, he shows that Takahashi is incorrect in adopting Chomsky’s (1995) economy condition on Attract as the reason for F movement of NOs. Under Nakamura’s analysis, F movement is a direct consequence of the morphological nature of NOs: the operator to be attracted is nothing but a bundle of features. Moreover, Nakamura demonstrates that the theory of Attract-F can fruitfully be applied to account for the various traits of NO structures found in different languages. Nakamura shows that the distinction between category movement and F movement is not motivated by global economy, as argued by Collins (1997). As for the parametric variation in NO movement, it would not have to be stipulated at all if the CED reduces to the morphological properties of functional categories and the blocking effects derive from the feature specifications of T-related elements.

Noonan proposes a new analysis of agreeing complementizers in Irish in terms of CP-pied piping and remnant IP movement. Ever since McCloskey (1979), the fact that CPs containing a WH-trace are introduced by the complementizer al instead of the normal embedding complementizer go/gur has been taken to constitute evidence for successive cyclic movement. Noonan
argues that al is not a complementizer but an agreement morpheme that signals argument shift of the CP from which a WH-phrase is extracted. One of the advantages of this approach is that it becomes possible to generalize over “complementizer al,” and a homophonous preverbal particle al that occurs in infinitival clauses in which an object DP precedes the verb. In Noonan’s analysis of WH-movement from embedded clauses, a WH-constituent is first fronted within the CP containing it. Then, the entire embedded CP is fronted to a position higher than the matrix IP. After that, the remnant IP including the trace of the fronted CP is preposed, restoring the canonical VSO order. Finally, the WH-constituent moves out of the embedded clause to sentence-initial position. Noonan argues that this analysis can be extended to other languages, and in particular to partial WH-movement constructions.

Finally, Sichel investigates the various movement types (XP vs. X) that are effective within the Hebrew DP and examines the properties of the different movement operations involved. First, she argues that phrasal movement within the DP is in fact more pervasive than the surface position of Do-related morphemes would lead one to expect. In particular, she proposes that XP raising to spec DP derives some noun initial orders in Hebrew DPs. Second, she shows that N-initial orders in Hebrew are derived by various types of movement. In particular, construct state nominals are derived by head movement (as previously argued for in Ritter (1991), while attributive adjectival constructions are derived by pied-piping an NP/DP constituent across an adjectival head, and free state genitive constructions are derived by raising a remnant NP/DP from which the genitive argument has been extracted.

Notes

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1. The volume contains only a selection of the papers that were presented at the workshop. Alexiadou and Anagnostopoulou’s contribution was not presented at that event.

2. The title of the unpublished 1967 MIT-dissertation is “Constraints on variables in syntax.” This was published as Ross (1986).

3. An even more general view is advocated under the name of Affect-α by Lasnik and Saito (1992: vii). ‘Do anything (move, delete, insert) to anything’.
4. The relation between moved "antecedents" and traces was formalized in terms of 'chains', which are subject to binding conditions (cf. Chomsky 1981).

5. A-bar-movement was further split into types like Scrambling, Wh, Topicalization (cf. Müller 1995). This strategy has its roots in the Structure Preservation Hypothesis (cf. Emonds 1972). This principle imposes uniformity conditions on base positions and landing sites, ruling out 'improper movement'.

6. For discussion, see Chomsky (1995: 265).

7. Strictly speaking, movement of phonological features, i.e. Move-Fp would be sufficient for yielding PF-detectable effects. In frameworks that dispense with the distinction between overt and covert (movement) operations, which results in a "single output syntax," the following discussion would have to be properly rephrased. See for Bobaljik (1995), Groat&O'Neil (1995), Roberts (1997), Stabler (1997), and Uriagereka (1999).


10. Pesetsky (2000) could also be said to be an exception since he argues that feature movement is sensitive to different locality effects ('Beck effects') than overt or covert XP movement. However, Pesetsky does not attempt to distinguish between feature movement and agreement at the distance (AGREE) and for this reason, he is not mentioned in the main text in connection to the issue discussed.

11. For a further case of overt Move-F, see Takahashi (2000).

12. This would be another potential violation of "chain uniformity" postulated in Chomsky (1995:253), given that FF(Obi) counts as a maximal projection at the base position while in the landing site its status is undefined.

13. However, see Chomsky (2000: 147, n. 72) for some thoughts on the project of treating features as full-fledged syntactic objects, since this would require a large-scale revision of notions applying to constituents.

14. This revises the original idea in Chomsky (1995) that checking should be confined to local relations like head-specifier. Arguments built on this view, which took government to be too liberal a licensing relation, have to be reconsidered (cf. Chomsky 1995, 1999, 2000).

15. See also the careful but somewhat inconclusive discussion in Pesetsky (2000). There another variant of "small sized movements" is contemplated, namely, Move-Morpheme.

16. If feature movement is part of the theory, the notion of constituent has to be defined in a way that features and their traces are included. It is an open question whether MLIs, i.e. elements containing deleted features due to Agree, should also be considered remnants. If so, then all movement is remnant movement.
References


Chapter 2

Raising without infinitives and the role of agreement*

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1. Introduction

The goal of this chapter is twofold. First, we present evidence that Greek has Raising out of subjunctive complements (see also Anagnostopoulou 1999). Second, we discuss the implications of Greek Raising for the theory of Case and Agreement, as outlined in Chomsky (1998).

2. Raising, incomplete checking and agreement

Chomsky (1998), following George and Kornfilt (1981), proposes that structural Case (nominative/accusative) is associated to phi-features in the sense that complete subject-verb and object-verb agreement checking results in structural Case checking. Chomsky further proposes that successive cyclic movement depends on incomplete feature checking on v, T, C. Incomplete feature checking involves checking and erasure of a feature on the target, but not of features of the moved constituent. In the domain of T, successive cyclic movement depends on defective T, i.e. T that cannot check Case. In (1) Mickey moves through intermediate SpecTPs checking their EPP feature; Steve in (2) can't A-move higher once the Case of the NP is checked on a T head (freezing effect).

(1) Mickey is likely [TP t2 to be asked [TP t1 to t join Juventus]].

(2) *Steve seems [that t is leaving]

If Case and Agreement are two sides of the same coin, it is predicted that whenever Case on the lower clause has not been checked, agreement will be
impossible. This prediction is trivially borne out in English, where Raising takes place only out of infinitival clauses which show no agreement with the subject.

Portuguese presents a more interesting case for Chomsky. As known, Portuguese has inflected infinitives (cf. Raposo 1987). And indeed Raising out of inflected infinitives is impossible, as expected (see (3) below, data from Cristina Schmitt personal communication). This correlates with the fact that inflected infinitives in Portuguese assign nominative Case (see Raposo 1987).

(3) *As criancas parecem falarem portugues.

the children seem-3pl to speak-3pl Portuguese

‘The children seem to speak Portuguese.’

In this chapter we argue that the prediction is not borne out in Greek. Based on Greek Raising out of subjunctive clausal complements, where nominative Case isn’t checked, yet full agreement is present, we propose that Case is not necessarily linked to agreement. We further propose that agreement is a PF reflex of either EPP or Case formal feature checking relations. In other words, agreement belongs to the morphological component (cf. Marantz 1991).

3. Greek subjunctive complements and Control

Greek is a pro-drop language, showing all the properties that characterize such languages (cf. Rizzi 1982; Alexiadou and Anagnostopoulou 1998). All Greek verbs inflect for person and number, tense, aspect and voice.1

Greek lacks complements whose verbs can be characterized as being [−Agr]. In Greek, sentences that correspond to infinitivals in English are introduced by the particle *na (cf. (4)). *Na has been analyzed as a subjunctive mood marker (cf. Philippaki-Warburton and Veloudis 1984; Philippaki-Warburton 1990; Rivero 1994) or a subjunctive complementizer (Tsoulas 1994; Aggouraki 1991). For the purposes of this chapter either analysis will do. As shown in (4), the embedded verb, similarly to the matrix verb, shows agreement in number and person with the matrix subject.

(4) O Petros/ego kser-i/-o na koliba-i/-o.

Peter-nom know-1s subj swim-3sg/-1sg

‘Peter knows how to swim/I know how to swim.’

Greek subjunctives differ from Romance subjunctives in that they do not show subject-obviation (cf. Terzi 1992; Varlokosta 1994). While embedded and
matrix subjects must be obligatorily disjoint in reference in Romance subjunctives (5), this is not the case in Greek (6):

(5) Juan, quiere que EC_j venga. (Spanish)
John wants that comes-subj
‘John, wants that he_j comes.’

(6) O Janis, theli na EC_3g erthi.
John-nom wants subj come-3sg
‘John wants that he/ she comes,’

In this respect Greek subjunctives behave like infinitives.

In the recent literature on the Greek subjunctive, it is generally assumed that the constructions in (4) involve Control (cf. Iatridou 1993; Terzi 1992; Varlokosta 1994; Tsoulas 1994; but see Philippaki and Catsimali 1999). A case of Control is given in (7), where coreference is obligatory (7a) and no NP is possible in the embedded clause (7b):

(7) a. *O Petros kseri na kolimbao.
Peter-nom knows subj swim-1sg
b. *O Petros kseri na kolimbai i Maria.
Peter-nom knows subj swim-3sg Mary-nom

Na clauses do not always involve Control. This is shown in (8), where there is no obligatory co-reference between the embedded and the matrix subject (8a) and lexical NPs can be licensed (8b):

(8) a. O Petros perimeni na erthun.
Peter-nom expects subj come-3pl
‘Peter expects that they come.’
b. O Petros elpizi na figi i Maria.
Peter-nom hopes subj go-3sg Mary-nom
‘Peter hopes that Mary goes’

Varlokosta (1994) argues that Greek has two types of Control predicates: optional Control verbs e.g. volitional predicates and obligatory Control verbs e.g. psych verbs such as ksero ‘know how’, herome ‘be happy’, aspectual verbs, such as arhizo ‘start/begin’, sinehizo ‘continue, and verbs like matheno ‘learn’, dokimazo ‘try’. Note that many predicates that are optional control in Greek correspond to predicates that are obligatory control in English (see Joseph 1992; Terzi 1992; Varlokosta 1994; Martin 1996):
(9) a. Owen tried to score a goal.
   b. *Owen tried Shearer to score a goal.

(10) Prospatho na erthi o Janis.
    try-1sg subj come-3sg John-nom
    ‘I try for John to come.’

4. Raising in Greek

In this section we argue that Greek has Raising out of *na*-subjunctive complements. Two environments must be distinguished: (i) *Na*-subjunctive complements of the aspectual verbs arxizo (start) and stamatao (stop) and (ii) *Na*-subjunctive complements of the verb fenete (seem). We are not going to discuss environment (ii) which presents a number of complications (see Anagnostopoulou to appear for discussion). We present arguments on the basis of environment (i) that Greek has Raising. As noted in the previous section, these predicates have been taken to be obligatory Control predicates. However, we reanalyze them as ambiguous between Control and Raising (see Perlmutter 1970 for English aspectual predicates).

With aspectual verbs, the subject agrees obligatorily with the matrix and the embedded verb in person and number:

(11) Ta pedhia arxisan na trexoun
    the children-nom started-3pl subj run-3pl
    ‘The children started to run.’

(12) *Ta pedhia arxise na trexoun
    the children-nom started-3sg subj run-3pl

The agreement patterns in (11) and (12) can be explained in terms of Obligatory Control or Raising. Despite the apparent identical shape of examples (4) and (11–12), we show below that the two construction types show a consistently different behaviour with respect to a number of tests diagnosing Raising, namely binding and idiom formation.

4.1 Nominative anaphors

Greek has nominative anaphors that are licensed mainly with experiencer object predicates and are bound by the object experiencer after they undergo
reconstruction to a position below the object experiencer, i.e. their base position (cf. Anagnostopoulou and Everaert 1999 for discussion):

(13) O eaftos tu tu aresi
    the self his him likes
    ‘Himself appeals to him.’

(14) *O eaftos tu ton antipathi
    the self his him dislikes
    ‘Himself dislikes him.’

Nominative anaphors are possible in the subject position of aspectual verbs when the embedded verb is an experiencer object verb:

(15) O eaftos tu arxizi na tu aresi
    the self his-nom start-3SG subj cl-gen appeal-3SG
    He starts liking/accepting himself.’

(16) *O eaftos tu arxizi na ton antipathi
    the self his-nom start-3SG subj cl-acc dislike-3SG
    ‘Himself starts disliking him.’

The grammaticality of (15) shows that the anaphor reconstructs in a position where it can be bound by the object of the embedded clause, i.e. its base position. This argues for Raising (Reconstruction possible) and against Control (Reconstruction impossible).

Note that nominative anaphors are impossible with obligatory control verbs, as shown in (17):

(17) *O eaftos tu kseri na tu aresi
    the self his know-3SG subj cl-gen appeal-3SG

4.2 Weak crossover (WCO) and clitic doubling

A second related argument comes from an interaction between clitic doubling of the object and obviation of WCO effects. In Greek weak Crossover effects arise when the quantificational object is not in clitic-doubled (18b):

(18) a. Kathe mitera sinodese to pedhi tis sto sxolio.
    every mother accompanied the child hers at school
    ‘Every mother accompanied her child to school.’
b. *I mitera tu sinodepse to kathe pedhi sto sxolio.
   the mother his accompanied the every child at school
   'His mother accompanied every child to school.'

When the quantificational object undergoes clitic doubling the WCO effects are obviated (18c) (cf. Alexiadou and Anagnostopoulou 1997):

   c. I mitera tu to sinodepse to kathe pedhi sto sxolio.
      the mother his cl-acc accompanied the every child at school
      'His mother accompanied each child at school.'

Alexiadou and Anagnostopoulou (to appear) argue that the effect is due to reconstruction of the subject to a position below the object clitic, i.e. its base-position under the VP-internal subject hypothesis.

The same effect is found with aspectual verbs. WCO effects arise when the quantificational object of the embedded verb (19b) is not doubled and the matrix subject contains a pronominal variable:

   (19) a. Kathe mitera arxise na sinodevi to pedhi tis sto sxolio.
     every mother started subj accompany the child hers at school
     'Every mother started to accompany her child to school.'
   b. *I mitera tu arxise na sinodevi to kathe pedhi sto sxolio.
      the mother his started subj accompany the every child at school
      '?*His mother started to accompany every child to school.'

On the other hand, when the embedded object undergoes clitic doubling the WCO effects disappear (19c).

   c. I mitera tu arxise na to sinodevi to kathe pedhi sto
      the mother his started subj cl-acc accompany the every child at
      sxolio. school
      'His mother started to accompany each child to school.'

Again, this argues for Raising (Reconstruction possible) and against Control (Reconstruction impossible).

Obviation of WCO effects is impossible with obligatory control verbs:

   (20) *I mitera tu kseri na to sinodevi to kathe pedhi sto
        the mother his knows subj cl-acc accompany the every child at
        sxolio. at school
4.3 Idioms

Fixed nominatives as part of idiomatic expressions in Greek occur in post-verbal position.

(21) a. Mu bikan psili st’aftia.
   cl-1sg:gen entered-3pl fleas-nom in the ears
   ‘I became suspicious.’

b. *Psili mu bikan st’aftia.

Examples like (21a) can be embedded under arxizo and stamatao. The subject in the embedded clause agrees with the embedded and the matrix verb:

(22) Stamatisan/arxisan na mu benun psili
    stopped-3pl/started-3pl subj cl-1sg:gen enter-3pl fleas-nom:pl
    st’aftia.
    in the ears
    ‘I stopped being/started becoming suspicious.’

In (22) the nominative depends on the lower verb for its interpretation and yet it agrees with both verbs obligatorily, cf. the ungrammaticality of (23).

(23) *Stamatise/arxise na mu benun psili
    stopped-3sg/started-3sg subj cl-1sg:gen enter-3pl fleas-nom
    st’aftia.
    in the ears
    ‘I stopped being/started becoming suspicious.’

The fact that agreement between the subject and the matrix verb is obligatory, is an argument that in these constructions there is Raising of the nominative to the higher clause at some point in the derivation (see the discussion in note 1).

Again, idioms are impossible with obligatory control verbs:

(24) *Kserun na mu benun psili st’aftia
    know-3pl subj cl-1sg:gen enter-3pl fleas-nom in the ears

4.4 Raising and Obligatory Control

The above tests straightforwardly show that Greek aspectual verbs are Raising verbs. The idiom test in addition shows that Greek has covert Raising manifested as Long Distance Agreement.
Note that Agent-oriented adverbs are possible with aspectual verbs and they necessarily have matrix scope:

(25) a. Epitidhes arxisa na magirevo stis 5.00.
   on purpose started-1sg subj cook-1sg at 5.00
b. Epitidhes stamatisa na perno ta farmaka.
   on purpose stopped-1sg subj take-1sg the medicine

This can be taken to mean that these verbs have a thematic subject position and that they assign an Agent theta-role to the subject. In turn this argues for an Obligatory Control Analysis of these verbs. Hence we conclude that arxizo and stamatao can be both Raising or Control predicates.

5. Implications for the theory of Case and Agreement

Assuming a standard analysis of Raising for Greek, in the cases we have discussed there is no nominative Case available in the embedded clause. This means that in Greek agreement does not correlate with Case because nominative Case is not assigned in Raising subjunctives which nevertheless show full agreement. On the other hand, we saw that in Portuguese full agreement does correlate with Case and for this reason nominative Case is assigned in inflected infinitives and Raising is impossible.

This flexibility of Agreement-Case relations across languages leads us to propose that Agreement is a PF reflex of formal feature checking either Case or EPP. More specifically, following Chomsky (1995), Collins (1997), and Alexiadou and Anagnostopoulou (2001), we propose that there are two features associated with T: an EPP feature (D) and a Case feature (N). Both are formal features of the same type, i.e. [−interpretable] nominal features on functional heads and both are responsible for the movement operations performed by the computational system.

(26) T(D, N)

We propose that Agreement spells-out at the PF branch of the grammar these formal feature checking relations. Crosslinguistically then there are at least two types of Agreement-Case, Agreement-EPP relations (and see note 6 for an additional option): (i) Agreement is a reflex of N/Case-checking. This is the case in English and Portuguese. (ii) Agreement is the reflex of EPP checking. This is found in Greek and potentially in other Balkan
languages which lack infinitives (we are not discussing such languages here).

To illustrate this let us consider the derivation of the Greek examples in (11) in detail. As shown in (27), first movement to the embedded T, TP₁, occurs. This step is EPP-driven, and Agreement on the embedded verb is fully specified. This follows if Agreement in Greek is EPP-related.⁶

\[
(27) [TP₂ DP T(D,N) [TP₁ t₂ T(D) [vP t₁ ]]]
\]

What is the condition for the absence of Case? In the next section we argue that the condition for the absence of Case is the absence of semantic Tense, a property which does not appear to vary crosslinguistically (see Martin 1996 for English).

6. Case and tense

As first pointed out by Iatridou (1993), in Control subjunctives the embedded clause does not show morphological [Tense] specification:

\[
(28) *O Petros kseri na kolimbise
\]

On the basis of this, Iatridou (1993) proposed that lack of Tense results in lack of nominative Case. Varlokosta (1994) refines this suggestion and introduces a distinction between morphological and semantic Tense. Varlokosta argues that while obligatory and Optional Control take place in clauses which lack morphological Tense, obligatory Control is further conditioned by the lack of semantic Tense, i.e. absence of independent temporal reference in the embedded clause. Thus complements of optional Control verbs such as *thelo* ‘want’ lack morphological Tense (29a), but they show evidence for the presence of semantic Tense, since they permit temporal adverbs (29b). Such complements also show evidence for the presence of nominative Case as they license NP subjects (29c).

\[
(29) \begin{align*}
\text{a.} & \quad O \text{ Janis theli na efige i Maria.} \\
& \quad \text{John-nom wants subj left-3sg Mary-nom} \\
& \quad \text{‘Lit. John wants Mary to have left.’} \\
\text{b.} & \quad O \text{ Janis theli na figi avrio.} \\
& \quad \text{John-nom wants subj leave-3sg tomorrow} \\
& \quad \text{‘John wants to leave tomorrow.’}
\end{align*}
\]
c. O Janis theli na figi i Maria.
   John-nom wants subj leave-3sg Mary-nom
   'John wants Mary to leave.'

(29c) suggests that nominative Case assignment is contingent on the presence
of semantic Tense (contra Iatridou 1993).

On the other hand, complements of obligatory Control verbs lack mor-
phological Tense (30a), and they also lack semantic Tense (30b). The fact that
an embedded subject cannot be licensed in such cases (30c) further shows that
the absence of nominative Case depends on the absence of semantic Tense.

(30)

a. *O Janis kseri na kolibise.
   John-nom knows subj swim-3sg

b. *O Janis kseri na kolibisi avrio.
   John-nom knows subj swim-3sg tomorrow

c. *O Janis kseri na kolibisi i Maria.
   John-nom knows subj swim-3sg Mary-nom

This conclusion is further supported by Raising. With the complements of
aspectual verbs which display Raising and hence they present strong evidence
for the absence of Case, apart from the fact that there is no morphological
Tense (31a), there is no semantic Tense as it is not possible to modify the
embedded verb by a temporal adverb with independent reference (31b). The
same of course holds for the obligatory Control version of these predicates, as
expected under Varlokosta’s proposal (32).

(31)

a. *O eaftos tu arxizi na ton anisixise.
   the self his-nom begins-3sg subj cl-acc worry-3sg:Past
   'He started being worried about himself.'
   lit: 'Himself started worrying him.'

b. *O eaftos tu arxizi na ton anisixi avrio.
   the self his-nom begin-3sg subj cl-acc worry-3sg tomorrow

(32)

   on purpose started-1sg subj cooked-1sg

b. *Epitidhes arxisa stis 5.00 na magirevo stis 8.00.
   on purpose started-1sg at 5. subj cook-1sg at 8.00

The relation between Case and Semantic Tense across languages is systematic
in Raising constructions. For English Martin (1996) extensively argues that
Raising is contingent on the absence of semantic Tense (cf. 33):
(33) *Mickey seems to pass the ball right now.

In Portuguese inflected infinitives where nominative Case is assigned and raising is impossible (see Section 2), the embedded clause can be modified by a temporal adverb (data from Cristina Schmitt personal communication).

(34) O jornalista lamentou hoje na BBC terem os americanos bombardeado ontem a Iugoslavia.

Thus even though morphological Tense is not present, semantic Tense is and the availability of nominative Case depends on the latter. If it turns out that the correlation between Case and semantic Tense is universal then this needs to be explained. The most straightforward way to account for this correlation would be to propose that whenever semantic Tense is absent, there is no Tense node in the clause structure (see Martin 1996 for such a proposal). In turn this would mean that EPP driven movement is Agr related and not T related since it also takes place in Raising constructions. The view that EPP is linked to Agr and Case is linked to Tense has been proposed on independent grounds in Alexiadou and Anagnostopoulou (1998).7

Notes

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1. Greek has a relative freedom of word order, i.e. SVO, VSO and VOS orders are all possible. The same flexibility is found with the predicates that we will argue to be Raising predicates, i.e. the subject can occur in a preverbal position in the matrix clause or in a postverbal position in the lower clause. For ease of exposition we represent the subject in the preverbal position in most cases, but we come back to this.

2. The possibility that Greek has Raising has been suggested in Iatridou (1993) but there are no arguments presented. Anagnostopoulou (to appear) discusses a number of arguments for Raising. These arguments are included in this section.
3. These verbs in many languages (German, Dutch, Spanish, Italian, Japanese and so on) have been argued to be restructuring verbs. It is not clear whether this is the case in Greek given that the usual evidence for restructuring such as clitic climbing does not hold (Terzi 1992). It seems to us that Greek does not have restructuring predicates because of the fact that it does not have infinitives, a mood marker is present, there is agreement on the lower verb, properties that would be hard to accommodate if we were to adopt a monoclausal approach to restructuring either along the lines of Picallo (1990), Wurmbrandt (1998) and others.

4. Note, however, that agent-oriented adverbs are possible only when the lower verb is agentive:

   (i) #O Jiannis epitidhes arxise na stenoxoriete
      John-nom on purpose started-3sg subj get upset

More needs to be said about this fact. Possibly it is supports a restructuring analysis of these verbs (see the previous note). Zubizarreta (1982) argues that restructuring verbs are Raising verbs and that the agentive reading of the subject is the result of an adjunct theta-role assigned to the subject by the adverb. This would be an alternative way of accounting for these facts without resorting to a lexical ambiguity.

5. There is even a third possibility which we do not discuss here, namely that partial i.e. number agreement is associated with nominative Case, when a quirky subject checks the EPP. This is found in Icelandic (Taraldsen 1995).

6. Recall that in Greek it is always possible to have a postverbal subject triggering agreement on both verbs (see note 1 and Section 4.3).

   (i) Arxizun na trehun ta pedja.
      start-3pl subj run-3pl the children-nom

For these examples we assume exactly the same derivation except that the movement is ’covert’ (covert XP, covert feature or overt feature raising).

7. Note that Agr on this view is not one by one related to agreement on the finite verb. Agreement is a PF reflex of either EPP-checking or Case-checking, while Agr is uniformly the locus of the EPP.

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Chapter 3

Prosodic diagnostics for remnant AP movement in Polish*

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This chapter addresses the question of how to distinguish empirically between remnant movement of a phrase from which all non-head material has been extracted on the one hand, and movement of the head of that phrase alone on the other.

This is a case where, typically, it is the side effects of the operation in question that have to be taken into consideration. In the case analysed here, the side effects are of a prosodic nature. They will be reviewed in Section 2. Next, the kind of constructions discussed here will be located in a broader context of copular constructions in Polish, English and Serbian/Croatian (Section 3), with the purpose of deriving independent arguments for the picture drawn by the prosodic considerations.

More specifically, it will be shown on the basis of present tense predicative adjectival constructions in Polish that in the case at hand, prosodic properties of auxiliary clitics make it possible to distinguish between head-movement and phrase-movement, and thanks to that it is possible to determine that in Polish, whenever the head of an adjectival phrase ends up in the clause-initial position, it is actually the entire AP projection that fronts, with all its non-head material having been previously extracted.

It is hoped that apart from adding to the research on the grammar of Polish, the present chapter will also add to the debate on the structure of the PF side of the grammar (whose role has recently increased with the emergence of Distributed Morphology in the early 1990s and, in a different shape, with work stemming from the ideas of Pesetsky 1998), and highlight the usefulness of prosodic phenomena for diagnosing the output of syntactic operations.
1. The problem

We will focus on constructions involving predicate adjectives in Polish, like *zmięczeni* 'tired-virile,pl', *głębni* 'hungry-virile,pl', etc., exemplified under (1).

(1) **Jesteśmy bardzo zmięczeni tym wszystkim.**

BE=1PL very tired this all

'We’re very tired with this all.'

Example (1) is a typical predicative construction involving the copula *jest* 'be', which may in most cases be phonetically null, leaving only the person–number (PN) clitic -(e)šmy as a signal of the construction, as illustrated below.

(2) **Bardzośmy zmięczeni tym wszystkim.**

very=1PL tired this all

'We’re very tired with this all.'

We assume here that the *jestes´my* alternation is not a morphophonological alternation between a strong and a weak form, as it is occasionally (and without argumentation) suggested in the literature, but rather, following Bański (2000), we take this alternation to have a definite syntactic basis. We assume that *jestes´my* 'we are' is a complex form consisting of the copula *jest* and the PN clitic -(e)šmy to which the copula may raise, as illustrated in (3).

(3) __ šmy [VP jest [AP bardzo zmięczeni tym wszystkim ]] 

The PN is an enclitic and has to have a host to its left at PF. If the copula *jest* is phonetically null, this requirement is fulfilled if one or more of the elements of the predicative AP move to the front of the clause, as shown in (4). Otherwise the derivation crashes at PF:1

(4) a. [zmęczeni]šmy [bardzo t, tym wszystkim]AP

b. [bardzo]šmy [ t, zmęczeni tym wszystkim]AP

This is syntactic fronting rather than any sort of PF merger or prosodic inversion triggered in order to support the clitic — as shown below, it is possible for the copula to surface between the fronted constituent and the PN, in this way satisfying the clitic’s need of prosodic support.
Prosodic diagnostics for remnant AP movement in Polish


In what follows, we will concentrate on the fronting of the adjective, as illustrated in (6a). Two movement options are theoretically possible here: head-movement of the adjective (6b) or remnant movement of the entire AP (6c):

(6) a. Zmęczeniśmy tym wszystkim już bardzo.
    tired=1PL this all already very
    'We're already tired with this all.'
b. [X0 Zmęczeni [X0 śmy]] [tym wszystkim], już [AP bardzo tₙ tₖ].
c. [AP tₙ zmęczeni tₖ [X₀ śmy] [tym wszystkim], już [bardzo], tₖ.

We suggest that it is option (6c) — phrasal movement — that can only take place in this context, and that this is unambiguously shown by the way in which the lexical phonological rules of Polish (represented here by the rule of Stress Assignment) treat the resulting host+clitic complex (Section 2). In Section 3 we show that this conclusion finds support in the split-copula approach to the apparent strong/weak alternation in the present tense form of być 'be' in Polish.

2. Stress patterns in clitic constructions as diagnostics for the phrasal status of the host

Following Banśki (2000), we assume that auxiliary clitics in Polish are sensitive to whether they attach to heads or entire phrases (this sensitivity boils down to the difference in the resulting prosodic structure of such complexes, as will be shown in Section 4). Descriptively, there is variation in whether the plural clitic integrates with the Prosodic Word (Pwd) projected by the host or not, depending on whether the host is a head element. This is illustrated under (7), where the stressed vowel is in small capitals and and bold face.

(7) a. Czytałyśmy/czytałyśmy książkę.
    read-PRT=1PL book
    'We read a book.'
Example (7a) involves the so-called 'l-participle' of the verb *czytać* ‘read’, and example (7b) the subjunctive complementizer *żeby* ‘in order to’. Both examples show that if the plural clitic attaches to a syntactic head, two stress patterns, penultimate and antepenultimate, are possible. Whenever it attaches to a phrasal element, however, the antepenultimate pattern is the only option, as shown below.

(8) a. *Kogośmy/*kogośmy widzieli?
   **who-acc = 1pl** see-prt
   ‘Who did we see?’

b. *Jackaśmy/*Jackaśmy widzieli.
   **Jacek-acc = 1pl** see-prt
   ‘We saw Jacek.’

c. *Częstośmy/*częstośmy tam chodzili.
   **often = 1pl** there go-prt
   ‘We used to go there often.’

Examples in (8) involve a *wh*-element, a fronted object and an adverb — all of them having an uncontroversially phrasal status.

Note that it is crucial that clitics are sensitive to the phrasal status of the host (understood in prosodic terms) rather than its category, hence the dividing line is between phrases and heads rather than non-verbs and verbs.

The stress pattern of the combination of a predicative adjective and a plural clitic (as presented in 4a and 6a) can only be antepenultimate, which we treat as clear indication that phrasal movement of the entire AP must take place in such cases. This is shown under (9).

(9) *Zmęczoneśmy/*Zmęczoneśmy bardzo.
   **tired = 1pl** very
   ‘We’re very tired.’

To summarize, this section showed that as far as stress assignment (contingent on the prosodic structure of the host-clitic complex) is concerned, fronted predicative adjectives pattern together with phrases, as opposed to heads. This, in turn, strongly suggests that it is only option (6c) — remnant movement of the entire AP — that is used in (9).
The following section sketches the split-copula approach to the kind of predicative constructions discussed here and shows how the observation made on the basis of prosodic facts is confirmed by the syntax of such constructions.

3. Present tense predicative constructions with BE

The previous section looked at the prosodic symptoms of the fronting of the adjective zmęczeni 'tired'. This can be seen as a diagnostic for the underlying syntactic structure — and if such diagnostics are accepted, the story ends here: what fronts is the entire phrase, period. The present chapter is intended to bring this kind of diagnostics to the general attention.

However, in the case at hand, we are lucky to be able to regard the claim about the status of the fronted element also from the syntactic point of view. This section will back up the claim of Section 2 by demonstrating the reasons why remnant AP fronting in Polish in the relevant contexts appears to be the only possibility.

We concentrate here on some aspects of an approach to the copula być 'be' in Polish and its equivalent in Serbian/Croatian (S/C), in order to show the basic difference in how these two languages handle constructions with być/byti 'be', to which we uniformly refer as BE, following Kayne (1993). We show that an independently motivated approach to copular constructions in Polish corroborates the results reached on the basis of prosodic facts.

3.1 The split-copula approach

Contrary to what is commonly assumed, there is no strong/weak contrast in the present tense of the copula BE in Polish. Thus, the contrast between the two examples from English (10) and those from Polish (11), where (11a) is a neutral context and (11b) an emphatic one, is only apparently analogous.

(10) a. He’s hungry. b. He is hungry.
    we=1PL hungry 'We’re hungry.'
This is shown for example by the fact that while the contrast between the
English (10a) and (10b) obtains also in periphrastic tense constructions, as
shown in (12) below, nothing similar is possible in Polish, as shown in (13).

(12)  a.  He's devouring a piece of cake.
    b.  He is devouring a piece of cake.

    we=1pl already eat-prt
    'We've already eaten.'

Notice that Serbian/Croatian, which I am later going to use as a direct contrast
to Polish, patterns with English in this respect:

(14)  a.  Ja sam pametan. (cf. 10a).
    I BE-1SG clever
    'I am clever.'
    b.  Ja jesam pametan. (cf. 10b).

(15)  a.  Ja sam procitao knjigu. (cf. 12a).
    I BE-1SG read-prt book
    'I have read a book.'
    b.  Ja jesam procitao knjigu. (cf. 12b).

Whether the strong/weak contrast in English and S/C results from morpho-
phonological reduction of a single head (King 1996; Bošković 1997; Caink
1999), or from a structural difference (Tomić 1996; Čavar and Wilder 1996;
Wilder 1997), it obtains independently of whether BE is used as a copula or as
an auxiliary.

On the contrary, in Polish, the strong/weak contrast only occurs in copular
constructions, and this is one of the arguments for treating jest as occupying
the same structural position as l-participles in the periphrastic past tense.5
From this position, jest may raise to the position of the clitic, in the same
manner as l-participles, as shown in (16a,b) and (17a,b) below.

(16)  a.  Tyś [vp jest głupi ]  b.  Tyś [vp skończył pracę ].
    you=2sg BE stupid you=2sg finish-prt work
    'You’re stupid’ ‘You’ve finished work.’

Nothing like the contrast between (16a) and (17a) obtains in S/C, which — unlike Polish — does not have lexical copulas. On the basis of the contrast in how Polish and S/C handle constructions with BE, the following section looks at the nature of predicate preposing across the copula.

3.2 Locality in A(P) preposing

Bošković (2000) discusses the following data as showing that only head movement of the predicative adjective is possible in S/C, phrasal movement being banned for what he considers ‘ECP’ reasons:

   capable manager BE-3sg (he)
   ‘He’s a capable manager.’

The head of the predicate complement may raise to support the clitic (18b, 19a), in the same way as participle heads do (19b) — notice that this may be taken to confirm that the auxiliary BE occupies the same structural slot in both periphrastic tenses and copular constructions, unlike in Polish.\(^6\)

(19) a. Pametan je.
    clever BE-3sg
    ‘He is clever.’
   b. Zaspao je.
    fallen-asleep BE-3sg
    ‘He fell asleep.’

The fact that in Polish, the copula proper occupies a different structural position than that in S/C has direct bearing on the kind of movement that it licenses. Specifically, raising of the head of the complement of the copula is barred in Polish because it would be non-local: it would have to cross the copula, and it would fail for the same reason as e.g., raising across an l-participle fails. The ability of entire phrases to raise across the copula in Polish is shown in (20).

(20) a. [Bardzo głodni]ście?
    very hungry=2pl
    ‘Are you very hungry?’
   b. [Bardzo głupi]ście.
    very stupid=2pl
    ‘You’re very stupid.’

In (21) and (22) below, the relevant contexts for A(P) fronting in S/C and Polish are presented.
The ban on phrasal movement of a complement of a clitic has been widely studied by now under numerous headings (for recent approaches as well as criticism of older ones see e.g. Caink 1999; King 1996, 1997; Wilder 1997 and references therein). What is crucial for the argument presented here is the descriptive fact that such a ban exists and makes only head movement possible in such contexts.

In Polish, the situation is different: the preposed phrase is not a complement of the clitic: it is selected by the lexical (‘main verb’) copula, which is in complementary distribution with l-participles. This is illustrated below.

In Polish, head movement of the $A^0$ would have to cross the copula head and therefore it is barred as a non-local operation. The only possibility in this context is (sometimes remnant) phrasal movement of the entire predicate AP, even if it contains only the head $A$. This is the kind of considerations which lend independent evidence for what has been suggested above on the basis of prosodic facts. Full AP fronting over the copula is illustrated in (20) as well as (23) below, where the copula actually surfaces.8

(21) **Serbian/Croatian**: phrasal movement impossible, head movement applies

<table>
<thead>
<tr>
<th>Structure:</th>
<th>Aux</th>
<th>[Predicate AP</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>$^*AP\ldots Copula_{CL}$ t$_{AP}$</td>
<td>(phrasal movement)</td>
</tr>
<tr>
<td>b.</td>
<td>$A^0$+Copula$<em>{CL}$ [AP t$</em>{i}$]</td>
<td>(head movement)</td>
</tr>
</tbody>
</table>

(22) **Polish**: head movement impossible (non-local), phrasal movement occurs instead

<table>
<thead>
<tr>
<th>Structure:</th>
<th>Aux</th>
<th>[‘main verb’] [Predicate AP</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>$AP_1\ldots PN_{CL}$ (Copula) t$_{i}$</td>
<td>(phrasal movement)</td>
</tr>
<tr>
<td>b.</td>
<td>$^*A^0$+PN$<em>{CL}$ (Copula) [AP t$</em>{i}$]</td>
<td>(head movement)</td>
</tr>
</tbody>
</table>


very hungry BE=2pl very stupid BE=2pl

‘Are you very hungry?’ ‘You’re very stupid.’
Note that the phenomenon of licensing complement phrase preposing cannot be purely surface-phonological, because otherwise the phonetically absent copula in Polish would not count as a licensor of AP preposing, and examples such as (20) would have to be entirely parallel to that in (18a), which is not the case.

3.3 Exceptions

The analysis sketched above would not be complete if it ignored some apparent counterarguments to the prosodically-based diagnostics for phrasal movement, which are the subject of this section.

There are two exceptional ‘quasi-verbal’ or ‘modal’ predicates of adjectival origin in Polish, *winien* and *powinien*, both translatable as ‘should’, which allow for two stress patterns, unlike APs proper (cf. the difference between (7) and (9) above).

(24) Jutro (po)winiśmy/(po)winiśmy to zrobić
tomorrow should:1PL it do-INF
‘We should do it tomorrow.’

In fact, *winien* is still ambiguous in some contexts, between the adjectival (‘guilty’) and quasi-verbal use, as (25) below shows.

<table>
<thead>
<tr>
<th>Predicative</th>
<th>Quasi-verbal</th>
</tr>
</thead>
<tbody>
<tr>
<td>(25) a. Winiśmy</td>
<td>i. ‘we’re guilty’</td>
</tr>
<tr>
<td></td>
<td>ii. ‘we ought to ...’ (conservative)</td>
</tr>
<tr>
<td></td>
<td>b. Winiśmy</td>
</tr>
</tbody>
</table>

Example (25a) can be interpreted as both a predicative AP construction, where stress can only be antepenultimate (25ai), or one where *winni* occupies the structural slot reserved for the predicator (an *l*-participle, BE, or a tensed verb), and takes an infinitival complement. In the latter case, the construction is labelled as ‘formal’ or ‘conservative’, because of the antepenultimate stress.

Example (25b), with penultimate stress, can only be interpreted with *winni* being a quasi-verb, with a colloquial shade to it. The structural difference between the two cases is shown in (26) below, where brackets around the copula position indicate its phonetic (though not syntactic!) absence.

(26) a. PN [ (copula) [AP winni ]] ← base structure for (25ai).

b. PN [ winni [IP . . . ]] ← base structure for (25aii, 25b).

The other predicate can only occur as a quasi-verb, again with two stress patterns, as shown in (24) above.
Thus, on the basis of prosodic facts, it seems reasonable to claim that the quasi-verbal forms *winien* and *powinien* occupy the same structural position as *l*-participles or the copula *jest*, rather than being part of a complement of that position, as is the case of typical APs. This is further confirmed by the contrast between (27) and (28) below: in (27b), a typical predicative AP construction, the copula is free to surface phonetically while in (28b), the copula may not surface, because its structural position is occupied by the quasi-verb.

(27) a. Zmęczeniśmy.  
   b. Zmęczeni jesteśmy.
   
   `We’re tired.’

(28) a. Powinniśmy do zrobić.  
   b. *Powinni jesteśmy to zrobić.
   
   `We should do it.’

To sum up, constructions with (*po)winni are not counterexamples to the prosodic diagnostics suggested in Section 2. They are exceptional cases where the head of what used to be an AP complement of the lexical copula got restructured as a verb.

4. Reasons for variation in stress patterns

This final section will present a brief account for why exactly Polish PN markers should display a contrast in whether they attach to heads or phrases — recall that it is this contrast, up till now used only descriptively, that was crucial in employing prosody as a diagnostic for syntactic structure.

Bański (2000) proposes that the surface variation of stress patterns, as well as other kinds of interaction with lexical phonological processes, are a result of a progressing diachronic shift of morphological properties of PNs, and more precisely, a shift in their prosodic subcategorization frames (assuming the general approach of Inkelas 1990), from that shown in (29a) to that in (29b).

(29) a. [Pwd ___ ] (conservative clitics).
   b. [Pwd⁻¹ ___ ] (head-oriented clitics).

The Pwd⁻¹ is merely a shortcut way of specifying a sublexical prosodic constituent, used here as a cover symbol for two sublexical prosodic domains which are argued for in Bański (2000).
The diachronic shift referred to above takes place gradually, and its result is two competing synchronic analyses (assuming the approach of e.g. Kroch 1994): one in which PNs are ‘conservative’ and attach to Prosodic Words, and one in which they are ‘head-oriented’ and attach to sub-Pwd constituents.

Assuming Separationism (e.g. Aronoff 1994; Beard 1995; Halle and Marantz 1993), it is possible to postulate that PNs and their hosts begin to build their prosodic structure only at PF. More specifically, assuming Distributed Morphology (Halle and Marantz 1993), and cyclic bottom-up Vocabulary Insertion (as argued for by e.g., Bobaljik 1999), it is possible to distinguish the X⁰-PN context (as with a lower head raising to the head the PN is in) from the XP-PN context (where the host is an XP in the Spec of the head the PN is in).

Below, a case of X⁰-PN adjunction is reviewed. We assume that the difference between head oriented and conservative PNs is visible only at the PF interface.

Because Vocabulary Insertion, and consequently phonological rules, proceed cyclically bottom-up, head-oriented PNs only have the chance to fulfill their prosodic subcategorization properties if they are contained under the same X⁰max as their host. Then, at the stage when the host projects a Pwd⁻¹ prosodic constituent, the head-oriented PN attaches to it.

Conservative PNs, on the other hand, attach at the stage when the host has already projected a Prosodic Word (hence, it follows that their host can either be a syntactic head within the same X⁰max, or a Pwd-level element projected by/within the neighbouring phrase).

Because of the difference in the resulting prosodic structure of the host+PN complex, head-oriented PNs undergo lexical (Pwd-level) phonological rules, while conservative PNs do not. To rule out cases where a head-oriented PN attaches to an element that is not present under the same X⁰max (i.e., cases
of XP-(head-oriented)PN adjunction which would result in the unattested penultimate stress, cf. 8), we employ the crucial — and at the same time rather uncontroversial — assumption that in unmarked cases, the $X^{\text{Xmax}}$ dominating a lexical category must be surrounded by Pwd boundaries (cf. e.g., Nespor and Vogel 1986; Selkirk 1996; Truckenbrodt 1999). In this way, because the derivation proceeds bottom-up, the phrasal host will have projected a Pwd before the head-oriented PN has a chance to fulfill its subcategorizational properties (i.e., before the derivation moves up to encompass both the XP and the head in which the PN resides).9

5. Summary and conclusion

The first two sections of this chapter showed that there are reasons to claim that on the basis of prosodic considerations concerning the way in which PN clitics distinguish between phrasal and non-phrasal hosts, the fronting process exemplified in e.g., (6a) must target a phrase in which only the head remained after all non-head material had been extracted from it.

Sections that followed were devoted to a justification of this view: Section 3 presented arguments from the syntactic angle, and Section 4 was a brief overview of the prosodic machinery which underlies the argument made in Section 2.

In sum, we conclude with a statement which is not yet the kind of commonplace slogan that it should be, namely that the PF-side of the grammar has a lot to offer to syntacticians, by way of diagnosing the output of syntactic operations and discarding some options while confirming others.

Notes

* I would like to thank an anonymous reviewer as well as the audiences of the workshop on Remnant Movement, F-movement, and their implications for the T-model in Potsdam and the Generative Linguistics in Poland 2 conference in Warsaw, where this analysis has been presented, for their comments and questions, which led to improvements in the presentation of the ideas contained herein. Naturally, all standard disclaimers apply.

1. A reviewer suggests that the fronting may be caused by the phonological requirements of the clitic. Such an approach would require either that significant portions of syntactic material be relocated at PF, often in a non-local fashion, or that syntax should look ahead to the needs of phonology and perform syntactic operations in order to satisfy phonological
requirements of the elements involved. The need for one of these assumptions is exempli-
fied by (i) below, where an entire phrase is preposed (after *tym wszystkim* ‘this all, Instr.’
has been extracted from it).

(i) [bardzo zmęczeni]śmy już tym wszystkim
[very tired] = 1pl. already this all
‘We’re already very tired with this all’

Neither of these assumptions is consistent with the framework adopted here, essentially that
of Chomsky (1995) enriched by the claims of Distributed Morphology as recently summa-
rised in Harley and Noyer (1998). We assume that phonological requirements are irrelevant
to syntax and that PF ‘movement’, if at all necessary, is limited to terminal nodes in a
strictly local relation.

This is obviously not to say that a different approach within a different framework of
assumptions is impossible — we merely wish to point out that the analysis presented here
is based on a model distinct from that assumed by the reviewer’s suggestion. Any attempt
at a comparison between the two models would, unsurprisingly, go far beyond the scope of
this chapter.

2. With the exception of the copula, which always has penultimate stress. Because it
would take us too far from the subject of this chapter, we do not discuss this issue here but
see Bański (2000) for extensive discussion.

3. Recall the data in (7b), where the PN is attached to an X^0 which is not a verb. Because
PNs are clitics and not inflections, *żebyśmy* may not be analysed as an inflected comple-
mentizer.

4. Stress Assignment is not the only characteristic difference between the two contexts,
but it is the easiest to present briefly. See Franks and Bański (1999) for brief, and Bański
(2000) for detailed discussion of some other phonological diagnostics which distinguish
between XP-PN and X^0-PN contexts. These involve processes of Y er Vocalization, Nasal
Gliding, Raising, as well as PN ellipsis in coordination.

5. The fact that what is a defective verb in many languages is a lexical verb in Polish is no
surprise: the past and future copula as well as modal verbs in Polish are not defective in the
way in which e.g. their English counterparts are. See e.g. Borsley and Rivero (1994) for
some remarks on the status of Polish copulas.

6. For example (18b), we assume, following among others Franks (1998), an approach to
the structure of nominals in terms of Abney (1987), where attributive adjectives take NPs
as complements.

7. An account in terms of economy of derivation might also be viable here: it can be said
that in S/C, the possibility of head movement blocks the then uneconomical phrasal
movement. This would predict remnant movement of a phrase from which all non-head
material has been extracted to be impossible. It is important to notice that such an account
would also have to take into consideration cases where phrasal movement is blocked even
when head movement is impossible as well. This is the situation in English, where the kind
of examples in (i) is not attested.
(i) a. *[Going to school] \(_{VP}\) he’s \(_{tVP}\) b. *He [going] \(_{s}\) to school.

The descriptive approach employed here has the advantage of handling this case as well. While this in itself does not invalidate the economy-based proposal, I will disregard the latter in the remainder of the chapter.

8. There also exist constructions in which the copula surfaces ‘downstairs’, in its plural form:

(i) %[(Bardzo) głodni] ście ła tAP?
   (very) hungry:2pl. BE:pi.
   ‘Are you very hungry?’

Such examples have an archaic flavour and are not usually used by the majority of young speakers of the standard dialects and this is what the % is supposed to symbolize here. See Bański (2000) for discussion of the reasons for this fact as well as an account for the change in the shape of the copula from \(sa\) to \(jest\), which is handled in terms of morphophonological impoverishment.

9. There are cases which may point to a slight modification of this account, by making the PN search for a host within its \(X^{max}\) only, and crashing the derivation of PF if no such host is found there. Such arguments are reviewed by Bański (2000), who also discusses a PF process which may rescue head-oriented PNs stranded without a host.

References


Prosodic diagnostics for remnant AP movement in Polish


Chapter 4

Remnant stranding and the theory of Movement*

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1. Introduction

According to Chomsky (1999) only phases, i.e. the complete constituents vP and CP, can trigger movement to their left edge. In this chapter I present a number of movement data which support the claim that matrix vP is a phase and hence an (intermediate) landing site. However, these data also strongly suggest that not all clausal complements are phases. In particular, I argue that propositional clauses are defective CPs while factive clauses are complete ForcePs.

2. Remnant stranding and intermediate landing sites

Dutch has three types of remnant stranding. Two of them are well-known: stranding of a remnant PP under movement of an R-pronoun, as in (1) (van Riemsdijk 1978), and stranding of a remnant DP in the wat-voor split construction, as in (2) (Den Besten 1985).

(1) PP-stranding
      there on has Ed there on sat
      ’Ed sat on it.’
      there has Ed there on sat
      ’Ed sat on it.’
The third type of remnant stranding is less well-known. It involves stranding of a remnant DP (or PP) containing a focus particle, as in (3) (Barbiers 1995). The crucial observation is that a focus particle in the embedded clause can only be associated with a constituent in the matrix clause if that constituent originates in the embedded clause, as the contrast between (3b) and (3c) shows.

It is commonly assumed that remnant stranding cannot occur in derived positions. Indeed, remnant stranding in scrambled position (4) and remnant stranding in embedded SpecCP (5) are impossible.

(2) *Wat-voor split

a. \[ DP Wat voor boeken \] heb je [ DP wat voor boeken ] gelezen.

What for books have you what for books read

‘What kind of books did you read?’


what have you what for books read

‘What kind of books did you read?’

The third type of remnant stranding is less well-known. It involves stranding of a remnant DP (or PP) containing a focus particle, as in (3) (Barbiers 1995). The crucial observation is that a focus particle in the embedded clause can only be associated with a constituent in the matrix clause if that constituent originates in the embedded clause, as the contrast between (3b) and (3c) shows.

(3) Focus particle stranding

a. \[ DP Maar twee boeken \] denk ik [ CP dat Ed \[ DP maar twee boeken \] zal lezen ]

only two books think I that Ed only two books will read

‘I think that Ed will read only two books.’

b. [Twee boeken] denk ik [ CP dat Ed \[ DP maar twee boeken \] zal lezen ]

two books think I that Ed only two books will read

‘I think that Ed will read only two books.’

c. [Twee jongens] denken [ CP dat Ed maar zal lezen ].

two boys think that Ed only will read

‘Only two boys think that Ed will read.’

‘Two boys think that Ed will just read.’

It is commonly assumed that remnant stranding cannot occur in derived positions. Indeed, remnant stranding in scrambled position (4) and remnant stranding in embedded SpecCP (5) are impossible.

(4) *Remnant stranding after scrambling in the embedded clause

a. Daar heeft Ed \( \langle \text{PP daar \ op} \rangle \) vaak \( \langle \text{PP daar \ op} \rangle \) gezeten.

there has Ed there on often there on sat
b. Wat heeft Ed (\text{\textit{DP was voor boeken}}) vaak (\text{\textit{DP wat voor boeken}}) gelezen? What has Ed what for books often what for books read?

c. Eén boek heeft Ed (\text{\textit{DP maar een boek}}) vaak (\text{\textit{DP maar een boek}}) gelezen. One book has Ed only one book often only one book read.

(5) *Remnant stranding in embedded SpecCP
a. *Waar had jij dan gedacht ([\text{\textit{CP PP waar mee}}] dat [je de vis [\text{\textit{PP waar mee zou snijden}}]]? Where had you then thought where with that you the fish where with would cut

b. *Wat had jij dan gedacht ([\text{\textit{CP DP wat voor boek}}] [\text{\textit{CP dat Ed [\text{\textit{DP wat voor boek zou kopen}}]}}]? What had you then thought what for books that Ed what for book would buy

c. *Een bal had ik gedacht ([\text{\textit{CP DP maar een bal}}] [\text{\textit{CP dat je [\text{\textit{DP maar een bal zou kopen}}]}}] only one ball had I thought only one ball that you only one ball would buy

Surprisingly, it is possible to strand a remnant in the matrix vP in Dutch:

(6) Remnant stranding in the matrix VP
a. *Waar had jij dan [\text{\textit{VP PP waar mee}}] gedacht [\text{\textit{CP dat je de vis [\text{\textit{PP waar mee zou moeten snijden}}]}}]? Where had you then thought where with thought that you the fish where with would must cut 'What had you thought to be forced to cut the fish with?'

b. *Wat had jij dan [\text{\textit{VP DP wat voor bal}}] gedacht [\text{\textit{CP dat Ed [\text{\textit{VP wat voor bal zou kopen}}]}}]? What had you then thought for ball thought that Ed what for ball would buy 'What kind of ball had you thought that Ed would buy?'
The fact that the stranded remnant precedes the matrix verb clearly shows that the sentences in (6) involve stranding in the matrix clause.

The observations in this section, then, raise the following general question: Why is remnant stranding in Dutch possible in the matrix vP but not in other derived positions such as the left edge of embedded clauses? To answer this question it is necessary to take a closer look at the properties of movement to matrix vP and movement to the left edge of embedded clauses.

3. Movement to the left edge of an embedded clause

To investigate the possibility of movement to the left edge of embedded clauses two distinctions are necessary. First, we need to distinguish between Wh-movement and movement of other constituent types. Wh-movement is discussed in Section 3.1, movement of other types is discussed in Section 3.2. Secondly, we distinguish movement to the left edge of factive clauses from movement to the left edge of propositional clauses (Kiparsky and Kiparsky 1971). Factive clauses typically occur with verbs like regret. Propositional clauses typically occur with verbs like think. The truth of factive clauses is presupposed, the truth of propositional clauses is not. Extraction of adjuncts from factive clauses is ungrammatical, whereas it is possible from propositional clauses (cf. Hegarty 1991 for an overview and references).2,3

3.1 Embedded Wh

As is well-known, Wh-elements cannot occur at the left edge of a propositional clause with a complementizer (7a). On the other hand, embedded Wh is possible with a subset of the factive complement clauses (7b). Whether or nor a factive clause allows it depends on the matrix verb (cf. 7b and 7c).

(7) a. *Jan zal denken [welke boeken (dat) Marie welke boeken leest].
John will think which books (that) Mary which books reads
b. Jan zal meedelen [welke boeken (dat) Marie welke boeken leest].
John will report which books (that) Mary which books reads

‘John will report which books Mary is reading.’

c. *Jan zal betreuren [welke boeken (dat) Marie welke boeken leest].
John will think which books (that) Mary which books reads

The (im)possibility of embedded Wh correlates with the (im)possibility of the complementizer of ‘whether’ (8a–c). Only complement clauses which allow embedded Wh do also allow the interrogative complementizer of ‘whether’. The two may cooccur (8d); embedded Wh makes the occurrence of of ‘whether’ optional.

(8) a. *Jan zal denken [of (dat) Marie deze boeken leest].
John will think whether (that) Mary these books reads.

b. Jan zal meedelen [of (dat) Marie deze boeken leest].
John will report whether (that) Mary these books reads

‘John will report whether Mary is reading these books.’

c. *Jan zal betreuren [of (dat) Marie deze boeken leest].
John will regret whether (that) Mary these books reads.

d. Jan zal meedelen [wat (of) (dat) Marie wat leest.
John will report what whether that Mary what reads

‘John will report what Mary is reading.’

Suppose the difference between factive and propositional complement clauses is the presence of a Force feature. For concreteness, assume that factive clauses have ForceP dominating CP, whereas propositional clauses are CPs lacking ForceP. Lexical specification determines whether a verb selects ForceP or just CP. If of ‘whether’ is a realization of Force, it follows that it cannot occur in propositional CPs.

According to Chomsky (1999), clauses that contain a Force feature are complete, hence phases. Only the head of a phase can be assigned an EPP feature, triggering movement to the left edge of the phase. If my proposal is correct, factive clauses can trigger movement to SpecForceP because Force is complete and may be assigned an EPP feature. On the other hand, propositional clauses are defective in that they lack Force. CP is not a phase. Therefore, the head C of a propositional clause cannot be assigned an EPP feature,
and this explains why embedded Wh is impossible in propositional clauses. Within the class of factive clauses we can further distinguish between clauses with a [+Q] Force head which allow of ‘whether’ and embedded Wh, and clauses with a Force head specified as [−Q] which disallow this. This captures the difference between (8b) and (8c). We may further assume that the complementizer dat ‘that’ lexicalizes both C and Force when Force is [−Q]. It is important to notice that the presence of [+Q] of ‘whether’ does not require the presence of a Wh-element, as (8b) illustrates. The presence of [+Q] is licensed by selection by the higher verb, not by a Wh-element. The presence of Wh, however, does require the presence of [+Q], although Force need not be filled at PF.

The partial Wh-movement construction in (9) at first sight seems to be problematic for this analysis.6,7

(9) a. \[\text{Wat denk je [}_{\text{forcep}} \text{wie (of) (dat) Jan heeft ontmoet in de stad]}?\]
   ‘Who do you think John met in the city?’

b. \[\text{Wat vind jij [}_{\text{forcep}} \text{hoe (of) (dat) Jan dat probleem moet oplossen]}?\]
   ‘How do you think John should solve the problem?’

c. \[\text{Wat denk je [}_{\text{forcep}} \text{in welke stad (of) (dat) Jan gaat wonen],}\]
   ‘In which city do you think John is going to live?’

d. \[\text{Wat denk je [}_{\text{forcep}} \text{wat (of) (dat ik gedaan heb)?}\]
   ‘What do you think that I did?’

However, a closer look reveals that partial Wh-movement provides evidence in support of the proposed analysis. The verbs denken ‘think’ and vinden ‘find’ select propositional complements, hence CPs, not ForcePs. As we have seen, they normally disallow embedded Wh and of ‘whether’. Therefore, the question arises as to why of ‘whether’ and embedded Wh do occur in partial Wh-movement constructions. If our idea is correct that the presence of embedded Force must be licensed and that it is licensed by the matrix verb in the case of factive complements, then this question amounts to asking: What licenses the presence of of in (9), if the matrix verb is unable to do so?
I would like to propose that it is matrix Force that licenses the presence of
‘whether’ via the Wh-chain constituted by the Wh-elements in the Specs of
the two ForcePs. The relevant configuration is given in (10):

(10)  \[
\text{[ForceP} \text{wati [ForceP} \text{denk [ . . . [VP} \text{denk \[ . . . \text{[ForceP \text{wie}, [ForceP \text{(of) [CP} \text{C (dat) \[ . . . \text{]]]]]]]]]]]
}\]
\]

The idea is that embedded Force agrees with the Wh-element in its Spec. This
Wh-element forms a chain with the Wh-element in Spec of the matrix ForceP.
The latter Wh-element agrees with matrix Force.

This makes three predictions. First, Wh-doubling and long Wh-movement
should also license embedded Force and hence make the occurrence of
‘whether’ possible. Indeed, speakers who accept the sentences in (9) also
accept the sentences in (11):8

(11)  a. %\[\text{[ForceP Waar denk je [ForceP waar (of) (dat) ik woon)]?}
\]
where think you where (whether) (that) I live
‘Where do you think that I live?’

b. %\[\text{[ForceP Hoe denk je [ForceP hoe (of) (dat) we het probleem}
\]
how think you how (whether) (that) we the problem
can solve
‘How do you think that we can solve the problem?’

c. %\[\text{[ForceP Wie denk je [ForceP wie (of) (dat) ik uitgenodigd}
\]
who think you who (whether) that I invited
have
‘Who do you think that I invited?’

A second correct prediction is that a Wh element in the matrix ForceP which
cannot form a chain with a constituent in the embedded clause cannot license
of ‘whether’ or embedded Wh:

(12)  a. %\[\text{[ForceP Wie denkt [ForceP of (dat) Jan hard werkt]].}
\]
who think whether (that) John hard works

b. %\[\text{[ForceP Wie zal denken [ForceP wat (of) (dat) Marie wat}
\]
who will think what (whether) (that) Mary what
reads

\[\text{[ForceP wie (of) (dat) we het probleem}
\]
how (whether) (that) we the problem
kunnen oplossen]]?

can solve
‘How do you think that we can solve the problem?’

\[\text{[ForceP Wie denk je [ForceP wie (of) (dat) ik uitgenodigd}
\]
who think you who (whether) that I invited
have
‘Who do you think that I invited?’
Thirdly, Koster (1987: 196 f.), Cinque (1990), Sternefeld (1991: 121) and Müller (1995: 397 f.) have argued, contra Torrego (1985) and Chomsky (1986), that examples such as (13a) do not involve extraction of the matrix Wh-constituent from the Wh-constituent in the embedded clause. Therefore, there is no chain and the construction is impossible with propositional complements (13b):

(13) a. \[\text{ForceP [Van welke auteur]i weet je [ForceP [welke boeken] (of) of which author know you which books (whether) (dat) of er verkocht zijn]? (that) whether there sold are ‘Of which author do you know which books have been sold?’}

b. \[\text{* [ForceP [Van welke auteur] denk je [ForceP [welke boeken] (of) of which author think you which books (whether) (dat) er verkocht zijn]? (that) there sold are}

Fourthly, since of ‘whether’ is [+Q], matrix Force should also be [+Q] to license the presence of ‘whether’ and embedded Force. Long topicalization does not license the occurrence of ‘whether’, since topicalization is possible only if the matrix clause is not [+Q], i.e. not a question:


3.2 Embedded non-Wh

In the previous section it was shown that embedded Wh is impossible in propositional clauses because they are CPs and therefore defective. Embedded Wh is possible in factive clauses because they are ForcePs and therefore complete. A further requirement for embedded Wh is that Force is [+Q]. Only if Force is [+Q] can it agree with the Q feature of Wh elements, agreement being a prerequisite for movement. As a consequence, [-Q] factives cannot trigger Wh movement.

This analysis explains immediately why embedded focus movement or topic movement in propositional clauses is impossible as well, as (15) illustrates: being defective, CP cannot attract anything to its edge.
(15) *Jan dacht [CP het boek [C dat Marie het boek zou lezen]]
John thought the book that Mary the book would read

From this it also follows that nothing can intervene between the complementizers of ‘whether’ and dat ‘that’ in factive clauses:

(16) *Jan zal meedelen [ForceP [Force of [CP het boek [C dat [Marie het boek leest]]]]
John will report whether the book that Mary the book reads

Just like in propositional clauses, CP is defective in factive clauses. Therefore, C cannot be assigned an EPP feature and nothing can be attracted to SpecCP, which therefore does not project.

One question about movement to the embedded left-periphery must still be answered: Why is it impossible to move a non-Wh-constituent to Spec, ForceP when Force is [−Q]? I would like to suggest that topicalization, or more precisely contrastive topicalization is triggered by a focus feature on V. If this feature can only be generated on V, Force filled by dat ‘that’ cannot trigger non-Wh movement to SpecForceP.

4. Matrix vP as a final landing site

Still following the set of assumptions made in Chomsky (1999), we expect vP dominating a propositional CP to be a phase, hence a potential landing site for movement. In this section, evidence is provided that this expectation is correct. Matrix vP dominating propositional CP is shown to be an A-bar landing site for contrastively focused material. Some examples are given in (17). The sentences in (17b,d) show that movement to the matrix vP is impossible from factive complements, something that needs to be explained.

(17) Matrix vP as a final landing site
a. *Ik had [vP [PP in de tuin] gedacht [CP dat het feest zou zijn]]
   I had in the garden thought that the party in the garden would be
   ‘I had thought that the party would be in the garden.’
b. *Ik had [vP [PP in de TUIJN] betreurd [CP dat het feest
I had in the garden regretted that the party
[PP in de TUIJN] zou zijn]].
in the garden would be

c. %Ik had [vP [DP een boek] gedacht [CP dat Jan [DP een boek]
I had a book thought that John a book
zou kopen]].
would buy
'I had thought that John would buy a book.'
d. *Ik had [vP [DP een boek] betreurd [CP dat Jan [DP een boek]
I had a book regretted that John a book
zou kopen]].
would buy

In judgement tasks, some native speakers report that the sentences in (17a,c)
are not fully grammatical. However, all speakers share the intuition that
(17a,c), with propositional complements, are much better than (17b,d),
with factive complements. Moreover, the construction in (17a,c) can be
heard every now and then in colloquial Dutch, as was already observed in
Zwart (1993: 200). In view of this, I assume that (17a,c) are fully grammatic-
al, leaving the discrepancy between judgements and actual occurrence for
future research.

Some evidence suggesting that movement into the matrix clause can be
identified as movement to the matrix vP and not to some higher functional
projection is given in (18). The moved constituent has to follow matrix
negation:10

(18) a. %Ik had niet [vP [PP in de TUIJN] gedacht [CP dat het feest
I had not in the garden thought that the party
[PP in de TUIJN] zou zijn]].
in the garden would be
'I had not thought that the party would be in the garden.'
b. *Ik had [PP in de TUIJN] niet [vP gedacht [CP dat het feest
I had in the garden not thought that the party
[PP in de TUIJN] zou zijn]].
in the garden would be

Another candidate for an analysis in terms of movement to the matrix vP is an
ellipsis construction which I call Long Answer Scrambling (cf. Barbiers 1999,
This construction is sensitive to the propositional-factive distinction as well, which is a first indication that we are dealing with the same phenomenon.

(19) Long answer scrambling

a. Context: Wie zal de wedstrijd winnen?
   ‘Who will win the game?’
   
   Answer: (i) Ik denk Jan/hij
          I think John/he
   (ii) *Ik weet Jan/hij
        *I know John/he

b. Context: Waar heeft Jan de krant neergelegd?
   ‘Where did John put the newspaper?’

   Answer: (i) Ik denk in de la.
          I think in the drawer
   (ii) *Ik weet in de la
        *I know in the drawer

The constituent following the verb in the answers (i) in (19) clearly cannot be the internal argument of the verb itself. Internal arguments do not show up in the nominative in Dutch and English, but the arguments in (19a) do: hij/he. The PP [in de la] ‘in the drawer’ is the complement of neerleggen ‘put’, denoting the end point of this action; it is not a locative PP modifying denken ‘think’.

The example in (20) shows that this construction plausibly involves movement of a constituent to the matrix middle field under deletion of the remnant CP:

(20) Context: Wie had jij gedacht dat Jan zou voordragen?
      ‘Who did you think that John would recommend?’

      Answer: *Ik had zichzelf gedacht, maar het bleek Peter te zijn.
              I had thought himself, but it turned out to be Peter.

The answer in (20) is grammatical, even though there is no visible antecedent for the anaphor zichzelf ‘himself’, which is interpreted as referring to Jan. Since zichzelf cannot be a logophor (Vanden Wyngaerd 1994; Veraart 1995; Barbiers 2000b), there must be a hidden antecedent. If the answer in (20) is analyzed as in (21), this problem is solved. [DP zichzelf] moves into the matrix vP in overt syntax. At PF, the remnant CP deletes. At LF, [DP zichzelf] is interpreted as an argument of voordragen ‘recommend’ and bound by [Jan]. 11,12
(21)  Ik had [zichzelf] gedacht [dat Jan zou voordragen]
I had himself thought that John himself would recommend

It is important to note that Long Answer Scrambling differs from Sluicing and Gapping. As opposed to Long Answer Scrambling, Sluicing and Gapping are possible with factive complements, which suggests that they do not involve movement and require a different analysis.

(22)  a.  Sluicing with a factive CP
Er is iemand hier geweest en ik weet wie.
there is someone here been and I know who

b.  Gapping with a factive CP
Ik weet dat hij een boek leest en zij de krant.
I know that he a book reads and she the newspaper

The data in (23) show that the landing site in the matrix vP is an A-bar position. We find reconstruction for anaphor and variable binding (23a, b), obligatory reconstruction for binding condition C (23c), and Weak Cross Over effects (23d).

(23)  Landing site in matrix vP is an A-bar position
a.  *Ik had [‘n boek over zichzelf] gedacht dat Ed [een boek over zichzelf zou schrijven].
*I had a book about himself thought that Ed a book about himself would write

‘I had thought that Ed would write a book about himself.’

b.  *Ik had [zie, moeder gedacht dat iedere jongen ‘s moeder zou gaan bellen].
*I had every mother thought that every boy his mother would call

‘I had thought that every boy would call his mother.’

c.  *Ik had [een boek over Ed] gedacht dat hij [een boek over Ed zou schrijven].
*I had a book about Ed thought that he a book about Ed would write

would write

d.  *Ik had [iedere moeder, gedacht dat haar, zoon iedere moeder,]
*I had every mother thought that her son every mother

would call
The A-bar position in the matrix vP gives rise to subjacency effects. It is impossible to move a constituent from the embedded clause to the first position of the matrix clause when another constituent has moved to the matrix VP (24d).

(24) a. Ik had gedacht [CP dat Jan morgen in de tuin zou werken].
     'I had thought that John tomorrow in the garden would work.'

b. %Ik had [VP [MORGEN] gedacht [CP dat Jan [morgen in de tuin zou werken]].
     'I had thought that John tomorrow in the garden would work.'

c. [PP Waar] had jij [VP gedacht [CP dat Jan morgen where zou werken]].
     'Where had you thought that John tomorrow where would work?'

d. *[PP Waar] had jij [morgen [VP gedacht [CP dat Jan [morgen [waar zou werken]].
     'Where would work'

In addition to being A-bar, the landing site in matrix vP is very similar to the root clause initial topic position in other respects as well. For example, in both positions constituents must have focal stress. Therefore, weak pronouns do not occur there:14

(25) a. %Ik had HEM gedacht dat ze HEM zouden vragen.
     'I had him thought that they him would ask
     'I had thought that they would ask him.'

b. *Ik had ’m gedacht dat ze ’m zouden vragen.
     'I had ’m thought that they ’m would ask

c. Hem heb ik hem gebeld.
     'him have I him called

    d. ’m heb ik ’m gebeld.
        'm have I ’m called
The two positions also show parallel behavior with respect to movement of verbal constituents. Whereas both positions can host infinitival VPs, neither of them can host participial VPs.\(^{15}\)

(26) a.  
\[
\text{Ik had [een boek lezen] gedacht dat Jan [een boek lezen] zou willen.}
\]
'I had thought that John would want to read a book.'

b.  
\[
\text{Ik had [een boek gelezen] gedacht dat Jan [een boek gelezen] had.}
\]
'I had thought that John had read a book.'

c.  
\[
\text{[Een boek lezen] dacht ik dat Jan [een boek lezen] zou willen.}
\]
'I had thought that John would want to read a book.'

d.  
\[
\text{[Een boek gelezen] had ik gedacht dat Jan [een boek gelezen] had.}
\]
'I had thought that John had read a book.'

We can conclude that the landing site in matrix vP is similar to the root clause initial topic position: it is an A-bar position that imposes focal stress.

Matrix vP cannot be a final landing site for Wh movement, i.e. the sentence in (27) cannot be interpreted as a real question, only as an echo question.

(27)  
\[
\text{Hij had wat voor boeken gedacht dat Marie wat voor boeken zou kopen?}
\]
'He had thought that Mary would buy what kind of books?'

This does not come as a surprise if the Wh-features that trigger Wh-movement reside in the matrix Force, which is plausible given the obligatoriness of Wh-preposing in Dutch.

Technically, movement to matrix vP now proceeds as follows. Matrix v has a Focus feature. This Focus feature agrees with a Focus feature in a constituent...
dominated by matrix vP. Since vP is a phase, v may be assigned an EPP feature. When this happens, movement to the edge of the matrix vP is triggered. The relevant structure is given in (28):

(28) Ik had \[ vP \[PP in de tuin \] [, gedacht [CP dat het feest \[ CP in de tuin \] zou zijn]]].

Since topicalization to root clause initial position has so much in common with movement to matrix vP, a unified analysis should be feasible in which a focus feature on the matrix verb triggers preposing of a focused constituent (cf. also Section 6).

A final question concerning movement to matrix vP is why it is impossible with factive complements. As is well-known, movement to the root clause initial position is impossible from factive clauses as well, at least for adjuncts, but for many native speakers of Dutch also for objects. In addition, it was shown above that Long Answer Scrambling from factive clauses is sharply ungrammatical. Together these facts suggest that factive clauses are strong islands in Dutch. I assume that they are islands because they are generated as adjuncts to a projection dominating vP.

We have seen in this section that Dutch has focus movement from propositional CPs to the matrix vP. This movement operation cannot target embedded SpecCP because CP is not a phase. Matrix vP on the other hand is a phase, and the head v can have a focus feature that triggers movement of a constituent with focus.

5. Remnant stranding in intermediate positions

The remnant stranding asymmetries described in Section 2 can now be explained. Remnant stranding in SpecCP of propositional (and factive) clauses is impossible because no constituent can move to embedded SpecCP, CP not being a phase. Remnant stranding in SpecForceP of factive clauses is impossible because nothing can be extracted from factive clauses, factive clauses being adjuncts.

The next issue to consider is remnant stranding in SpecForceP of a propositional clause. Recall from Section 3.1 that ForceP can be present in propositional complement clauses only if its presence is licensed by matrix
Force, since the matrix verb does not have the right selectival properties to license embedded Force. A Wh-chain was shown to be able to mediate licensing of embedded Force by matrix Force in long Wh-extraction, partial Wh-movement and Wh-doubling constructions.

As the sentences in (29) show, remnant stranding is not possible in such constructions:

\[(29)\]

\[\text{a. } \text{*Wat had je gedacht [ForceP wat voor boek [Force of (dat) ik what had you thought what for book whether that I wat voor boek lees]]?}\]

\[\text{b. } \text{*Waar had je gedacht [ForceP waar op [Force of (dat) je where had you thought where on whether that you zou waar op gaan zitten]]?}\]

\[\text{c. } \text{*Hoeveel boeken had je gedacht [ForceP hoeveel boeken maar how many books had you thought how many books only [Force of (dat) je hoeveel boeken maar kon lezen]]?}\]

I would like to suggest that remnant stranding is impossible in ForceP because SpecForceP is an A-bar position outside embedded vP. This explanation carries over to the impossibility to strand a remnant after clause internal scrambling (cf. Section 2), if the target of scrambling is some A-bar position outside vP.

Remnant stranding is possible in the matrix vP because there the A-bar position is contained in vP. This case of remnant stranding thus has the same status as remnant stranding in a base position inside vP.

6. Consequences and conclusion

The central proposal of this chapter is that propositional clauses in Dutch lack Force and therefore are not phases, whereas factive clauses do have Force and are phases. This explains a number of asymmetries between the two types of clauses, especially the possibility of long scrambling and stranding from propositional clauses but not from factive clauses, and the possibility of embedded Wh in factive clauses but not in propositional clauses. A consequence of the approach advocated here is that long movement in Dutch
should always proceed via the matrix vP. The observation that remnant stranding in matrix vP is possible in Dutch supports this. In the variants of Dutch in which matrix vP cannot be a final landing site, some intervention effect must prevent full constituents to stay in vP (cf. Chomsky 1999 for potential explanations). I leave this issue for further research.

Many of the restrictions on movement to the left edge of an embedded clause in Dutch mentioned in this chapter also hold for the closely related languages German and English (cf. Müller and Sternefeld 1993). In general, propositional clauses headed by the complementizer that or daß disallow movement to the left edge of the clause. An exception is partial Wh-movement in German, which may be analyzed in the same way as the Dutch equivalent. Factive clauses in English, German and Dutch allow embedded Wh but not embedded topicalization. Long extraction from factive clauses has the same status in German, Dutch and presumably English. Stranding of material in embedded propositional SpecCP is impossible in English (Postal 1972). Long answer scrambling is sharply ungrammatical from factive complements in English, German and Dutch, but possible from propositional complements.

Let us therefore assume that English and German should be analyzed along the same lines as Dutch. Some questions arise about differences between Dutch, German and English. One difference between Dutch and German is the fact that long scrambling to matrix vP and hence stranding of remnants there is impossible in German (Bierwisch 1963). If long extraction proceeds via matrix vP in German too, then some additional factor must force evacuation of material from this position. An alternative option may be that the availability of embedded topicalization with embedded V2 in propositional clauses in German but not in Dutch somehow blocks the possibility for overtly moved or stranded material to occur in the matrix vP.

The fact that embedded propositional V2 clauses exist in German implies that propositional CPs can be complete and hence phases in this language. This may be related to another difference between Dutch and German, namely the existence of a subjunctive verbal paradigm in the latter language (cf. Erb 2001 for a recent overview and references). Perhaps a subjunctive feature on the embedded verb agrees with the same feature in C-position, thus making CP complete and allowing C to trigger movement.

It is unclear whether English allows long scrambling to matrix vP and stranding in that position. At first sight, the ungrammaticality of (30a) shows that long scrambling is impossible.
(30) a. *John (with Mary) thought (with Mary) that he would talk with Mary.
   
   b. (i) Long Scrambling:
   . . . [vP [with Mary] [CP that he would talk [with Mary]]]
   (ii) Remnant Movement:
   . . . [XP thought [CP that he would talk [with Mary]]]

However, if English has additional remnant movement of a constituent containing matrix v and the embedded clause, as proposed in Kayne (2000) and illustrated in (30b), then long scrambling (and P-stranding after long scrambling) may be possible but concealed in English.

Notes

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1. Evidence that the landing site in the matrix clause is vP will be provided in Section 4. I use had . . . gedacht ‘had . . . thought’ to make the left and right edge of the middle field visible. The possibility of remnant stranding in the middle field has nothing to do with irrealis. The example in (i) is a case of remnant stranding without irrealis interpretation:
   (i) Wat zei Jan [CP dat Piet [DP wat voor boeken] heeft gekocht]? [CP dat Marie what for books has bought]

   ‘What kind of books did John say that Pete thinks that Mary bought?’

2. A third type of CP-complements involves response stance complements (Cattell 1978). They typically occur with verbs such as agree. Their truth is not presupposed but they behave syntactically like factive complements. I assume that the analysis proposed here for factive complements also holds for response stance complements.

3. Below I give evidence that factive CPs are strong islands disallowing extraction of arguments as well.


5. The absence of ForceP in a propositional CP is semantically plausible. Force operates on the truth of a clause, e.g. a question marker questions the truth of the embedded clause.
Propositional clauses do not give any information about their truth, hence Force cannot operate upon propositional clauses. Cf. Hegarty (1991) for the idea that propositional clauses are semantically incomplete.

6. As indicated with the ‘%’ sign, not all native speakers of Standard Dutch accept partial WH.

7. Cf. McDaniel (1989), Horvath (1997) for partial WH-movement in other languages. Dutch is of the German type in that the partial WH-movement construction is impossible with factive complements:

(i) *Wat betreur je wie (of) (dat) Jan heeft uitgenodigd
what regret you who (whether) (that) John has invited

Following Müller and Sternefeld (1996), I take this as an indication that partial WH-movement really involves movement.


10. Jeroen van Craenenbroeck informs me that the opposite judgements hold for the dialect of Wambeek, Flemish Brabant. I have no explanation for this difference.

11. In addition to the order in (20) with the moved constituent preceding the matrix verb, the order in (ia) is possible. As the contrast between (ib) and (ic) shows, this does not seem to be the same construction: the embedded clause must be absent in the order [matrix verb — moved constituent] but it is optionally absent in the order [moved constituent — matrix verb].

(i) a. Ik had gedacht zichzelf.
I had thought himself
b. *Ik had gedacht zichzelf dat Jan zou voordragen.
I had thought himself that John would recommend
c. Ik had zichzelf gedacht (dat Jan zou voordragen).
I had himself thought that John would recommend

For me, (ia) requires comma intonation, although not all native speakers agree with this intuition. Combined with the contrast between (ib) and (ic), this suggests that we are dealing with a different construction. An anonymous reviewer notes that (ia) is possible in German without comma intonation, while German does neither allow Long Answer Scrambling (as in ic) nor remnant stranding in the matrix middle field. This supports the idea that (ia) is a construction different from Long Answer Scrambling.

12. Note that the base position of the CP-complement is irrelevant for the analysis proposed in (21). If the embedded CP were to originate to the left of the matrix verb and were to end up to the right by extraposition, as in many older analyses of Dutch, it would still be necessary to first move out the constituent that ends up in the matrix middle field. See Barbiers (2000a) for the syntactic position of CP-complements in Dutch.

13. The WCO-effect obtains regardless of focus assignment to iedere moeder.

14. There’s an interesting minimal difference between infinitival and finite CPs:
Sjef Barbiers

(i) a. Ik had ‘m morgen gedacht te bellen.
    I had him tomorrow thought to call
    ‘My plan was to call him tomorrow.’

b. *Ik had ‘m morgen gedacht dat Marie ‘m zou bellen.
    I had him tomorrow thought that Mary him would call

Given its position with respect to morgen ‘tomorrow’ which is a modifier of the embedded verb bellen ‘call’, it is clear that ‘m in (ia) is not inside a VP. The contrast between (ia) and (ib) shows that scrambling of a weak pronoun out of an infinitival clause must be a process different from Long Answer Scrambling.

15. I have no explanation for this difference between infinitival and participial VPs. The ungrammaticality of preposed participial VPs must have to do with the presence of another participle in the matrix clause. When there is no participle in the matrix clause, preposing of participial VP is possible:

(i) [Een boek gelezen] denk ik niet dat Jan [een boek gelezen] heeft
    a book read think I not that John a book read has
    ‘I don’t think that John read a book.’

16. The same claim is made for German in Müller and Sternefeld (1993), where object extraction from factive clauses receives two question marks.


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Chapter 5

VOS in Portuguese

Arguments against an analysis in terms of remnant movement

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1. Introduction

European Portuguese displays a quite flexible word order (cf. Ambar 1992; Costa 1998; Duarte 1987; among others). VOS word order is one of the grammatical possibilities in this language, as illustrated in (1):

(1) Comeu a sopa o Paulo.
    ate the soup Paulo
    ‘Paulo ate the soup.’

For this word order, there are two possible intonations. Either the subject is preceded by a pause or not, as shown in (2):

(2) Flat intonation vs. comma intonation:
    a. Comeu a sopa o Paulo.
       ate the soup Paulo
    b. Comeu a sopa, o Paulo.
       ate the soup Paulo
    ‘Paulo ate the soup.’

Costa (1996) argues that these two intonations correspond to two different syntactic positions for the subject. The argumentation is based on the interaction between pronominal doubling and the placement of question tags. Question tags are clause-final. Pronouns do not double any clause-internal material. As shown in (3), if a subject follows a question tag, it may be doubled by a pronoun. If it follows an object without a pause and precedes a question tag, doubling is impossible:
This pattern may be analyzed in the following terms: only in VOS sentences with flat intonation is the DP the real subject of the sentence. In VOS sentences with comma intonation, the subject is not the thematic subject. It may be analyzed as a clausal adjunct or a hanging topic (see Kayne 1994 and Zubizarreta 1998).

Establishing this difference is crucial for delimiting the empirical scope of this chapter: VOS sentences with flat intonation. There are two competing analyses for this word order that may be found in recent literature. The Scrambling analysis argues that this word order is derived via movement of the verb to I and scrambling of the object across the subject left in its base-generated position. The configuration arrived at may be as in (4a) or (4b), depending on the assumption regarding the landing site of the object (SpecAgrOP or adjunction to VP. Proponents of this analysis include Zubizarreta (1995), Ordóñez and Treviño (1995), for Spanish, Alexiadou and Anagnostopoulou (1996), for Greek, and Costa (1997, 1998) for Portuguese.

As emphasized by these authors, the advantage of this analysis is that it allows
for a unification of VOS word orders with the properties of scrambling found in Germanic languages. This type of analysis has been criticized by not explaining how the subject is assigned Case in its base-generated position.

An alternative analysis for this word order in Romance languages is found in work following Kayne (1998). Let us term this type of analysis Remnant movement, according to which VOS word orders are arrived at by moving the subject to SpecIP, or to a left-peripheral functional projection, and moving the remnant constituent TP or VP, containing the trace of the subject to the specifier position of another functional category higher than the one where the subject has moved to. The configurations obtained are as in (5a,b). Proponents of this type of analysis include Kayne and Pollock (1998); for stylistic inversion in French, Ordóñez (1997), Zubizarreta (1998), and Bok-Benema 1998; for VOS in Spanish, and Ambar and Pollock (1998) for VOS in interrogative contexts in French and Portuguese.

As explicitly emphasized by Zubizarreta (1998), this type of analysis is advantageous with respect to the scrambling analysis, since the Case problem finds a solution. In either configuration in (5), the subject has moved or landed in SpecIP where it may be assigned nominative Case. However, this analysis is not exempt of problems. The goal of this chapter is to present empirical arguments that seem to disfavor the remnant movement analysis, comparing it with the scrambling analysis. It will be shown that the problems raised to the remnant movement analysis do not arise under a scrambling analysis for VOS.¹ The argumentation will be based on an examination of the following aspects of VOS sentences:

a. it will be tested whether it can be argued independently for the mobility of the remnant VP/TP;
b. adverb positioning;

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a. it will be tested whether it can be argued independently for the mobility of the remnant VP/TP;
b. adverb positioning;
c. floating quantifiers;
d. pronominal doubling and question tags;
e. the discourse function of the subject;
f. scope and c-command;
g. clitics;
h. properties of the object.

For each of these properties, it will be shown that the remnant movement analysis either makes wrong predictions or offers no explanation.

2. Arguments against remnant movement analysis
   and comparison with scrambling analysis

Let us start looking at the arguments that provide evidence against the remnant movement analysis, comparing it with the scrambling analysis for each topic.

2.1 TP/VP mobility

Consider a sentence like (6) below with VOS word order:

(6) Leu o livro o Paulo.
    read the book Paulo

According to the remnant movement analysis, the constituent TP or VP leu o livro (read the book) is moved to the left of the DP subject. Arguably, it should be possible to find independent evidence for the mobility of this constituent. Indeed for a sentence like (6), it is possible to find this type of independent motivation. The VP or TP containing the verb and the object may be clefted (cf. 7), or preposed (cf. 8):

Cleft:

(7) Foi ler o livro o que o Paulo fez.
    it was read the book what Paulo did
Preposing:

(8) O Pedro disse que leria o livro o Paulo, e ler o livro
Pedro said that would-read the book Paulo, and read the book
o Paulo leu.
Paulo did

However, if the verbal form is complex, the evidence for mobility of the constituent TP or VP is not so compelling. For a sentence like (9), it must be argued that the constituent containing the sequence Auxiliary-Main Verb-Object is moved to the left of the subject:

(9) Tinha lido o livro o Paulo.
had read the book Paulo

However, there is no evidence for movement of this constituent. The constituent containing the auxiliary verb, the main verb and the object cannot be clefted (cf. 10) nor preposed (cf. 11):

Cleft:

(10) *Era ter lido o livro o que o Paulo tinha feito.
it was have read the book what Paulo had done

Preposing:

(11) ??O Pedro disse que teria lido o livro o Paulo, e ter lido
Pedro said that would-have read the book Paulo, and have read
o livro ele tinha
the book he had.

Thus, there is no clear evidence that the material preceding the subject forms a constituent that can be moved. The fact that some sequences VO or Aux-V-O are not movable is not problematic for a scrambling analysis, since no claims are made concerning the necessity of moving this constituent.

Under the scrambling analysis, the only claim that is made is that the object is moved to the left of the subject. It can be argued that an object may be moved independently of the complexity of the verbal form. For a pair of sentences like those in (12), it can be shown that the object may be clefted (cf. 13) or preposed (cf. 14) independently of the material that precedes the subject.
(12) a. Leu o livro o Paulo.
    read the book Paulo

    b. Tinha lido o livro o Paulo.
       had read the book Paulo

_Cleft:_

(13) a. Foi o livro o que o Paulo leu.
    it was the book that Paulo read

    b. Era o livro o que o Paulo tinha lido.
       it was the book that Paulo had read

_Preposing:_

(14) a. O livro, leu o Paulo.
    the book, read Paulo

    b. O livro, tinha lido o Paulo.
       the book had read Paulo

In short, postulating that VOS word order is derived via movement of the constituent containing V and O is problematic, since evidence for the mobility of this constituent is not very strong.

2.2 Adverb placement

The second problematic set of data for the remnant movement analysis comes from the distribution of adverbs. Monosyllabic adverbs have a very restricted distribution (Costa 1996): they occur low in the structure, and, in Portuguese, they only surface in sentence final position if they are focused. This is illustrated in (15):

(15) O Paulo leu aqueles livros {*mal [−focus]/mal [+focus]} 
    Paulo read those books bad

When a monosyllabic adverb is not focused, it appears before the object. The fact that the position of the adverb is conditioned by its discourse function may be confirmed by testing it with question-pairs, as in (16) and (17). If the adverb conveys old information, it may not occur sentence-finally (cf. 16). If it is the focus of the sentence, it surfaces in sentence-final position (cf. 17):
In VOS sentences, the adverb may occur in two positions: either in between the object and the subject or in between the verb and the object, as (18) shows:

(18) a. Leu aqueles livros mal o Paulo.
    read those books bad Paulo
b. Leu mal aqueles livros o Paulo.
    read bad those books Paulo

Under a remnant movement analysis, there is no clear explanation for this pattern. Why should the adverb have a less restricted distribution when there is movement of the constituent containing it? Note that there is no obvious discourse reason. The status of the object and the adverb is the same with respect to the information they convey. As it will be discussed below, VOS sentences are used in contexts in which only the subject is focused. Hence, no discourse reason may motivate movements internal to the constituent displaced to the left of the subject. The same argument holds for a syntactic explanation. It is not clear why the object and the adverb do not display a fixed order in VOS sentences only.

The scrambling analysis offers a natural explanation for this behavior. Under this analysis, the object is scrambled. Assuming that scrambling in Portuguese is not movement to SpecAgrOP, but rather adjunction to VP (see Costa 1997 for arguments), it is expected that there is no fixed order between two VP-adjuncts. V–O–Adv–S and V–Adv–O–S are the expected word orders. The two possibilities are illustrated in the structures in (19) and (20):
2.3 Floating quantifiers

Consider now the behavior of floating quantifiers. As it is well-known, floating quantifiers are possible after subject movement to SpecIP (Sportiche 1988; Koopman and Sportiche 1991). In Portuguese, floating quantifiers behave as expected: they may surface in any post-subject position, tracing the path of the subject from SpecVP to SpecIP.²

(21) a. Os meninos todos tinham lido o livro.
the children all had read the book
b. Os meninos tinham todos lido o livro.
the children had all read the book
c. Os meninos tinham lido todos o livro.
the children had read all the book.
Under the proposal made by the remnant movement analysis, the subject moves to SpecIP, or higher, and the remnant constituent containing its trace moves to its left. Note that there is no problem in moving a VP or TP containing a floating quantifier to the left of a subject. As shown in (22), when a VP is clefted, it may contain a floating quantifier:

(22) Foi ler todos o livro o que os meninos fizeram.
    it was read all the book what the children did

Considering the assumption of the remnant movement analysis and the fact that moved VPs or TPs may contain floating quantifiers, it is legitimate to claim that the remnant movement analysis predicts that floating quantifiers surface before the subject in VOS sentences. However, this prediction is not borne out, as shown by the ungrammatical sentences in (23):

(23) a. *Tinham todos lido o livro os meninos.
    had all read the book the children

b. *Tinham lido todos o livro os meninos.
    had all read the book the children.

c. Tinham lido o livro todos os meninos.
    had read the book all the children

The only possibility for the floating quantifier is to occur adjacent to the subject, that is, in a non-floating position.

If we now check the predictions made by the scrambling analysis, it is possible to see that this problem does not arise. Under the scrambling analysis, the subject stays in SpecVP, therefore floating quantifiers are not predicted to surface.

2.4 Topic doubling and question tags

Let us now return to the interaction between question tags and pronominal doubling referred to in the introduction. As mentioned above, question tags are sentence final:

(24) O Paulo leu o livro, não leu?
    Paulo read the book, not read

Topic information appearing sentence-finally after a pause can be doubled by a clitic or a pronoun, as shown in (25). This is true for direct objects, indirect objects and subjects. The only difference between the latter and the internal
arguments of the verb is that the absence of subject clitics in Portuguese forces
doubling by a strong pronoun.

(25)  a. *Direct object
   O Paulo leu-o esse livro.
   Paulo read-it that book
   b. *Indirect object
   O Paulo deu-lhe o livro, à Maria.
   Paulo gave-her the book to Maria
   c. Subject
   Ele leu o livro, o Paulo.
   he read the book, Paulo

As noted in the introduction, clause-internal material cannot be doubled. This
is true for direct objects, as in (26a), in which the direct object appears right after
the doubling clitic without a pause, and left-adjacent to a marker of the right-
edge of the sentence. It is also true for the indirect object, as in (26b), in which
the indirect object appears before the direct object and adjacent to the doubling
clitic, without being preceded by a pause. The fact that doubling is only possible
with clause-external material enables a distinction between this pattern of clitic
doubling and the pattern of clitic doubling exhibited by other languages, in
which the clitic may double clause-internal elements. Based on the contrasts
between (25) and (26), it is legitimate to assume that the pronominal elements
occupy the thematic positions, and the DPs are peripheral to the sentence.

(26)  a. *Direct object
   *O Paulo leu-o esse livro ontem.
   Paulo read-it that book yesterday
   b. *Indirect object
   *O Paulo deu-lhe à Maria o livro.
   Paulo gave-her to Maria the book

Let us now consider the case of subjects. Like the direct and indirect object,
subjects can only be doubled if they follow a question tag or any other marker
of the right edge of the sentence, no matter whether the pronoun is preverbal
or postverbal. Thus, they behave like the other sentence constituents.

(27)  a. Ele leu o livro, não leu?, o Paulo.
   he read the book didn’t he Paulo
   b. Leu o livro ele, não leu?, o Paulo.
   read the book he not read Paulo
Let us now consider the relevance of this behavior for the analysis of VOS sentences. In a specific implementation of the remnant movement analysis for accounting for stylistic inversion in French, Kayne and Pollock (1998) argue that, in VOS sentences, the subject is in SpecTopP. As we have seen above, topic subjects can be doubled. Even if they are sentence-initial, they can be marginally doubled:

(28) O Paulo, ele leu esse livro.  
Paulo, he read that book

The question that arises for Kayne and Pollock’s analysis is why the alleged topic cannot be doubled in VOS order, as shown above and repeated in (29).

(29) *Ele leu o livro o Paulo.  
he read the book Paulo

The remnant movement analysis offers no clear answer for the ungrammaticality of (29). Under the scrambling analysis, this pattern is expected. The subject is clause-internal, it is in SpecVP. Since it is not in a topic position, doubling is not expected.

2.5 Discourse function of the subject

As mentioned above, the sentence-final subject in VOS word orders is a focus. This is tested in the following question-answer pair:

(30) A: Quem leu o livro?  
who read the book
B: Leu o livro o Paulo.  
read the book Paulo

In Portuguese, contrastive foci are marked with stress (Frota 1998). Crucially, a constituent may be simultaneously information and contrastive focus. In other words, it may answer a question and be marked with strong stress. The difference between (30) and (31) is that the answer in (31) implies that only Paulo and no-one else read the book.

(31) A: Quem leu o livro?  
who read the book
Having noted this discourse function of the subject for Spanish VOS orders, Ordóñez (1997) proposes that, since the subject in VOS is focused, it is moved to a left-peripheral functional projection codifying focus information: Focus Phrase. The remnant constituent yielding old information (in (30) and (31), the constituent containing the verb and the object) is moved to a topic position to the left of the focus position.

Although it may account for the discourse function of the subject, this analysis is problematic. In his study of the left-periphery, Rizzi (1997) shows that wh-phrases and displaced focused constituents are in complementary distribution. The prediction made by the remnant movement analysis is then that wh-phrases in VOS word orders should be ungrammatical. As shown below, this prediction is not borne out:

(32) A quem deu o livro o Paulo?
    to whom gave the book Paulo

Under Kayne and Pollock’s (1998) analysis, it is proposed that the subject is in SpecTopP. Assuming this, does not create the problem raised by Ordóñez’s analysis, but the relation with the actual discourse function of the subject is left unexplained.

Ambar and Pollock (1998) provide a good argument in favor of Kayne and Pollock’s analysis. They note that in interrogative contexts with VOS order, the sentence-final subject cannot be a pronoun or an indefinite pronoun. Crucially, these elements cannot be topicalized in Portuguese. The similarity between the type of subject that occurs sentence-finally in VOS interrogatives and the type of subject that can be topicalized provides, thus, clear evidence in favor of the analysis according to which the sentence final subject in VOS is in SpecTopP.

(33) a. A quem deu o livro o João?
    to whom gave the book João

b. *A quem deu o livro ele?
    to whom gave the book he

c. *A quem deu o livro alguém?
    to whom gave the book someone

Although the argument is a good one, the analysis proposed in terms of topicalization and remnant movement is not exempt of problems. First, note
that the sentence-final position for the subject is not reserved for topics. As shown in (32), other discourse functions, such as contrastive focus, are available in this position.

More problematic for the analysis proposed is that there is no additional independent evidence for the claim that the subject is topicalized. One expects to find properties of topicalization in VOS word orders in interrogative contexts. Duarte (1987, 1996) identifies several properties of topicalization in European Portuguese that may be used to test Ambar and Pollock’s claim.

Duarte shows that topicalized elements license parasitic gaps. This is illustrated in (34a). Accordingly, the sentence-final subject in VOS interrogatives should be able to license parasitic gaps, since it is assumed to occupy a topic A-bar position. However, parasitic gaps are not found in this context (cf. 35b).

No parasitic gap licensing:

(35)  
\(a\). Esse artigo, o João elogiou sem ter lido.
that article, João praised without having read

\(b\). *Quando foram criticados sem o Paulo ter lido os artigos?*
when were criticized without Paulo have read the articles

If there is a main clause and an embedded clause, constituents from each of these clauses may be topicalized, as shown in (36a’). The prediction made by Ambar and Pollock’s analysis is thus that both subjects of the main and the embedded clause may be topicalized, as in (37b), and the remnant IPs move to the functional categories to the left of the landing site of the subject, as in (37c). This would derive a word order in which both subjects would appear adjacent at the end of the sentence. However, this word order is ungrammatical (cf. 36b).

No multiple topicalization

(36)  
\(a\). O Pedro disse à Maria que o Paulo ia à praia
Pedro said to Maria that Paulo would-go to the beach
nesse dia.
that day

\(a’\). À Maria, o Pedro disse que, à praia, o Paulo ia
to Maria Pedro said that to the beach Paulo would go
nesse dia.
on that day
b. *Quando disse que ia à praia o Paulo o Pedro?  
When said that would go to the beach Paulo Pedro

(37) a. Wh-movement

\[
[CP \text{Quando} [IP \text{twh} \text{Paulo}] \text{disse} [CP \text{que} [IP \text{twh} \text{Pedro} \text{ia à praia} t_{nh} ]]])]
\]

b. Subject topicalization in both clauses

\[
[CP \text{Quando} [IP \text{twh} \text{Pedro} \text{disse} [CP \text{que} [IP \text{twh} \text{Paulo} \text{ia à praia} t_{nh} ]]]])]
\]

c. Remnant IP-movement

\[
[CP \text{Quando} [IP \text{twh} \text{Pedro} \text{disse} [CP \text{que} [IP \text{twh} \text{Paulo} \text{ia à praia} t_{nh} ]] [IP \text{twh} \text{Pedro} t_{IP} ]]]]
\]

A final problem for Ambar and Pollock’s analysis comes from the lack of parallelism with another property of topicalization. As shown in (38), constituents other than subjects can be moved to the topic position of the main clause. This is an option available for the subject, as shown in (38b).

(38) a. O Pedro contou à Maria que o Paulo vai ao cinema.  
Pedro told Maria that Paulo goes to the movies

b. O Paulo, o Pedro contou à Maria que t vai ao cinema.  
c. À Maria, o Pedro contou t que o Paulo vai ao cinema.  
d. Ao cinema, o Paulo contou que o Paulo vai t.

Since the topicalizations in (38) are possible, the prediction made is that in an interrogative sentence, any of these constituents of the embedded clause may surface in sentence-final position. However, as (39) illustrates, only the (allegedly topicalized) subject may occur in this position. The remnant movement analysis incorrectly predicts the grammaticality of (39b) and (39c).

(39) a. Quando t contou à Maria que o Paulo vai ao cinema o Pedro?  
when told Maria that Paulo goes to the movies Pedro

b. *Quando o Pedro contou à Maria que t vai ao cinema o Paulo?  
c. *Quando o Pedro contou t que o Paulo vai ao cinema à Maria?

Under the scrambling analysis, the lack of parallelism with topicalization constructions is not a problem. If the subject stays in SpecVP, it may be interpreted as the focus of the sentence, since it is in the rightmost/most embedded position, where it may be assigned sentence nuclear stress (Nespor and Vogel 1986; Cinque 1993; Zubizarreta 1998, among others).
The interpretation of the subject as focus follows from the interaction between prosody and syntax, rather than from an association with a specific functional projection. The topical properties of sentence-final subjects in interrogative contexts are not entirely unexpected nor constitute a problem for the scrambling analysis: the intonation of interrogative sentences is different, hence no prediction regarding the discourse function of the subject is made. As shown in Mateus et al. (1989), wh-questions have an initial rising tone and lowering at the end, which predicts that constituents that can be downstressed (like topics) will tend to emerge sentence-finally.

2.6 Scope and c-command

In VOS sentences, the object c-commands the subject. This statement is confirmed by the fact that a quantified object may scope over the subject, as in the ambiguous sentence in (40), and by the principle-C effects induced in VOS sentence, as in (41) and (42). In both cases, an object preceding the subject seems to c-command it.

Quantifier scope:

(40) Leram um livro dois alunos. (O > S, S > O)
    read a book two students

Principle-C effects:

(41) a. SVO
    O irmão do Paulo viu-o,
    the brother of Paulo saw him

    b. VOS
    *Viu-o, o irmão do Paulo
    saw-him the brother of Paulo

(42) a. SV–IO–DO
    O irmão do Paulo deu-lhe o livro.
    the brother of Paulo gave-him the book

    b. V–IO–DO–S
    *Deu-lhe o livro o irmão do Paulo
    gave-him the book the brother of Paulo

These facts related based on quantifier scope and violation of principle-C are problematic for the remnant movement analysis. According to this analysis, a
configuration is obtained in which the object is a constituent of the moved constituent. The configuration obtained is as in (43). Note that, in such a structure, the object does not c-command the subject:

$$\text{FP [TP [VP VO]] [XP S ... ]}$$

The prediction made by the remnant movement analysis is, thus, that objects in VOS sentences should not take scope over the subject, and that there should be no violation of principle-C, since, in (43), the object does not c-command the subject. Note that reconstruction would not help, since the object would never c-command the subject.

The prediction made by the scrambling analysis is that object-wide scope and violations of principle-C are found. The configuration obtained after scrambling of the object across the subject is like the one in (44). In this configuration, the object c-commands the subject:

$$\text{FP V [XP O [VP S]]}$$

The ambiguity of quantifier scope may be explained by the scrambling analysis, assuming that the scrambled object is able to reconstruct into its base generated position, in which it is c-commanded by the subject.

2.7 Clitics: enclisis vs. proclisis

As it is well-known, the distribution of clitics in European Portuguese may be dependent on syntactic properties of the sentence (cf. Duarte and Matos 1995, among others). A clitic cooccurring with a preverbal non quantified DP subjects is enclitic, as shown in (45):

- a. O Paulo viu-o.
  - Paulo saw-him
- b. *O Paulo o viu.

If the subject is quantified, as in (46), proclisis is triggered:

- a. Ontem todos os meninos o viram.
  - yesterday all the children him saw
- b. *Ontem todos os meninos viram-no.

Recall that the remnant movement analysis proposes that, in VOS sentences, the subject is in SpecIP or at least has passed through this position. The prediction made by this analysis is that a quantified subject in VOS sentences
should trigger proclisis. However, this prediction is not borne out. Enclisis is the pattern found in VOS sentences:

(47) a. *Ontem o deram à Maria todos os meninos.
    yesterday it gave to Maria all the children
b. Ontem deram-no à Maria todos os meninos.

Note that the argument based on the distribution of clitics also holds for wh-phrases that remain in-situ. A moved wh-phrase triggers proclisis, as illustrated below:

(48) a. Quem o leu?
    who it read
b. *Quem leu-o?
    who read-it

A subject wh-phrase in VOS context does not trigger proclisis:

(49) a. *O deu à Maria quem?
    it gave to Maria who
b. Deu-o à Maria quem?
    gave-it to Maria who

These patterns of clitic placement, that are problematic for the remnant movement analysis, are expected under the scrambling analysis. According to the latter, subjects in VOS contexts are in their base-generated position, SpecVP. Since proclisis is only triggered by quantified subjects in SpecIP, it is predicted that clitics are enclitic in this context.

There is an objection that may be raised to this argument. Let us assume with Kayne and Pollock (1998) and Ambar and Pollock (1998) that the subject in VOS is in a topic position. In such case, it could be argued that proclisis is not expected, since topicalization does not trigger proclisis, independently of the position of the subject:

(50) a. Esse livro, o Paulo leu-o.
    that book, Paulo read-it
b. Esse livro leu-o o Paulo.
    that book read-it Paulo

However, if the topic is quantified, proclisis is triggered, as argued in Raposo (1995):
Muitos livros lhe leu o Paulo.
many books him read Paulo

We are now able to test whether it may be argued that proclisis is not triggered because the subject is topicalized. The test case is the use of a quantified subject in VOS context. As shown in (52), a quantified subject in VOS similar to the object in (51) does not trigger proclisis:

(52) a. Leram-lhe livros muitos meninos.
read-him book many children
b. *Lhe leram livros muitos meninos.
him read books many children

The fact that enclisis is always obtained independently of the properties of the subject permits discarding the objection to this argument based on the idea that subjects in VOS sentences are topicalized.

2.8 Properties of the object

The acceptability of VOS sentences varies depending on the type of object of the sentence. So far, almost all examples contain definite or strong DPs as objects. However, if the object is indefinite, the acceptability of the sentence is not as good, and it clearly degrades with non-specific indefinite DPs:

(53) a. Viu um gato o Paulo.
saw a cat Paulo
b. *Viu um homem qualquer o Paulo.
saw a man some Paulo
c. ??Leu algo o Paulo.
read something Paulo

This relation between the properties of the object and the degree of grammaticality of the sentence is problematic for the remnant movement analysis. According to this analysis, the object is just a part of the moved constituent. There is thus no clear reason for there to be a sensitivity to the definiteness of a subconstituent of the moved XP.

This problem does not arise under the scrambling analysis. The constituent that is moved in order to yield the VOS order is the object. It is therefore not surprising that there is some sensitivity to the definiteness of the moved constituent itself. That scrambling is better with definite DPs than with
indefinite DPs is a well-known fact in Germanic languages (see de Hoop 1991 among others). We thus find just a similar pattern in Romance. Moreover, if, as argued in Reinhart (1995) and adapted for Portuguese in Costa (1997, 1998), the object is moved because it is not focused, it is expected that indefinite objects, that typically convey new information, are less likely to surface in the scrambled position.

3. Conclusion

As the results of the tests run in the previous section demonstrate, the remnant movement analysis faces problems not raised by the scrambling analysis.

It is important to note that there are several alternatives to solve the problem mentioned in the introduction for the scrambling analysis: if the subject stays in SpecVP, how does it get Case? There are several proposals in the literature to deal with this problem. Contreras (1991) suggests that Case may be assigned under government by the verb in I. Assuming the feature-checking mechanism of the Minimalist Program, Alexiadou and Anagnostopoulou (1996) assume that, in languages where the subject may stay in SpecVP, the Case feature of the subject is weak, hence Case may be checked after Spell-out. A different perspective, formulated under the premises of Optimality Theory, is proposed by Costa (1998), who claims that the constraint forcing subject to move to SpecIP to be assigned Case may be violated due to the effects of a structural constraint on the distribution of focused constituents that forces the subject to stay low. A comparison between these approaches (cf. Costa 1998) runs beyond the scope of this chapter. For the moment, it suffices to note that the Case problem that, at least in some analyses (see Zubizarreta 1998), motivates abandoning the scrambling approach may be solved in different ways.

Notes

1. As an anonymous reviewer suggests, data involving ditransitive verbs is crucial for distinguishing the two analyses, since the order V–DO–IO–S is the only one predicted by the remnant movement approach. The scrambling approach predicts the latter and also V–DO–S–IO (which is possible under a list reading for subject and indirect object). Both word orders are possible, which seems to favor the scrambling analysis. I will leave the
discussion of ditransitives for further research, since, as shown in Costa (1998), scrambling of indirect objects cannot be straightforwardly compared with scrambling of the direct object.

2. The order Subject–FQ–V has been explained as an instance of short-verb-movement in Portuguese in Costa (1998).

3. This clause-final position after a pause may be identified as a position reserved for hanging topics (cf. Duarte 1987 for discussion).

4. As a reviewer points out, this argument only goes through under the assumption that remnant movement is not a root phenomenon, which must be the authors’ assumption since VOS interrogatives are possible in embedded contexts:

   (i) Perguntei a quem deu o livro o Pedro.

   (I) asked to whom gave the book Pedro

5. This argument only holds if the distribution of clitics is indeed syntactically triggered. Barbosa (to appear) has suggested that enclisis is triggered any time a clitic is initial in a prosodic constituent, which would be the case in the sentences in (47). If the prosodic analysis proves true, this argument against the remnant movement analysis is weakened.

6. Another solution involves assuming that Case checking takes place under Agree (Chomsky 1998).

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Chapter 6

Against remnant VP-movement*

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1. Introduction and overview

The remnant movement analysis of incomplete category fronting as applied to VP in (1) seems uncontroversial nowadays, in particular, because Müller (1998)\(^1\) offered a set of satisfactory solutions for many of its difficulties, which had been identified, e.g., by Den Besten and Webelhuth (1990) and Fanselow (1993).

(1) Geküsst hat sie Peter nicht
    kissed has she Peter not
    she has not kissed Peter

The primary motivation for the remnant movement analysis of (1) is, however, crucially linked to two background assumptions concerning phrase structure and thematic theory. These assumptions have turned out to be untenable. It is therefore necessary to re-open the issue of the proper analysis of incomplete category fronting, and compare the complexity of remnant movement theory to a predicate raising analysis (as sketched in Fanselow 2001). This is what I will attempt here. The conclusion will be that the remnant movement analysis for (1) has a number of serious shortcomings, which its predicate raising alternative does not share.

The results reported in this chapter should not be interpreted, however, as evidence against remnant movement as such, and not as evidence against the application of remnant movement in German in other contexts. Rather, the crucial point is that (1) does not have a remnant movement analysis — because there is no movement operation that could evacuate VP in (1) before topicalization.

The chapter is organized as follows. Section 2 briefly sketches the remnant movement idea, and shows how it is related to the issue of derivational vs. representational approaches in syntax. In Section 3, I discuss and refute the
theta-theory based argument in favor of remnant VP movement in (1) — a
direct movement account in a theory allowing predicate raising at LF is
simpler. Section 4 takes up the cross-linguistic considerations that seem to
favor remnant movement. Section 5 deals with the missing island effect for
stranded complements, while Section 6 focuses on asymmetries between
argument types and between pronouns and full NPs in remnant movement
constructions. Section 7 briefly deals with other potential instances of remnant
movement in German.

2. A brief outline of Remnant Movement Theory

The remnant movement theory proposed by Thiersch (1985) and Den Besten
and Wechselhuth (1987) for “incomplete” category fronting as in (1) and related
constructions still seems to be an excellent textbook example for the claim that
difficult problems can often be solved by simple yet nontrivial ideas. It can be
sketched quite easily. The derivation of (1) starts unspectacularly with (2a),
that is, with a VP containing its verbal head geküsst ‘kissed’ and its object Peter.
This object is then moved out of VP, either by scrambling or by some other
operation (2b). The fronting of the finite verb in (2c) precedes the final
derivational step, in which the VP is moved to clause-initial position —
together with the trace it contains.

(2) a. Sie nicht [VP Peter geküsst] hat.
   she not Peter kissed has
b. Sie Peter nicht [VP t; geküsst] hat.
c. Hat sie Peter, nicht [VP t; geküsst].
d. [CP [VP t; geküsst], [[Comp hat] [IP sie Peteri nicht tj]]]

None of these derivational steps involves obvious problems, and the absence
of scrambling in English (i.e., the unavailability of a derivational step compara-
ble to (2b)) correctly implies that there is no counterpart to (1) in English,
see (3b).

(3) a. [VP kiss Mary] though he will . . .
b. *[VP kiss t;] though he will Mary,

If constraints and principles are checked derivationally, the derivation
sketched in (2) runs smoothly from a theoretical perspective as well. Traces
have to be c-commanded by their antecedents. When (2b) is formed, this
condition is met if it is understood in a derivational sense that requires that traces be c-commanded by their antecedent when the chain is formed (see Chapter 3 of Müller 1998 for a discussion). The formation of (2d) later destroys the c-command relation between the antecedent Peter and its trace, but in a derivational model, this is of little importance.

For obvious reasons, the situation is different in a representational account. Since the trace of Peter is not c-commanded by its antecedent in (2d), a much more complex formulation for the constraint in question would have to be formulated. Technical solutions like (4) in the spirit of “pseudo-reconstruction” in the Barss (1984) sense allow a correct description of the grammatical facts. The trace of Peter is contained in the preposed VP, and the trace of VP is c-commanded by Peter. It is obvious, however, that (4) is just a complicated way of molding the virtues of derivational explanations into a representational formulation (see also Müller 1998: Chapter 3).

\[ \text{(4) C-command constraint for traces:} \]
\[ \text{A trace must be c-commanded by its antecedent A, or be contained in a category C binding a trace that is c-commanded by A.} \]

Remnant movement constructions thus constitute good evidence for a derivational approach to syntax.

3. The background assumptions underlying remnant movement

The remnant movement analysis of incompletely fronted categories seems to be grounded deeply in the theories of phrase structure and thematic roles, and within the limits of Government- and Binding theory (Chomsky 1981), the alternatives to remnant movement theory fail on obvious conceptual grounds. Both the theory of phrase structure and the theory of thematic roles have undergone revisions in the last years, however, which make alternatives to remnant movement conceptually possible.

At first glance, it may appear that simple considerations of phrase structure exclude any alternative to remnant movement for constructions like (1). The specifier position of CP is a landing site for maximal projections only. Therefore, analyses of incomplete category fronting (such as Fanselow 1983 and Van Riemsdijk 1989) in which submaximal projections are moved in (1) are not very attractive from a theoretical point of view (Müller 1998: Chapter 1). If submaximal projections could be promoted to the status of a maxi-
mal projection after movement (as proposed by Van Riemsdijk 1989), the chain \(\langle [\text{VP geküsst}], t_V \rangle\) in (5) would violate the Chain Uniformity Principle of Chomsky (1995) that requires that antecedents and traces do not differ with respect to their phrase structural status.

\[
(5) \quad [\text{VP geküsst}] \quad [\textit{hat sie} \quad [\text{VP Peter nicht } t_V]]
\]

Furthermore, Speas (1990) and Chomsky (1995) have shown that maximality is a relational notion: a projection P of X is maximal if the mother of P is not a projection of X. Thus, there can be only one maximal projection per head. Alternatives to remnant movement that work with several layers of maximal projections (as suggested by Frey and Tappe 1991; Fanselow 1993) are in obvious conflict with these fundamental ideas. 2

In the literature, there is only one suggestion concerning (1) that does not involve remnant movement in the strict sense 3 and need not give up fundamentals of phrase structure theory: the approach proposed by Haider (1990). Haider builds on the observation that incomplete category fronting of VPs typically involves clauses with at least two verbal heads (see below for some exceptions). The presence of two verbal heads allows the postulation of at least two maximal verb phrases projected from these heads, as (6) illustrates. In (6), the projection of the lower verb \textit{geschenkt} is underlined, and the projection of the higher head \textit{hat} is in addition set in boldface. 4

\[
(6) \quad (\text{dass) } [\text{IP sie } [\text{VP dem Fritz ein Buch geschenkt } \textit{hat}] \\
\text{that she the.DAT Fritz a.ACC book given has} \\
\text{‘That she gave a book to Fritz (as a present).’}
\]

If the structures in (7) can be generated as alternatives to (6), that is, if the arguments and adjuncts may be merged in either of the two verbal projections, there is no need for a remnant movement analysis for incomplete category fronting of VPs: the data in (8) would not involve the movement of categories that are incomplete in a phrase structure sense: it is always the full projection of the verb that is preposed.

\[
(7) \quad a. \quad \text{Dass sie [\text{VP dem Fritz ein Buch geschenkt} \textit{hat}].} \\
\mathit{b. } \text{Dass sie [\text{VP dem Fritz ein Buch } [\text{VP geschenkt} \textit{hat}].}
\]

\[
(8) \quad a. \quad \text{ein Buch geschenkt hat sie dem Fritz t.} \\
\mathit{b. } \text{Geschenkt hat sie dem Buch ein Fritz t.}
\]

Presumably, the major reason for why this analysis 5 of (1) and (8) has not
been widely accepted is that it conflicts with the combination of two fundamental assumptions of the GB-theory, the locality of theta-marking and the Projection Principle. In Chomsky (1981), a head H can assign thematic roles to those positions P only that are sisters of the projection line of H. The additional (compositional) assignment of a thematic role by VP to the specifier position of IP (the subject) was later abandoned when the subject-in-VP hypothesis became a standard assumption. If theta-role assignment is local in this sense, *geschenkt* cannot assign a theta-role to *dem Fritz* ‘the-dat Fritz’ in (7a,b), and to *ein Buch* ‘a-acc book’ in (7b).

The Projection Principle requires that the one-to-one correspondence between thematic roles and argument expressions must hold at all levels of representation, in particular at D-structure. For that reason, only the constellation realized in (6), but not the ones in (7a) and (7b), may arise as a deep structures in the GB-model. Within the limits of GB-theory, the idea of avoiding remnant movement by generating two independent VPs with different compositions does not work without additional assumptions. For empirical reasons (see Chomsky 1995), the Projection Principle had to be given up, however, and a conceptual consideration leads to the same conclusion. It is plausible that the interface of syntax with semantics, i.e., Logical Form, respects a constraint that requires there to be a one-to-one correspondence between arguments and argument roles, but without compelling evidence (and there is none), one should not expect this correlation to necessarily hold at any time before LF is completed.

Consequently it can be assumed (although this is not done in Chomsky 1995) that thematic role assignment need not be complete before LF. Overt and covert movement operations may then imply the assignment of thematic roles (see, e.g., Bošković and Takahashi 1998; Fanselow 2001; Saito 2000, among others). In other words, no principled consideration is left which prevents structures such as (7a) and (7b) from arising by Merge. They can then be the input to overt movement operations leading to (8) by preposing the lower verbal projection, which is maximal and complete from a phrase structure point of view. In such a system, there are no principled reasons for assuming that (1) and (8) involve remnant movement.

How are thematic roles assigned before LF in such a model? For Chomsky (1995), theta-role assignment is a side-effect of merging. The obvious alternative is that theta-assignment is a consequence of feature checking (to which everything else in grammar reduces to). Note that the postulation of separate theta-features would not be welcome, because of the notorious difficulty of
defining thematic roles in terms of universal semantic features. The postulation of such features is, however, unnecessary, if one follows Chomsky (1986) in constructing a theory of canonical structural representations (CSR) for thematic roles.

In a minimalist re-interpretation, the CSR theory implies that lexical entries for predicates just specify the semantic type of the arguments (object, proposition, etc.) When a predicate is selected for merging, categorial information (DP- vs. CP-complement) is added on the basis of this semantic type difference, and so are f-features and Case (the selection of the latter makes use of the hierarchical relations among the arguments, see Wunderlich 1997 and Fanselow 2000). Thus, when a predicate is merged, it is equipped with a set of formal selectional features corresponding to each of its arguments.

When an XP checks these (purely formal) features corresponding to an argument, it receives the corresponding thematic role (see Fanselow 2001 for more details and Bošković and Takashi 1998 and Saito 2000 for alternative executions of related ideas).

In (6), the objects receive their theta-roles when the predicate checks their Cases. How does theta-role assignment proceed in (7)–(8)? In (7a), geschenkt is too low in the structure to be able to check the dative Case feature of dem Fritz (which would imply theta-assignment). Among various other options, the one proposed by Saito (2000) for Japanese light verb constructions and by Fanselow (2001) for German restructuring constructions seem to work most smoothly — it takes up the spirit (but not the details) of an account formulated in Haider (1993).

Note that the head of the upper VP selects the features of the lower VP. In minimalist terms, the checking of these selectional features comes about by an overt (or covert) movement of the head of the lower VP. The verb geschenkt (or its formal features) adjoin to the head of the upper VP, as in (9).

(9) Dass sie [\[\left\[\text{VP dem Fritz} \left[\[\text{VP ein Buch geschenkt} \right]\right]\right]\]]

If the selectional features of the lower verb geschenkt are in the set of its formal features (as seems likely, and as we assume), these selectional features have become close enough to the indirect object dem Fritz (merged in the upper VP in (9)) to be able to check the features of this indirect object. In other words, after incorporation, the complex geschenkt hat possesses the selectional features of the lexical verb geschenkt, and therefore also its theta-checking potential. Proper theta-role assignment in (7) thus turns out to be unproblematic.

The analysis of (8) involving apparent incomplete category fronting is then
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quite straightforward, too. Consider the derivation for (8a) sketched in (10). First, the predicates and arguments are merged in such a way that (10a) corresponding to (7a) arises. After verb second movement (10b), the complete lower VP is moved to SpecCP in (10c). The crucial step in the process of theta-assignment is depicted by the link between (10c) and (10d): there is a covert reconstruction of the preposed VP into its pre-movement position. Note that this step is assumed in remnant movement accounts, too (see Grewendorf and Sabel 1994; Müller 1998), so that its presence cannot decide between remnant movement and other accounts of incompletely fronted VPs. Furthermore, reconstruction seems "to make sense from the point of view of both syntax and semantics" (Müller 1998: 166f.) — cf. Heycock (1995), among others, for arguments. Covert predicate raising (10e) then yields the constellation (9) that makes proper theta-assignment possible.

(10) a. Structure generated by Merge
   Comp sie [vp dem Fritz [vp ein Buch geschenkt] hat]

b. Movement of finite verb to Comp
   [comp hat] [ip sie [vp dem Fritz [vp ein Buch geschenkt] hat]]

c. Preposing of lower VP into SpecCP (=spellout structure)
   [cp [vp ein Buch geschenkt] [hat sie [vp dem Fritz [vp ein Buch geschenkt] hat]]]

d. Covert Reconstruction of VP
   [cp [vp ein Buch geschenkt] [hat sie [vp dem Fritz [vp ein Buch geschenkt] hat]]]

e. Covert Predicate Raising
   [cp [vp ein Buch geschenkt] hat sie [vp dem Fritz [vp ein Buch geschenkt] geschenkt hat]]

Let us call this alternative to the remnant movement approach ‘predicate raising theory’ (PRT). Recall that the attraction of a formal feature of a category C always implies the pied-piping of the complete set of formal features of C (see Chomsky 1995). Together with the other features of the verb, its theta-assignment potential is therefore also copied to the auxiliary in (10e) — in the way just sketched, viz., through the formal features that the verb geschenkt selects and that are linked to its argument places. This theta-assignment potential may be discharged (=checked) relative to ein Buch ‘a book’ before the verb incorporates in (10e), and for dem Fritz after it has done so. Thus, thematic roles are properly assigned. Note that the incorporation of the predicate into the auxiliary is a standard operation.
Incomplete VP fronting effects arise with all transparent infinitive constructions, as illustrated in (11), for which predicate raising is one of the standard analyses. See also Grewendorf and Sabel (1994) for the idea that the lower verb incorporates into the higher verb/auxiliary after VP has been reconstructed.

(11) a. Zu küssen versucht hatte er sie nicht.
   to kiss tried had he her not
   'He had not tried to kiss her.'
   b. Zu küssen wagte er sie nicht.
   to kiss dared he her not
   'He did not dare to kiss her.'

This approach to theta-role assignment (motivated independently) is conceptually as simple as the old one, but more plausible (Why should thematic roles be assigned in the process of merger only? Why would theta-assignment have to apply instantaneously?). Furthermore, in the light of (7), it is obvious that the new approach leaves no conceptual considerations that favor the remnant movement account over the predicate raising analysis sketched in (10) (Recall there is no step in (10) that is not also assumed in the remnant movement theory!).

4. Crosslinguistic considerations

A satisfactory account of incomplete VP fronting must not only show how the construction arises in German, it must also offer a reason for why it is impossible in English, French and other SVO languages, as (12) partially illustrates (at least when we confine our attention to stranded arguments).

(12) He promised to show the book to the child, and
   a. He will show the book to the child.
   b. *show he will the book to the child.
   c. *show the book he will to the child.
   d. show the book to the child he will.

Müller (1998: Chapter 1) is certainly correct in stating that none of the previous non-remnant movement analyses of incomplete VP preposing had a good answer to the question of why there are no counterparts to this operation in SVO languages. Thiersch (1985) and den Besten and Weibeluth (1987) claim,
on the other hand, that the parameterization concerning incomplete VP-preposing follows immediately from the existence of scrambling in German, and its absence in English. In the cases considered so far, scrambling is the only transformation that can “evacuate” VP before it is preposed, because standard wh-movement is barred as an operation feeding remnant VP movement, presumably for the reasons discussed in Müller (1998: Chapter 5). Given the absence of scrambling in English, (12b,c) simply cannot be generated at all, because no material can be extracted from VP before VP is preposed.

This cross-linguistic argument for remnant movement has two aspects, which need to be looked at separately: the claim is made that remnant movement theory accounts for language variation (Section 4.1), and that full movement theories cannot offer a similar explanation (Section 4.2).

4.1 Remnant Movement and Scrambling

The first question to be answered is whether it is really “scrambling” that precedes remnant movement in German. If the answer is negative, and if we cannot motivate the pertinent alternative movement independently, the crosslinguistic variation is not explained in remnant movement theory for obvious reasons.

If “scrambling” is just a term for any leftward movement that neither leaves IP not targets SpecIP, then it is impossible to show that the evacuation operation preceding remnant VP movement could be anything else but scrambling, because scrambling then covers everything that may happen to noun phrases within IP. Scrambling is, however, not only characterized by the position into which it moves an argument. Rather, the discussion of scrambling has focussed on a set of formal, semantic, and pragmatic characteristics, and it was Jochen Geilfuss who first pointed out in unpublished work that the operation preceding remnant VP movement does not necessarily share these characteristics of scrambling, see, e.g., also Haider (1993) for this point.

For example, a standard view on scrambling is that it preposes thematic or definite constituents (see (13), and compare, e.g., Fanselow 1988, 1990 and Meinunger 1995 for a detailed consideration, building on insights going back to Lenerz 1977), but a remnant movement account of (14) implies that indefinite niemanden can be scrambled out of VP.

(13) a. Dass der Fritz niemanden küsst.
    that the.NOM Fritz nobody.ACC kisses
b. \textit{\`{a}₆ dass niemanden der Fritz k"usst.}
'That Fritz kisses nobody.'

c. \textit{Dass niemand \textit{den} Fritz k"usst.}
\textit{that\_nobody.NOM the\_ACC Fritz kisses}

d. \textit{Dass den Fritz niemand k"usst.}
'That nobody kisses Fritz.'

(14) \textit{Gek"usst hat der Fritz niemanden}
\textit{kissed\_has the Fritz nobody\_ACC}
'Fritz has not kissed anybody.'

Likewise, it has been claimed that adverbs do not scramble (rather, the DPs scramble around them, see Neeleman 1994, Fanselow 1993, and see Steinitz 1969 for the key observations), but they can be stranded in remnant movement contexts (15)–(16).\textsuperscript{10} 'The same holds for predicative APs (see Fanselow 1993; Hinterhölzl, this volume), as a comparison of (17) and (18) illustrates. Irrespective of their function (indefinite or question), wh-phrases seem to resist scrambling (see Müller and Sternefeld 1993; Haider 1993), yet they need not be pied-piped in incomplete VP-fronting (19)–(20).

(15) \textit{Getrunken hat er sein Bier schnell.}
\textit{drunk\_has he his\_beer fast}
'He drank his beer fast.'

(16) \textit{K"ussen wird er sie morgen.}
\textit{kiss\_will he her\_tomorrow}
'He will kiss her tomorrow.'

(17) a. \textit{Dass er das Haus rot anmalte.}
\textit{that\_he the house red painted}

b. \textit{\`{a}² dass er rot das Haus anmalte.}
'That he painted the house red.'

(18) \textit{Angemalt hat er sein Haus rot.}
\textit{painted\_has he his\_house red}
'He painted his house red.'

(19) \textit{Gek"usst haben wird er bestimmt schon wen.}
\textit{kissed\_have will he certainly\_already whom}
'he certainly has already kissed somebody
(20) Geküsst wüsste ich gern wer wen hat.
    kissed knew I who whom has
    I would like to know who kissed whom

The conclusion that remnant movement must therefore be preceded by an operation different from scrambling ("VP-evacuation") is premature, however. For some cases, one may question the validity of the relevant constraint on scrambling. Rosengren (1993) argues that XPs scramble in order to avoid bearing certain pragmatic functions (so that indefinites may scramble, too), and by scrambling out of VP, niemanden indeed manages not to be affected by the pragmatic implications of VP preposing in (14). Similarly, Alexiadou (1997) argues for the scrambling of adverbs. Fanselow (2001) claims that there are data which refute the idea that wh-phrases could not scramble.

These considerations can be complemented by the idea that certain syntactic conditions apply only to instances of scrambling that result in a change in linear order. This is equivalent to assuming that there are representational constraints on what is a good "surface" linearization which are not sensitive to differences between structures that have been base-generated and structures in which several instances of movement have a string vacuous sum of effects. If such constraints exist, they will require a certain arrangement of the phrases in a clause (normal order), but allow deviations from these patterns under certain pragmatic circumstances. Such a constraint might, e.g., imply that predicate APs should follow other adjuncts and arguments. It blocks the preposing of rot in (17b) because the order of rot relative to the object is changed, but when this order is maintained (as in (18)), no constraint violation is incurred by scrambling. There is, in other words, a representational view on conditions on scrambling which is compatible with the data discussed so far (in contrast to the conclusion arrived at by Hinterhölzl, this volume).

If such representational approaches are not successful, the claim that it is scrambling that feeds remnant VP movement must be rejected. If it is rejected (as in Fanselow 1993, Hinterhölzl, this volume), a different rule must be invoked that moves material out of VP before VP moves to SpecCP. In this situation, one is confronted with the problem of why English does not have this rule emptying VP. The German-English difference is thus not explained at all.\textsuperscript{11}

If the attempts of solving the scrambling conditions problem just sketched are successful, however, one ends up with an account of scrambling that does not fit the minimalist program: given (15)–(20), one must not link scrambling to the need of checking any pragmatically, semantically or categorically defin-
able features. Furthermore, one would be in a situation in which the evidence is merely compatible with the view that scrambling precedes remnant movement — because the resulting theory of scrambling has successfully eliminated all potential testing grounds for identifying of scrambling and the operation preceding remnant movement.

Müller (1998) is one of the very few remnant movement approaches that does not confine itself to just noting that (13)–(20) constitute a substantial problem for the idea that remnant VP movement is fed by scrambling (see also Hinterhölzl, this volume). Müller (1998: 204–10) tentatively suggests that the (further) mysterious operation feeding remnant movement is in fact a well-motivated operation of German: extraposition as illustrated in (21).

(21) a. Dass er von Maria träumt.
    that he of Mary dreams

b. Dass er träumt von Maria.
    that he dreams of Mary

In a clause involving two verbs \( V_a \) and \( V_b \), extraposition and non-crossing scrambling of the rightmost XP yield the same surface string after remnant movement of the lower VP to SpecCP, as is evident when one compares the derivations in (22a) and (22b). Since the resulting surface strings are identical, we cannot decide it directly whether (14)–(16) or (18)–(20) arise by extraposition, or by non-crossing scrambling preceding VP-movement to SpecCP.

(22) a. \[ Z \ldots [VP \ldots [VP X V_b] V_a] \]  
    ⇒ (String vacuous) scrambling of X out of VP

\[ Z \ldots [VP \ldots X [VP t V_a] V_b] \]  
    ⇒ Verb Second Movement

\[ [z V_a] \ldots [VP \ldots X [VP t V_a]] \]  
    ⇒ Remnant Movement after scrambling

\[ [VP t V_a] [z V_a] \ldots X \]

b. \[ Z \ldots [VP \ldots [VP X V_b] V_a] \]  
    ⇒ Extraposition of X out of VP

\[ Z \ldots [[VP \ldots [VP t V_a] V_b] X] \]  
    ⇒ Verb Second Movement

\[ [z V_a] \ldots [[VP \ldots [VP t V_b]] X] \]  
    ⇒ Remnant Movement after extraposition

\[ [VP t V_b] [z V_a] \ldots [VP \ldots X] \]
While it is certainly necessary to check for extraposition effects in remnant movement accounts, the extraposition solution just shifts some problems from one domain to another, because — as Müller (1998: 209) points out himself — most constellations that are problematic for the idea that scrambling feeds remnant movement remain problematic under the extraposition account. This is so because the elements in question do not undergo extraposition either in those cases where extraposition is not string-vacuous. Consider, e.g., the strong contrast between (21) and (23) (=136 b in Müller 1998: 209).

(23) * dass gestern Antje gelesen hat was
     that yesterday Antje read has something
     that Antje read something yesterday

That string-vacuous extraposition is more liberal than standard extraposition may very well be the case, but such an assumption eliminates empirical content from the claim that it is extraposition (and not something else) that precedes remnant movement in the cases where scrambling cannot do the job.

Consider also (24). The critical element *wen* that must have been extracted out of VP in a remnant movement approach precedes the auxiliary *haben*.

(24) Geküsst dürfte er schon öfter *wen* haben.
    kissed might he already often-er whom have
    ‘He may very well have kissed somebody quite often.’

There is a final and rather important problem for the extraposition idea. Extraposition is licensed in English, too, as (25) shows. Furthermore, there is remnant VP preposing in English following extraposition, as (26) taken from Phillips (1996) shows. Presupposing a Larsonian analysis of the English VP (see next section), (26) must be derived from a structure like (27a), in which the PP that is stranded in (26) is the lowest category in VP. Note that binding facts corroborate this analysis, since *every girl* must c-command *on her eleventh birthday* in order to allow the binding of the pronoun. When PP is later extraposed as in (27b), a representation arises in which the phonetic sequence
*given every girl a book* corresponds to a constituent, and can undergo remnant movement.

(25) A man came in from India
(26) Given every girl, a book, he certainly has on her eleventh birthday
(27) a. He certainly has \[\text{given} \_\text{every girl} \_\text{a book} \_\text{on her eleventh birthday}\]\]
    b. He certainly has \[\text{given} \_\text{every girl} \_\text{a book} \_\text{on her eleventh birthday}\]

Given the availability of derivations with extraposition followed by remnant VP movement in English, the general difference we observe between English and German with respect to the stranding of DP-arguments can be explained in a strict sense only if extraposition is not responsible for DP-stranding. If it were, one would have to assume that extraposition can affect DPs in German, but not in English — but there is no independent motivation for this claim, because visible instances of extraposition rarely affect DPs in either language. It is difficult to see how this problem of the extraposition analysis could be overcome.

4.2 Remnant Movement and Theta-Checking

It is worth while being pointed out that insights into the structure of English VPs (Jacobson 1987; Hoekstra 1991; and in particular Larson 1988) set a somewhat different stage for attempts to account for variation concerning ‘incomplete’ category fronting. It has been established that (28a) rather than (28b) is the proper analysis of an English VP: the verb moves to a position c-commanding the rest of the VP. Relative to (28a), *show the book* is no constituent at all — this accounts for the ungrammaticality of (29a).

(28) a. \[\text{VP} \_\text{V show} \_\text{VP} \_\text{the book} \_\text{to the child}\].
    b. \[\text{VP} \_\text{V show} \_\text{the book} \_\text{to the child}\].

(29) a. *Shown the book though he may have to the child.
    b. *The book to the child though he may have shown.

In the system proposed here, the central issue is a different one, though: why does English forbid the merging of arguments in higher projections (as in (30)), which would then get theta-marked by a lower predicate after the latter’s LF-incorporation? The answer to be given turns out to be a fairly standard one.
Against remnant VP-movement

(30) He [has [vp shown the book] to the child]

According to the proposal defended here, arguments receive their thematic roles in the context of feature checking processes. Recall that most grammatical operations (wh-movement, head movement, NP-movement) seem parametrized as to whether they apply in the covert or the overt component of grammar. This difference is due to a variation in the strength of the features that trigger attraction processes (see Chomsky 1995). When the feature is strong, it must be checked immediately in overt syntax, if it is weak, checking need not have taken place before LF.

Suppose, then, the features relevant in the process of theta-role assignment are strong in English, as suggested by Bošković and Takahashi (1998) and Fanselow (2001). Since they are strong, they must be checked immediately (Chomsky 1995), that is, before the projection of the predicate they belong to thematically is merged with a further head. Thus, when the theta-related features of V = show are strong, they must all be checked before show’s projection merges with have. All arguments of show must therefore be merged within the projection of show. (30) is thus not a legal structural representation, so that ‘incomplete’ category fronting stranding arguments cannot arise.15

Having identified the reason for the ungrammaticality of (30), one would like to know if the pertinent parametrization of the theta-related features can be motivated independently. The answer is positive (yet a bit problematic from the perspective of the preceding section): the difference in strength accounts for the free vs. fixed constituent order parameter without any recourse to surface structure scrambling, as Bošković and Takahashi (1998) and Fanselow (2001) have shown in quite different settings.16 In other words: free constituent order is base-generated, there is no surface structure scrambling.

The claim of the present chapter can thus be formulated in a clearer fashion now: the fronting of thematically incomplete verb phrases in German simply cannot be an instance of remnant movement following scrambling, because free constituent order does not arise by scrambling — it does not involve movement at all.

The newly established link between the free word order property and incomplete category fronting seems to bring back the problems discussed in Section 4.1: if the fronting of VPs stranding arguments and free word order are due to the same mechanism, one wonders why their properties differ. Recall that there can only be one answer to that in a base generation account of free word order: certain linear orders must be incompatible with surface
structure constraints on “normal” order. Indefinites, predicates and adverbs have a low degree of referentiality, and if being “referential” is one of the conditions for not appearing in standard serialization, it is clear why these categories cannot be reordered easily. Not involving reordering, incomplete category fronting will not be subject to such constraints. Our approach therefore need not assume anything in addition to what the remnant movement theory has to work with as well if it wants to be descriptively adequate.

5. Not enough respect for Islands

One domain in which remnant movement and predicate raising explanations of incomplete VP fronting differ is the island status of the material stranded in the context of VP-fronting. Before remnant movement, XP is extracted out of VP and moved to some position in ZP. In standard theories of barrierhood, derived positions are not transparent for movement — they become islands due to the freezing effect. Consequently, in a remnant movement account, complements of V should be islands for extraction when they have been stranded in incomplete VP preposing constructions.

\[(31) \ [vp \ Xp \ V] \ Z \Rightarrow [Xp \ldots [vp \ t V] \ Z]\]

The situation is different in predicate raising approaches that can treat VP in (32) as a maximal projection, with its argument XP being merged in the higher position. The complement XP therefore cannot acquire barrierhood due to some freezing effect. XP has a chance of being transparent for movement in that position, and it will be so if thematic complements need not be the first sister of a predicate for not being islands. That XPs in fact do not have to be the first sister of a predicate for being transparent follows, however, from the transparency of accusative objects c-commanding PP-objects. As (34) shows, such direct objects can be left by movement. We therefore expect XP in (32) to not be an island either.

\[(32) \ [XP [[vp V] Z]]\]

\[(33) \text{Was für Autos hat er denn in die Garage gestellt?} \]
\[\text{what for cars has he placed in the garage?} \]
\[\text{‘What kind of cars has he placed into the garage?’} \]
The difference in the empirical predictions made by the two approaches are thus quite clear. (35c) shows that stranded complements (in this case: a prepositional object) do not necessarily become islands when the verb is preposed in incomplete VP fronting. This has already been noted by Den Besten and Webelhuth (1990) and constitutes a major problem for remnant movement accounts, independent of the kind of evacuating movement.

There are two possible attempts of a solution for this dilemma of remnant movement theories. One alternative is weakening the theory of barriers, so that (35c) is allowed even though \([_{PP} da mit]\) has moved to a derived position before \(da\) was extracted. This is the line proposed by Den Besten and Webelhuth (1990), and — in a somewhat different context — also by Müller (this volume). In one version (the option sketched in Müller this volume for a different instance of remnant movement), this would imply the identification of a set of nodes \(N\) “close enough” to the root position of a phrase in VP, such that XPs adjoined to \(N\) do not become barriers by virtue of a freezing effect. Perhaps, one would also want the lexical verb to move higher than \(N\) for voiding freezing effects.

It is not too clear, however, whether such an approach (but recall that Müller invented it for a different type of remnant movement) really yields the desired result. Consider (36)–(37) in this respect, a pair of examples which differ with respect to the transparency for movement.

\[
\begin{align*}
(36) & \quad \text{Überzeugt haben die Männer } da & \text{wohl ihre Frauen noch nicht } mit \\
& \quad \text{convinced have the men } there & \text{well their wives yet not with}
\end{align*}
\]

\[
\begin{align*}
(37) & \quad \text{‘Die Männer haben } da & \text{wohl } mit \text{ihre Frauen noch nicht überzeugt} \\
& \quad \text{‘The men have probably not yet convinced their wives with that.’}
\end{align*}
\]

The contrast between (36) and (37) suggests that one has to make islandhood dependent on whether or not the constituents of VP appear in their original order after multiple applications of scrambling. Under this perspective, the remnant movement approach has to claim that XPs fail to be barriers if they
have not been moved, or if movement is string-vacuous relative to the other arguments. The predicate raising approach is simpler here: complement phrases are not islands when they occupy their base position.

Given that all constituents besides the verb have been stranded by the VP-preposing operation in (36), it is mandatory to assume that *da-mit* has been scrambled to a position Z preceding the complete VP in the base, if one works with a remnant movement account. The other material in VP has also been scrambled, to positions preceding Z. As (36a) shows, Z cannot be a position where the PP is an island, because *da* can be moved out of PP.

The overt position of *mit* in (37) suggests that it has been scrambled to the *very same* position Z in this example: e.g., it precedes the direct object. Still, PP now seems intransparent for movement. The only difference to (36) is that other material from VP has not been scrambled in front of Z. Under this condition, Z surprisingly seems to be an island position, since *da* cannot be extracted from PP now. The contrast between (36) and (37) thus shows that it cannot be the position to which a phrase has been moved that can be made responsible for presence or absence of freezing effects in the remnant movement theory.

The idea of solving the problem with (35c) by a change in the theory of barriers is thus not very attractive. There is a second option for dealing with (35c), which seems more elegant at a first glance, but that also has serious shortcomings. This second solution plays around with the order of the operations by which (a) *da* is moved out of PP and by which (b) this PP headed by *mit* leaves VP. Recall that remnant movement theories presuppose a strictly derivational model of grammar anyway. Therefore, a problem with the islandhood of a phrase XP moved out of VP arises only if the extraction leaving XP *precedes* the extraction of XP out of VP. The derivation in (38) is fine, while the one in (39) is not.

(38) a. \[ VP \ldots [XP \ldots YP \ldots] \ldots V \] Movement of YP out of XP (no barrier crossed)
   b. \[ YP \ldots [VP \ldots [XP \ldots t \ldots] \ldots V] \] Movement of XP out of VP (no. barrier crossed)
   c. \[ [YP \ldots [VP \ldots t \ldots V]] \ldots [XP \ldots t \ldots] \] Remnant movement of VP
   d. \[ [VP \ldots t \ldots V] \ldots [YP \ldots [VP \ldots t \ldots V]] \ldots [XP \ldots t \ldots] \]

(39) a. \[ VP \ldots [XP \ldots YP \ldots] \ldots V \] Movement of XP out of VP
   b. \[ [XP \ldots YP \ldots] \ldots [VP \ldots t \ldots V] \] No movement of YP out of barrier XP
c. \[ *\text{YP} \ldots [\text{XP} \ldots \text{t} \ldots ] \ldots [\text{VP} \ldots [\text{XP} \ldots \text{YP} \ldots ] \ldots V] \]

The ban against movement out of a category stranded by VP-preposing holds relative to (39) only. Unfortunately, if one considers (35c) and wishes to respect strict cyclicity in its derivation, the only derivation compatible with the string seems to be one of the (39)-type. If PP is scrambled out of VP before da is extracted from PP, the PP becomes an island, so that da can no longer move out of PP. But if da is extracted first, one generates the sequence \( \text{da} \ldots [t \ mit] \ gerechnet \). Later leftward movement of \([t \ mit]\) would only generate a structure in which mit precedes rather than follows da — unlike what one finds in the sentence that must be generated.

Müller (1998: 205ff.) observes, however, that a type-(38) derivation not leading to a barrierhood problem is possible for (35c) if the PP \([t \ mit]\) undergoes string-vacuous extraposition (rather than scrambling) after da has been extracted out of it. The structure \( \text{da \ wohl \ nicht} [t \ mit] \ gerechnet \) generated by extraction of da out of PP would then be transformed by extraposition of the remnant PP into \( \text{da \ wohl \ nicht} \ [t \ mit] \ gerechnet \). Later movement of the (nearly empty) VP yields the desired \( \text{gerechnet \ . da \ wohl \ nicht} [t \ mit] \).

(38) would constitute a very elegant and cost-free way of dealing with the missing-island problem. However, the account is confronted with the problems discussed above that arise in all theories in which extraposition crucially feeds remnant VP movement. Thus, NP-objects do not become islands when they are stranded by incomplete VP preposing (40b,41b), although they typically resist extraposition. (40b) can be derived only if the PP \( \text{von denen} \) leaves the NP object \( \text{keinen \ von \ denen \ before \ keinen} \) leaves VP. This is compatible with the phonetic string we find only if the derivation proceeds as in (38) — but there is little reason to assume that NPs can be extraposed freely in German.

(40) a. Ich habe doch keinen von denen kritisiert.
   I have nobody of these criticized
b. Kritisiert habe ich von denen, doch \([\text{keinen} \ t\].
   ‘I really haven’t criticized anyone of them.’

(41) a. Er hat bislang noch \([\text{garnichts} \ darüber]} \ verfasst.
   he has yet still nothing there-about composed
b. Verfasst hat er darüber, bislang noch \([\text{garnichts} \ t\].
   he has not written anything about that so far

Likewise, the prediction seems to be made (cf. Müller 1998: 208) that complement NPs and PPs should be islands in remnant VP movement constructions
whenever the complement is followed by a further verb following and selecting the VP that was preposed, as in (42), because the position which NP and PP show up in is incompatible with the idea that they have been extraposed.

(42) Angerufen denke ich dass er den Fritz nicht hat
called upthink I that he the ACC Fritz not has
I think he has not called up Fritz

At most, this prediction is borne out “by and large” (Müller 1998:208), but what “by and large” means for a theory of extraction and barrierhood is not obvious. It may very well be the case that (43) taken from Müller (1998:207) (=his 132a) is “significantly” degraded — but this deviance need not follow from the theory of barriers.

(43) rechnen hat da keiner mit können
reckon has there nobody with could
nobody could reckon with that

That other factors may be responsible for the (slight) deviance of (43) is particularly likely because of what one observes in the context of (44). (44b) is a perfectly well-formed version of (44a), but it involves exactly the constellation da . . . mit + auxiliary that the remnant movement theory seems to rule out. Note furthermore that (44c) is grammatical, too, because PPs can be extraposed into a position sandwiched between two verbs. Thus, the extraposition theory does not really make the prediction Müller (1998) has in mind.

(44) a. Er dürfte sie ja wohl kaum damit widerlegt haben.
    he might her yes well barely therewith refuted have
b. Widerlegt dürfte er sie da ja wohl kaum mit [t mit] haben.
c. Er dürfte sie da ja wohl kaum mit haben.
    ‘He is not really likely to have refuted her with that.’

(43) and (44) thus do not tell us much the about the viability of an extraposition account of missing islandhood.

(45c) is much more critical in this respect, because it shows there is at least one context of unexpected transparency that can neither be captured by scrambling (39) nor by extraposition (38). The crucial item is the noun phrase welche Ansichten dazu ‘which opinions on that’, that can be fronted as a unit, as (45a) shows. There is also a remnant wh-movement option here, as (45b) illustrates. The PP-complement dazu can be moved out of the wh-phrase before the latter is fronted as in (45b). The operations have to be applied in
that order, because (a) the wh-phrase is an island when it occupies SpecCP, and because the linear position of dazu is not compatible with the idea that is has been extraposed from the noun phrase.

(45) a. [welche Ansichten dazu] hat er denn geäussert.
   which opinions there-to has he then uttered?

b. [welche Ansichten t] hat er denn dazu, geäussert?
c. Welche Ansichten hat er da denn zu geäussert?
   ‘Which opinions has he expressed on that?’

Problems arise in (45c) only. The PP-complement dazu may itself be split up, as (45c) illustrates. Suppose one tries to derive (45c) by scrambling da out of dazu after dazu has been moved out of the NP-object welche Ansichten dazu. Such a derivation cannot be successful because dazu becomes an island after being moved out of NP.

Suppose, then, that da is moved out of dazu when the latter is still part of the NP-object. Given the linear sequence one finds in (45c), this step transforms the sequence denn welche Ansichten dazu geäussert into da denn welche Ansichten zu geäussert. But now we face a problem. Before the wh-part of the object-NP moves to SpecCP, the PP [t zu] must be extracted from it as an instance of remnant movement. If that movement is scrambling, and if we respect cyclicity, we arrive at zu da denn welche Ansichten geäussert — this is not what is intended, and neither is da denn welche Ansichten geäussert zu, the result of extraposition.

For the correct phonetic sequence to be generated, the remnant PP would either have to be “tucked in” (violating cyclicity), or one would have to assume a further instance of verb movement not motivated otherwise that restores verb-finality after PP extraposition, transforming da denn welche Ansichten geäussert zu into the correct substring of the target (45c). The former solution is theoretically inacceptable, the latter must be avoided if a less stipulative alternative is at hand. Since the predicate raising theory of ‘incomplete’ category fronting has an account for (45c), it has a significant advantage over remnant movement theories, which cannot deal convincingly with this and similar structures. The conclusion that missing island effects constitute a significant problem for remnant movement accounts is thus justified.

The situation is different for predicate raising theories. For a simple case of the fronting of a thematically incomplete VP, we have already seen that an argument X of V₁ can be merged in the projection of V₂ in \([_{VP}...X...V₁]_{VP}...\) if V₁ incorporates into V₂ at LF. X therefore need not occupy a
derived position even if it does not appear in the projection of V₁. Island effects are therefore not expected. Furthermore, this consideration holds irrespective of whether the lower theta-marking head is a verb or not. Arguments of a noun can also be merged in VP in \([\text{VP} \ldots X \ldots [\text{NP} \ldots N] \ldots V₂]\) if N moves up to V₂ at LF (see also Fanselow 2001), so that X can receive its thematic role from the complex \([N-V₂]\). The central problem with (45c) can thus be circumvented if we assume that \textit{dazu} merges in VP rather than NP in the structure underlying (45c).

(45) d. Er hat [[welche Ansichten] [[dazu geäussert]].
he has which opinions there-to uttered

One question is whether N-to-V-movement at LF is independently motivated. Notice that NP is a complement of V in the structures in question (non-complements are barriers for extraction, and we focus on constructions in which NP is transparent for movement), that is, N bears features which V selects. Thus, the attraction of formal features of N by V is a well-motivated operation. Attraction processes pied-pipe the full set of formal features of a category (Chomsky 1995). If the features related to theta-assignment come from the formal domain (as is the case in the approach proposed by Fanselow 2001), the attraction of unchecked theta-related features of N by V₂ is in fact inevitable when N is a complement of V₂.

Notice furthermore that movement theories assume this type of N-incorporation into V as well, at least if they presuppose the theory of barriers proposed by Baker (1988) and developed by Müller and Sternefeld (1993) and Müller (1995), according to which it is the incorporation of its head that makes an XP transparent for further movement. Furthermore, the semantic relation between N and V is a notorious crucial factor for the wellformedness of an extraction out of NP (compare \textit{who did you read a book about} with \textit{who did you steal a book about}), and bringing N and V together at LF is a standard way of capturing this special relation.

In (45d), the verb \textit{geäussert} does not c-command the object NP. It can attract the feature of N, however, after it has itself been incorporated into \textit{hat}, a position c-commanding all XPs in the clause. Recall that in the system of Chomsky (1995), heads can attract other categories after they have moved to higher heads, of which they become ‘sublabels’. (45c–d) therefore pose no problem for a predicate raising approach.

To summarize this section, we have seen that predicate raising and remnant movement theories differ in one central respect, namely the predictions they
make for the island status of stranded complements. It seems difficult to account for the lack of such effects within remnant movement accounts, while the crucial data are expected in the predicate raising approach.

In this context, however, complications seem to arise. The approach we have in mind appears, at first glance, to be too unrestricted. Specifiers and heads may agree with respect to formal features. In minimalist terms, this means that features of the specifier can move to the head position in order to be checked there.

This option must be severely restricted for the following reason: if features of the head $K$ of the specifier of a head $H$ could also be attracted by $H$, the island status of specifiers could be circumvented. Suppose that a category $C$ is thematically selected by the head $K$ of the specifier of $H$, but it is merged in some position in the projection of $H$. This structure will be well-formed if features of $C$ can check theta-related features of $K$. If $H$ can attract a feature of its specifier’s head $K$ in $[\text{Spec}_H [\text{Spec}_K \ldots K \ldots] H']$, the formal features of $K$ will move to $H$, including those responsible for thematic selection of $C$. Thus, a thematic complement $C$ of $K$ would seem to be able to merge within $H'$, and check features of $K$ because they have moved to $H$. $C$ could then move to some other position. The surface effect of this derivation moving $C$ would be indistinguishable from an extraction out of a specifier position. That is not necessarily a welcome result, but a rather easy solution can be developed. This solution involves a very strict version of barrierhood that bans any movement out of specifiers and adjuncts. In such an account, not only the overt movement of phrases and heads, but also pure feature movement could not apply when an element is embedded within a specifier. Then $H$ cannot attract a feature of $K$ in $[\text{Spec}_H [\text{Spec}_K H \ldots]]$, because specifiers are islands, i.e. nothing can be attracted from a category within $KP$. This is a welcome prediction because it rules out extraction from $KP$, and also explains the absence of the pseudomovement effects just described (the theta-selecting features of $K$ cannot be transported to $H$).

This idea seems to be unable to explain the ubiquity of specifier-head agreement. Note, however, that features of a head $K$ are present at the node $KP$ as well ($KP$ is, after all, a projection of $K$), and these features present on $KP$ (rather than $K$) may serve as the checking mates for features of the head $H$ $KP$ agrees with. In the case of a specifier $KP$, the checking head $H$ thus agrees with the maximal projection $KP$, not with the head $K$ of $KP$.

If one combines this with the natural assumption that selectional features do not percolate at all from the head to the maximal projection, there are no
selectional features present at the KP node, the only slot which H can check when KP is a specifier of H or an adjunct. Thus, no selectional features can be pied-piped when features of KP are attracted to the position of H. Heads of complements only are able to transmit their argument-selection features to a higher head, as required. In the next section, we will discuss some empirical evidence that supports this approach to selectional features.

6. Some asymmetries

6.1 Left dislocation and argument hierarchies

Left dislocation is a context in which incomplete VP fronting effects show up as well, at least in certain contexts, and to different degrees in different varieties of German. There is some disagreement concerning the status of (46), which is ruled out by Müller (1998: 222) (but would be ruled in by the present author). Note that (46) has not really been endowed with a satisfying potential of making sense pragmatically — my impression is that (47) (that fares better in the latter respect) indeed sounds much better than (46).

(46) #gegeben, das hat die Claudia dem Peter ein Buch
  'Claudia has not given a book to Peter.'

(47) Schenken, das würde sie Peter ihre Lieblingsdecke natürlich nie!
  'She would not even dream of giving her favorite blanket to Peter as a present.'

We will come back to such differences in judgments below. Müller (1998) agrees with Truckenbrodt (1992) in the judgement that incomplete left dislocation of VP is grammatical when a dative object (= der Claudia) of a (regular) ditransitive construction is stranded, as in (48). The contrast with (49), in which the accusative object has been stranded instead, is indeed very strong.

(48) Ein Buch schenken, das würde ich der Claudia nie
  'I would never give a book to Claudia as a present.'

(49) *Der Claudia schenken, das würde ich ein Buch nie
Müller (1998) accounts for this contrast by assuming that the dative object can move out of VP by a dative movement rule that is different from scrambling.\textsuperscript{18} In the theory of remnant movement he has developed, the process that removes YP from XP must not be of the same type as the one that fronts the remnant XP. If scrambling and left dislocation belong to the same movement type, but not dative movement and left dislocation, the contrast between (48) and (49) is captured: the accusative noun phrase can leave VP by scrambling only, but the dative DP has a further option compatible with later remnant left dislocation of VP.

When one considers a broader range of data, however, it turns out that the dative Case of the indirect object in (48) is not the crucial factor for the grammaticality of a partial left dislocation constellation. Rather, relative to an argument hierarchy $a >> b >> c$, it seems that a higher argument must not appear in the left-dislocated VP unless the lower arguments do so, too. This is corroborated by the behavior of prepositional objects (50) (which are lower on the hierarchy than direct objects), by the behavior of genitive objects (51) (also assumed to be lower on the argument hierarchy), and by the behavior of verbs like \textit{unterziehen} ‘expose’ that have an ‘inverted’ thematic hierarchy (52) (see Haider 1993), as is shown by the following data:

(50) a. Zur Bank bringen das sollte man sein Geld besser nicht.
   to-the bank bring that should one one’s money better not
b. *sein Geld bringen, das sollte man besser nicht zur Bank.
c. Sein Geld zur Bank bringen, das sollte man besser nicht.
   ‘One should not give one’s money to a bank.’

(51) a. Des Mordes beschuldigen das sollte man den Fritz nicht.
   the.GEN murder accuse that should one the.ACC Fritz not
b. *Den Fritz beschuldigen, das sollte man des Mordes nicht.
c. Den Fritz des Mordes beschuldigen, das sollte man besser nicht.
   ‘One should not accuse Fritz of murder.’

(52) a. Einer Prüfung unterziehen das sollte man Studenten besser nicht.
   dat text expose that should one students better not.
b. *Studenten unterziehen, das sollte man einer Prüfung besser nicht.
c. Studenten einer Prüfung unterziehen, das sollte man besser nicht.
   ‘One should not expose students to a test.’

How can such data be accounted for? The left dislocated phrase VP is adjoined to CP, and its correlate \textit{das} shares the grammatical features of VP. Material
included in the clause proper can interact with elements of the dislocated VP only in terms of this feature interaction. Above, it has been shown that selectional features must not percolate from a head to its maximal projection. Consequently, the top node of the left dislocated VP does not specify any selectional features.

Therefore, *das* (which derives its features from the VP in left dislocated position) cannot carry selectional features either. This implies that no element merged in the clause proper can enter a thematic relation with the verb in the left dislocated VP. Only VPs which are already thematically complete should therefore be able to enter left dislocation constructions. Only the (c)–examples of (50)–(52) are predicted to be grammatical. This comes close to a description of the most restrictive dialect.

Notice, however, that in VP left dislocation constructions subject arguments appear within IP. As the (a)-examples in (50)–(52) show, the same is true for non-subject arguments if thematic hierarchies are respected.

An explanation for these two observations can be formulated if one gives up a certain simplification with which I have worked so far. Up to now, I have assumed that a single head, viz. V, selects all arguments, which merge in the projection of this head. It has been proposed, however, that heads select a single argument only. In Chomsky (1995), the complete representation of a transitive structure is (53a), in which the light verb *v* rather than the full lexical verb V assigns the subject theta-role. This proposal can be extended to three place verbs by postulating an additional light verb *v* mediating theta-role assignment (53b).

\[
\begin{align*}
(53) & \quad a. \quad [_{\pi}NP_1 \ v [_{\pi}V \ NP_2]] \\
& \quad b. \quad [_{\pi}NP_1 \ v [_{\pi}NP_3 \ v^* [V \ NP_2]]]
\end{align*}
\]

Let us assume, then, that thematic role assignment proceeds in that way. The lexical verb is merged at the V node, and incorporates into the light verbs introducing the other arguments, either in the overt or the covert component of grammar.

In a left dislocation construction, the verbal projection adjoined to CP can either be VP, *v*P or vP. The same options arise for its counterpart *das*, too — it can be either a VP or a *v*P.

\[
\begin{align*}
(54) & \quad a. \quad [VP_i [_{\pi}CP [_{\pi}VP \ das_i] \ldots [_{\pi} \ldots [_{\pi}DP_k [_{\pi}t_{VP}]]]]] \\
& \quad b. \quad [v^*P_i [_{\pi}CP [_{\pi}das_i] \ldots [_{\pi} \ldots [_{\pi}DP_k [_{\pi}t_{v^*P}]]]]] \\
& \quad c. \quad [vP_i [_{\pi}CP [_{\pi}das_i] \ldots [_{\pi} \ldots [_{\pi}t_{v^*P}]]]]
\end{align*}
\]
Suppose the left dislocated verbal projection is VP (= 54a). In this case, a light verb v* can be present within IP. It selects the VP pro-form das, and is able to license an indirect object argument within IP. In such a constellation, the lower of two internal arguments must appear in the left dislocated phrase, while the higher argument has to be merged in v*P/IP. This explains (48) and the (a)-examples in (50)–(52).

(49) and the ungrammatical (b)-examples of (50)–(52) still cannot arise. In these structures, the higher of the two internal arguments appears in the left dislocated verbal projection. This is possible only if the left dislocated phrase is a v*P. Although v*P contains a V-head that carries selectional information for the lowest argument, this selectional information of V is not present on the maximal v*P node, because selectional information never percolates to maximal projections. Thus v*P does not specify selectional information for the lowest argument. Consequently, such information cannot be transmitted via das into the clause proper. Das, being a v*P itself, can only be a complement of v, which introduces a subject argument, and not the lowest argument to be selected by the verb. Thus, there is no way by which the b-examples of (50)–(52) could be generated.

The only issue left open is thus the wellformedness of (47) for some speakers of German. One way of dealing with that dialect could refer to the question of whether the lowest argument NP₂ may also be merged in a position adjoined to VP. If so, there is a possibility of relating (47) to [NP [VP das]].

6.2 Clause-internal preposing

Müller (1998: 258) discusses a further factor that influences the grammaticality of incomplete VPs that have been preposed in the so-called middle field of a German clause (that is, within IP) and that is similar to the one discussed in the previous section. Standard judgments are given in (55).

   that kissed nobody the Peter has
b. Dass [vp den Peter geküsst] keiner hatte.
   'That nobody has kissed Peter.'
c. Dass ein Buch geschenkt der Maria bislang noch keiner hat.
   that a book given the.DAT Mary so far yet noone has
   that nobody has so far given Mary a book as a present
The unacceptability of (55a) follows if — as the present model implies — the serialization of elements within IP is in general not due to a scrambling transformation in German and other languages. Consequently, the VP appearing at the front of IP does not bind a trace in the position preceding the auxiliary verb, that is, it also cannot reconstruct to such a position — quite unlike what happens when a VP has undergone A-bar-movement to the specifier position of CP in the standard examples of remnant VP fronting that have been the focus of our discussion so far.

Therefore, the options for non-standard merge positions opened by predicate raising along the lines explained for (10) above cannot arise in (55a). The preposed VP is just an adjunct, so that the construction should behave like a left dislocation structure in the relevant respects. The pattern in (55) shows that this prediction is borne out.

It should be noted that (55a) improves when the clause is pronounced with a rise-fall contour (the ‘hat’ contour). Presumably, this is due to the presence of an A-bar-topic position following the complementizer but preceding SpecIP in German clauses (comparable to the one finds in English), for which Frey (2000) has argued recently, see also Haider and Rosengren (1998) for pertinent observations. If a VP moves to such an A-bar-position, its behavior there does not differ from the behavior of a VP moved to SpecCP. In particular, it should be possible to strand the lowest internal argument of the verb — just as in (1). Movement to this clause-internal Topic position is linked to a pragmatic conditions and signalled by the rise-fall contour characteristic of sentences with two indepedent foci, or one focus XP and one contrastive topic.

7. Remnant Movement (in German?)

The preceding sections have concentrated on the question of whether data like (1) involving the placement of a thematically incomplete verb phrase into the specifier position of CP can and should be analyzed in terms of remnant movement. Our conclusion has been negative. The greater flexibility of argument selection that results because the Projection Principle was abandoned makes an analysis for (1) possible that involves predicate raising.

There is weak evidence for replacing remnant movement by predicate raising that relates to constraints on scrambling and extraposition, and stronger evidence for the replacement that involves missing freezing effects,
and asymmetries among the arguments in left dislocation constructions. Are there theoretical implications of this result that go beyond a reassessment of the analysis of (1)?

Recall that the theory proposed here is one in which free constituent order of the type we find in German also does not arise by movement. If there is no scrambling, this operation cannot extract elements out of a VP before VP moves itself. In this very obvious sense, data like (1) simply cannot be due to remnant movement.

This leaves us with the question of whether other constructions of German (or of other languages) nevertheless involve remnant movement. It seems that the answer is positive. The most convincing evidence for German is certainly constituted by the construction in (56).

(56) a. Alle Träume gleichzeitig kann man selten verwirklichen.
   'All dreams can rarely be realized at the same time.'
   b. Jeden Tag einen Brief nach Berlin hätte er besser nicht geschickt.
   'He had better not sent a letter to Berlin every day.'
   c. Den Hubert seinen Wagen habe ich noch nie waschen sehen.
   'I have never seen Hubert wash his car'

Such constructions, discussed, e.g., in Fanselow (1987, 1993), Müller (1998), and in St. Müller (2000) seem to challenge the claim that the finite verb (underlined in (56)) is always preceded by only a single constituent in German main clauses. As Fanselow (1987) observes, the XPs that precede the finite verb in these and all other examples must belong to a single verb thematically. This makes an analysis possible in which the data respect the verb second law, viz. an analysis in which the finite element is preceded by a VP with an empty head ([VP den Hubert seinen Wagen t,] see Fanselow 1993). That the head position of this VP is emptied by moving V out of VP before VP undergoes topicalization (and not by the obscure mechanism envisaged by Fanselow 1993) was proposed by Müller 1998, an analysis that is corroborated by the fact that verbal prefixes can appear in the preposed VP, as in (57) (constructed in the spirit of many similar examples in St. Müller (2000). It is not clear how the complex verb vorangehen 'proceed' could be split up in (57) in a different way.
Mit gutem Beispiel voran geht die Kooperative Marion Hornig
the cooperative “Marion Hornig” sets a good example

There is, then, at least one aspect of topicalization in German that involves remnant movement. Note that - in contrast to what is the case with the examples discussed in the preceding sections- the existence of verb movement in German is beyond doubt at least in certain constellations. Likewise, subjects are stranded when VPs are topicalized in English (58), which suggests that NP-movement to SpecIP may precede the movement of VPs.

The problems with a remnant movement analysis of “incompletely” fronted VPs in German such as (1) thus stems from the fact that there is no scrambling operation, they do not suggest that remnant movement does not exist as such.

As a reviewer points out correctly, the results of this chapter are also strongly related to the issue of the identification of the proper theory of thematic role assignment. In the model proposed here (see also Fanselow 2001), theta-role assignment is a consequence of the checking of features that verbs and other predicates will possess in any event. In the alternative (and ‘standard’) account, XPs bear a certain thematic role because they occupy a specific structural position. Both models seem to be fairly simply. The one defended here makes a predicate raising account of incomplete VP-fronting possible. It thus avoids the empirical difficulties identified in Sections 5 and 6, that arise in remnant movement theories, that is, in syntactic models working with configurational theta-assignment.

Notes

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1. In this article, Müller (XXXX) refers to work by Gereon Müller, St. Müller (YYYY) to work by Stefan Müller.
2. The possibility of multiple maximal projections of a single head is quite independent of much of the discussion in this chapter. In the interest of space, I will not address this problem here.

3. In addition, there are proposals that work with non-standard assumptions concerning movement, see Čavář and Fansenow (1997), Fansenow and Čavář (2001), and Hinterhölzl, this volume.

4. In German, modal and temporal auxiliaries behave like full verbs in all respects. It thus seems justifiable to assume that *hat* projects a VP in (6). Nothing in the present account of incomplete category fronting hinges on this assumption, however.

5. Haider (1990) furthermore assumes that verb phrases in SpecCP are base-generated there. His arguments for this view have been refuted by Müller (1998).

6. One alternative is the lowering of the dative noun phrase into the projection of *schenken*, in the spirit of Bosković and Takahashi (1998).

7. Our approach is not directly compatible with the Agreement model proposed in Chomsky (1998), but very well so with its extension developed in Pesetsky (2000).

8. We have disregarded NP-movement of the subject out of VP up to now — see the final section.

9. Müller shows that a category containing a trace of A-movement cannot undergo A-movement itself. XPs containing scrambling traces must not be scrambled themselves, XPs containing a wh-movement trace cannot undergo wh-movement. See Müller (1998) and Hinterhölzl (this volume) for the possibility of deriving this constraint from the Minimal Link Condition.

10. See also Hinterhölzl (this volume) for this point.

11. This conclusion would be incorrect if the movement feeding remnant movement to SpecCP is the licensing (A-) movement of the arguments in question, as a reviewer points out. The A-movement of objects to their licensing position would then be (possibly) overt in German, but always covert in English. Note this approach is the mirror image of the one developed here, and differs from it in terms of the islands facts discussed in Section 5. Therefore, this alternative account must be dismissed, too.

12. The only way of triggering scrambling would be the postulation of a “scr”-feature that is present just in case the phrase needs to be subjected to scrambling. This is certainly not a satisfactory solution. See Fansenow (2001) for a detailed discussion.

13. A reviewer points out that Heavy NP-Shift may be analyzed as extraposition in English, but does not license remnant movement, as the ungrammaticality of *give Mary John did yesterday the book that she likes shows. This may be due to the fact that Heavy-NP-Shift has the same grammatical type as VP-preposing, so that the example falls victim to the constraint mentioned in note 9.

14. This question is particularly difficult to answer if the licensing movement of XPs in English is a covert one, as discussed in note 11.

15. The situation is a bit more complex if we want to maintain the idea that it is not the lexical verb *show itself* but the functional categories it incorporates into that bear the strong
selectional features (see Fanselow 2001). To avoid unnecessary complications, I refrain from going into this issue here — see Fanselow (2001) for a discussion.

16. In the model proposed by Boškovic´ and Takahashi (1998), surface structure scrambling is replaced by an LF operation that lowers arguments to their theta-position. If the theta-features are strong (as they are in English), they must be checked before Spellout, that is, the arguments must appear in the projection of the category thematically selecting them. If the features are weak (as they are in Japanese), the arguments may be generated freely in any position, in particular in higher projections (say, as adjuncts to IP rather than in VP), because they can reach the position they check their theta-feature in after Spellout by lowering.

In the approach developed in Fanselow (2001), arguments are merged freely in any position. If thematic roles are checked in overt syntax, this comes about by the attraction of strong categorial features, respecting the Minimal Link Condition. Furthermore, overt checking takes place before LF predicate raising. The features of an argument of V generated in a higher projection (e.g., as an adjunct to IP) cannot be attracted by V, so theta-assignment cannot take place for arguments merged in too high a position. An argument of X must therefore be merged in XP in case one of the attracting features is strong. The situation is different when the theta-related features are weak. Suppose X is an argument of V merged as an adjunct of IP. Then, features of X can be covertly attracted by V after V has raised to Infl in \[ \{ X \} \{ \ldots \} \{ \ldots \} \{ \ldots V \} \]. The predictions are thus more or less the same as in the Boškovic´ and Takahashi (1998) account, but predicate raising does the job of argument lowering at LF.

17. If free constituent order languages fail to show the strong subject-object asymmetries with respect to extraction, as Haider (1986) has claimed, the derivation sketched above might, however, be an answer as to why specifier islands are not respected. It is not clear, however, whether Haider’s claim is factually correct (see Fanselow 1987; Müller 1995, 1998 for a discussion.)

18. The additional movement affecting the dative is movement to the dative checking position in Müller’s account. Suppose that scrambling is not involved in remnant movement constructions, but movement to a Case position (see note 11). It would then be quite unclear why the two instances of object Case licensing movement should behave so differently with respect to remnant movement.

19. More precisely, movement of the finite verb to second position is beyond doubt. In a strict sense, the argument given above therefore applies to those constructions only in which the verb missing in a preposed VP occupies the second position of the clause, which is not the case in (56). (56) involves verb cluster formation.

If there is no V-to-I movement in the embedded clause (as Koopman 1995 suggests), VPs stranding their heads should not be able to move out of embedded clause (which cannot have V-to-C movement). The prediction is not borne out: even if the remnant VP consists of the verbal particle vor of the verb vor-haben ‘lit.: before-have, intend’ only, there is no clear contrast between (ii) and (iii)–(iv). This either constitutes a major problem for the idea that there is no V-to-I movement in German, or suggests that something different from remnant movement is involved in these instances of VP-preposing; the distributed
Against remnant VP-movement

deletion discussed in Čavár and Fanselow (1997), Fanselow and Čavár (2001) and Hinterhölzl (this volume).

(i) Dass er schon vor-hat sie zu heiraten
that he before has her to marry
‘That he intends to marry her.’

(ii) Vor hat er schon sie zu heiraten

(iii) Vor denke ich dass er hat sie zu heiraten
before think I that he has her to marry
‘I think he intends to marry her.’

(iv) Vor denke ich nicht dass er das hat
before think I not that he that has
‘I do not think that he intends to do that’

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Chapter 7

Remnant movement and partial deletion

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1. Introduction

The term remnant movement was coined by den Besten and Webelhuth (1987) to account for a peculiarity of verb-preposing in German and Dutch. Provided that only XPs can move into XP-positions, it follows that what has been moved into [SpecCP] in (1) is not simply a verb, but must be minimally a full VP. Thus, they propose to analyse (1a) parallel to cases of VP-preposing (cf. (2a)), in which the direct object has been scrambled out prior to VP-to-CP movement. The moved VP is called a remnant category since it contains, at least, the trace of the direct object as is indicated in (2b).

    read-part has Hans the book
    ‘Hans has read the book.’

    b. Lieben will Hans die Maria.
       love-inf wants Hans the Maria
       ‘Hans wants to love Maria.’

(2) a. [VP das Buch gelesen] hat Hans t_{VP}

    b. [VP t_{SCR} gelesen] hat Hans [das Buch]_{SCR}

However, there is an analysis of verb-preposing that can do without remnant movement. Given that movement is copy-and-delete (Chomsky 1993, 1995), (1a) can be analyzed in terms of partial deletion (Wilder 1995; Hinterhölzl 1997; Čavar and Fanselow (C&F) 1998). C&F argue convincingly that cases of discontinuous NPs as illustrated in (3a) should be handled in terms of movement (rather than in terms of base-generation) employing selective deletion operations as indicated in (3b).
Given the availability of both remnant movement and partial deletion, two questions arise: 1. Can specific cases of incomplete category dislocation be better explained in terms of conditions on movement or in terms of conditions on deletion. In other words, should (2) be reanalyzed as is illustrated in (2')?

(2') a. [das Buch gelesen] hat Hans [das Buch gelesen].
   b. [das Buch gelesen] hat Hans [das Buch gelesen].

2. Since both operations yield similar results, should the grammar allow for both remnant movement and partial deletion to occur? With respect to the first question, we will look at cases with contradictory constituent requirements which show up in restructuring contexts and are illustrated in (4) and (5). In (4a), the dependent infinitive together with its CP-complement has been fronted. However, embedded infinitive and the CP-complement do not form a constituent after verb-complex formation took place, as is illustrated in (4b–c). (5a) indicates that the embedded infinitive and its direct object seem to form a constituent (excluding the modal verb), while (5b) indicates that the embedded infinitive and the modal form a constituent which can be fronted without the embedded argument.

(4) a. [fragen ob wir zustimmen] wird er wohl müssen.
   ask whether we agree will he well must
   'He will probably have to ask whether we agree.'
   c. Er wird wohl [fragen] müssen [ob wir zustimmen].

(5) a. [ein Haus bauen] wird er wollen.
   a house build-INF will he want
   'He will want to buy a house.'
   b. [bauen wollen] wird er ein Haus.
   build want will he a house
   c. Er wird [ein Haus [bauen wollen]].

Since the constituent structure after verb-complex formation is as given in (5c), both (4a) and (5a) could be handled in a parallel and simple fashion in
Remnant movement and partial deletion as is illustrated in (6). However, we will argue that these cases should not be treated in terms of partial deletion but call for an analysis that employs remnant movement.

(6)  a. [fragen müssen ob wir zustimmen] wird er wohl [fragen müssen ob wir zustimmen]
     b. [ein Haus bauen wollen] wird er [ein Haus bauen wollen].

With respect to the second question, we will argue that the two operations can coexist since they have a complementary distribution in the grammar: partial deletion results from pied-piping (and additional constraints), while remnant movement results from the unavailability of pied-piping.

The chapter is organized in the following way. In Section 2, we will discuss the properties of remnant movement and examine the conditions that govern its availability. In Section 3, we will provide a novel account of restructuring in terms of remnant movement and discuss the implications of this account for the theory of remnant movement. In Section 4, we will outline a restrictive theory of deletion and show that it can derive the cases of Discontinuous constituents discussed by Čačar and Fanselow 1998. In Section 5, we will come back to our cases of conflicting structural requirements and explain in detail why they should be handled in terms of remnant movement rather than in terms of partial deletion.

2. Remnant Movement

Remnant movement seems to be exempted from the Proper Binding Condition (PBC), which requires that traces be bound. It is typical of remnant movement to create unbound traces as is illustrated below. In (7), the fronted VP contains the trace of the direct object which is not c-commanded by its antecedent.

(7) [VP tSCR gelesen] hat Hans [das Buch]SCR tVP

Remnant movement typically also leads to so-called Anti-Freezing effects. A Freezing effect occurs if extraction of constituent $a$ out of a constituent $b$ takes place in a derived position of $b$. This is illustrated in (8ab). In (8a), extraction took place from the base position of the direct object. In (8b), the direct object has been scrambled to a higher position from which extraction is excluded.
Example (8c) is a case of remnant movement. From a representational point of view, (8c) should be as bad as (8b), since the direct object in (8c) occurs in a derived position and contains a trace created by extraction. However, if we look at these cases from a derivational point of view, we immediately understand why (8b) is ungrammatical and (8c) is fine. The difference follows from the Extension Condition on derivations (Strict Cyclicity). In (8c), it is possible to extract the PP out of the DP in its base position and then move the remnant DP, obeying the Extension Condition, to a higher position. This derivation, however, is not available in (8b). If the PP were extracted first, movement of the remnant DP to a lower position would violate cyclicity. Thus, we see that obeying the Extension Condition voids — in a manner of speaking- freezing effects but necessarily leads to unbound traces. Consequently, we may assume that the PBC is not a derivational constraint.

Furthermore, as Müller in his seminal work on incomplete category fronting has discussed at length (cf. Müller 1996), cases of remnant movement display unexpected asymmetries. As is illustrated in (9), remnant categories can be topicalized, while scrambling may not affect them. This asymmetry does not show up in cases of complete category fronting (10).

   where-about has nobody a book read
   ‘Which topic has nobody read a book about.’

   where-about has a book nobody read
   ‘Which topic has nobody read a book about.’

c. [Ein Buch ti] hat darüber, keiner gelesen.
   a book has there-about nobody read
   ‘Nobody has read a book about that.’

(9) a. [zu lesen] hat das Buch keiner versucht.
   to read has the book nobody tried-part
   ‘Nobody has tried to read the book.’

b. ??daß [zu lesen] das Buch keiner versucht hat.
   that to read the book nobody tried has
   ‘That nobody has tried to read the book.’

(10) a. [das Buch zu lesen] hat keiner versucht.
   the book to read has nobody tried-part
   ‘Nobody has tried to read the book.’
b. Daß [das Buch zu lesen] keiner versucht hat.
    that the book to read nobody tried has
    that nobody has tried to read the book.'

Müller concludes from these observations that remnant XPs cannot undergo Y-movement if the antecedent of the unbound trace has also undergone Y-movement, where Y-movement ranges over scrambling, wh-movement and topicalization. Müller (1996) derives this constraint on remnant movement from his Principle of Unambiguous Domination which is motivated by the need of traces, so Müller assumes, to be unambiguously identifiable.

There are several problems with Müller’s account though. First, there are cases where remnant categories can undergo scrambling, as we will see in 3.2. Secondly, various cases where remnant categories cannot scramble can be reduced to independent restrictions on the individual operations involved, as we will argue in Section 3.2. Thirdly, Müller’s principle of Unambiguous Domination lacks conceptual plausibility in a theory of movement in terms of copy and delete, i.e., in a theory where there are no traces to be identified and, as we will see, fails to explain the parallelism to partial deletion.

From the point of view of feature checking, Müller’s observations indicate that for remnant movement to be possible two sets of features must be involved that cannot be checked in the same (type of) position. Thus, Müller’s generalisation can be derived from Attract Closest (Chomsky 1995), as is illustrated in (11). In order for a (remnant) category A to undergo scrambling, extraction of B out of A must involve a type of movement other than scrambling.

\[(11) \quad F_{\text{SCR}} \cdots [A_{\text{SCR}} \cdots [B_{\text{SCR}} \cdots]]\]

There is a class of cases of remnant movement which are illicit although they obey Attract Closest (or Unambiguous Domination, for that matter). These involve topicalization of a remnant category out of which a category has been extracted via wh-movement as is illustrated in (12). (12a) is a case of topicalization of a clause across a wh-island which leads to a mild, subjacency-like violation. (12b), where the wh-word is extracted from the embedded clause (creating a remnant category), however, is ungrammatical. The same contrast can be observed in English, as is shown in (13) taken from Pesetsky (1998). The relative grammaticality of (12c) is interesting in this respect. If the trace of the wh-word were contained in the fronted VP, as is standardly assumed, then (12c) should be on a par with (12b) and (13b). However, it is just as good as (12a). We will come back to this difference and show how it is to be explained in Section 3.1.
   *(that Fritz loves Peter) know I not who has said
   ‘I don’t know who has said that Fritz loves Peter.’

b. *(daß Fritz t liebt) weiß ich nicht wen er gesagt hat.
   *(that Fritz loves t) know I not who he has said
   ‘I don’t know who he said that Fritz loves.’

c. *(geküßt) weiß ich nicht wen sie hat.
   *(kissed) know I not whom she has
   ‘I don’t know whom she has kissed.’

(13) a. *(geben ein Buch zu John) ich kann raten wer wird.
   *(give a book to John) I can guess who will
   (I can guess who will give a book to John)

b. *(geben ein Buch zu t) ich kann raten wer Mary wird.
   *(give a book to t) I can guess who Mary will
   (I can guess who Mary will give a book to)

It is not clear why wh-movement differs in this respect from other types of
movement. In other words it is not clear why the PBC nevertheless seems to be
relevant for wh-movement. Given that the PBC is not a derivational
constraint we may assume that the cases in (12a, b) and (13) create illegitimate
LF-objects, since the operator does not bind its variable. Pesetzky (1998)
assumes that there is a (special) command restriction on wh-movement. We
will leave this question open here and conclude from the above discussion that
as long as we steer clear of extraction via wh-movement, remnant movement is
freely available if Attract Closest and Strict Cyclicity are obeyed.

3. Restructuring and Remnant Movement

It is important to note that the topicalization of verbal projections is depen-
dent on restructuring. In (14a), where the matrix verb *vergessen* is a restructur-
ing verb, topicalization of the embedded infinitive is licit. In (14b), where the
matrix verb *verzichten* is not a restructuring verb, the topicalization of the
embedded infinitive is ungrammatical. In the standard account, the contrast in
(14) is explained by assuming that restructuring verbs permit embedded
arguments to move into the matrix domain, creating a remnant category that
can be fronted. However, we will argue that what has fronted in (14) is not a
remnant infinitive but just the infinitival VP.

(14) a. *[zu lesen]* hat Hans das Buch vergessen.
   *to read* has Hans the book forgotten
   ‘Hans has forgotten to read the book.’
b. "[zu lesen] hat Hans das Buch verzichtet.
   to read has Hans the book refrained from
   Hans refrained from reading the book.'

4. An account of restructuring in terms of Remnant Movement

In Hinterhölzl (1999), we argue in favor of a VO-based, biclausal account of restructuring and show that the standard analysis in terms of Verb Raising (VR) and Long distance scrambling (LDS), as illustrated in (15), is untenable. VR is an operation of head-movement that adjoins (right-joins, in the case of (15)) the dependent infinitive to the selecting verb. LDS is an operation that moves arguments of the infinitival verb into the matrix domain to account for the so-called Clause-Union phenomenon. In the case of (15), the embedded object is scrambled out of the embedded clause, across matrix negation into the middle field of the matrix clause.

(15) Dat wij de kraaien LDS niet [ t_{LDS} t_{VR} ] zagen vliegenVR
    that we the crows not saw fly
    that we didn’t see the crows fly.'

In Hinterhölzl (1999), we demonstrate with the help of particle verbs in Dutch that verb cluster formation involves movement of the (extended) infinitival VP. Here, we will outline only one piece of evidence that shows that VR is XP-movement and that comes from the position of the infinitival marker. In the standard account, the sequence *op te bellen* in (16a) has to be analyzed as a complex head. However, in Hinterhölzl (1999) we show that the infinitival marker can neither be analyzed as a verbal prefix (in the VP) or as occupying a head final functional position within the IP-domain to which the infinitival verb has been right-joined via head movement. Instead, Hinterhölzl (1999) argues that the infinitival marker occupies a functional head to the left of VP, which Haegeman (1995) called F1 and adopts a VO-based approach. In this approach, the sequence *op te bellen* is to be analyzed as given in (16b) with the particle undergoing licensing XP-movement to [SpecF1P].

(16) a. Dat Jan Marie t_R probeerde [op te bellen]_R.
    that Jan Marie tried up to call
    that Jan tried to call up Marie.'

b. [fIP [XP op ]], [t_{VP} bellen t_I]
The main problem that a VO-based account of restructuring faces is the question of how to account for the distribution and interpretation of elements belonging to the dependent infinitive (its arguments and adverbs modifying it). If we look at a typical case of VR in Dutch (cf. (17ab)), then we realize that the nominal arguments of the infinitive and adverbs and adverbials modifying it precede the selecting verb *wilde* while the infinitive itself (and a sentential complement of the infinitive) follow the selecting verb. In (17), constituents given in square brackets belong to the embedded clause. In a VO-based account, we have to assume that a restructuring infinitive like (17a) is derived from an underlying structure of the type given in (17b).

(17) a. Dat Jan [Marie het boek morgen] wilde [geven].

   *That Jan wanted to give Marie the book tomorrow.'*

b. Dat Jan wilde [ PRO Marie het boek morgen geven ].

The simplest possibility of relating the structure in (17a) with the underlying structure in (17b) is to assume that the bracketed constituents preceding the matrix verb have been moved individually via scrambling from the embedded clause into the matrix clause. However, Hinterhölzl (1999) argues that scrambling (alone) cannot be the solution to this problem. Here we can only outline the main arguments. The first argument is that verb particles, small clause predicates and idiomatic expressions resist scrambling (cf. (18b)) but can appear in the matrix clause in restructuring contexts as is illustrated in (18c) for adjectival small clause predicates.

(18) a. Dat Jan de schuur gisteren *rood* schilderde.

   *That Jan painted the barn red yesterday.'*

b. Dat Jan de schuur *rood* wil schilderen.

   *That Jan wants to paint the barn red.'*

c. Dat Jan de schuur *rood* schilderde.

   *That Jan painted the barn red yesterday.'*

The second argument concerns the distribution of adverbs. It is generally assumed that adverbs cannot scramble (cf. Cinque 1997). But even if it is assumed that adverbs in restructuring contexts can scramble or undergo some type of licensing movement into the matrix clause one would assume that they
move/scramble to their canonical position in the clause. However, the order of adverbs in (19a) does not reflect the base order. The temporal adverb modifying the embedded verb follows the aspectual adverb modifying the matrix verb. In a simple clause, only the inverted order is possible (19b–d).

(19) a. Weil Peter mich schon lange heute besuchen wollte.
    since Peter me already for-a-long-time today visit wanted
    Already for a long time has Peter wanted to visit me today.'

b. *Weil mich Peter schon lange heute besucht hat.
    since me Peter already for-a-long-time today visited has

c. *Weil das Peter schon lange heute wollte.
    since that Peter already for-a-long-time today wanted

d. Weil mich Peter heute schon lange besucht hat.
    since me Peter today already for-a-long-time visited has
    'Since Peter has already visited me for a long time today.'

Instead of scrambling, Hinterhölzl (1999) assumes movement of a larger constituent, namely the whole infinitival TP, that pied-pipes arguments of the embedded verb and adverbs modifying it and (VP-internal) predicates. The order of adverbs in (19a) is explained in that it is assumed that the middle field of a restructured clause contains two TPs and can be derived as is sketched in (24) below.

In order for this account to go through, Hinterhölzl (1999) argues that not only arguments but also VP-internal predicates move out of the VP to be licensed in specific positions in the middle field as is illustrated in (20).


Verb particles are licensed in [SpecF1P]. Small clause predicates, idiomatic expressions and directional PPs are licensed in [SpecPredP] above F1. Nominal arguments of the verb undergo Case-licensing movement to positions above VP-adverbs. From there they may undergo scrambling to higher positions (according to their semantic properties) if they are not focussed or negated, in which case they move into the respective Specifier position. Thus, movement of arguments out of the VP is licensing movement that applies to all DPs independently of whether they are definite or indefinite and has to be distinguished from further movement that applies to DPs according to their semantic properties and has become known as scrambling.

The assumption of licensing movement of VP-internal material that is to be distinguished from scrambling 'proper' is supported by the fact that it can solve
two long-standing problems with the standard account of VP-topicalization data like (1) in terms of scrambling and remnant movement: the extraction paradox (A) and the evacuation paradox (B), which are discussed and illustrated below.

(A) The assumption that there is licensing movement of VP-internal material to specific positions in the middle field is corroborated by the existence of so-called string vacuous scrambling as is illustrated in (21). In (21), the italicized phrases seemingly occur in their canonical position (in (21b) the direct object follows the subject) but have to be assumed to have been scrambled out of VP in order to be exempted from VP-topicalization.

(21) a. \([vp \ t \ gerechnet] \) hat wie immer keiner \textit{damit}.
     counted has as always noone there-with
     as usual nobody has reckoned with that.’

     b. \([vp \ t \ gelesen] \) hat gestern der Fritz \textit{ein Buch darüber}.
     read-part has yesterday the Fritz a book there-about
     Fritz has read a book about this yesterday.’

As (22) shows these presumed scrambling positions do not behave like regular scrambling positions since they do not exhibit any freezing effect (cf. (8)) in that they allow for further extraction which scrambles part of the phrase to a higher position. Thus, the data in (22) pose the following problem: If scrambling viewed as an operation that moves VP-internal material into the middle field were a unitary operation, then why is that scrambled phrases allow for further extraction in certain positions but not in others?

(22) a. Gerechnet hat \textit{da} wie immer keiner \textit{mit}.
     counted has there as always noone with

     b. Gelesen hat \textit{darüber} gestern der Fritz \textit{ein Buch}.
     read has there-on yesterday the Fritz a book

(B) Another problem for the standard approach is the fact that elements that resist scrambling can be left behind by VP-topicalization. This is illustrated for small clause predicates and indefinite W-words in (23a) and (23b), respectively. We have seen in (18) above that small clause predicates cannot be affected by scrambling. Furthermore, indefinite w-words exhibit none of the quantificational or referential potential that is held responsible for triggering scrambling. If scrambling were the only operation that can evacuate material from the VP, then it is hard to understand, how these elements can be left behind by VP-topicalization.
(23) a. Gegessen hat der Karl das Fleisch roh.
   eaten has the Karl the meat raw
   Karl has eaten the meat raw

b. Gelesen hat die Maria erst gestern was.
   read-part has the Maria only yesterday something
   'It's only yesterday that Mary read something.'

c. **[t i geküßt], weiß ich nicht [wen, sie hat t].**
   kissed know I not whom she has
   'I don’t know whom she has kissed.'

A possible solution to these problems is the assumption of licensing move-
ment (prior to scrambling) that moves VP-internal material, irrespective of its
quantificational or referential potential out of the VP. This assumption
immediately solves the evacuation problem but also opens up the way towards
a solution to the extraction problem. Given the distinction between licensing
movement and scrambling, we may assume that licensing movement out of
the VP does not give rise to a freezing effect and that this freezing effect is
connected with the Specificity effect of the semantically motivated scrambling
operation. We know independently that extraction out of specific DPs is illicit.
Since DPs that have scrambled across sentential adverbs (crucially not ones
that have scrambled across VP-adverbs) exhibit a specificity effect, the freezing
effect associated with these scrambling operations follows without further ado.

Finally note that the trace within the VP in (23c) does not behave like a
Case-marked wh-trace, otherwise we would expect (23c) to be on a par with
(12b) and (13b). However, (23c) gives rise only to a mild, subjacency-like
violation and is on a par with (12a), as we have seen in Section 2 above. This
fact too follows straightforwardly, if we assume that there is licensing move-
ment of DPs (and of VP-internal predicates) out of the VP that leaves A-
movement traces in the VP such that the wh-word in the embedded clause can
bind a wh-trace outside of the fronted VP within its clause. To summarize, we
have argued that the assumption of movement of DPs and VP-internal
predicates to specific licensing positions in the middle field, as illustrated in
(20) above, can provide a solution to the extraction problem as well as the
evacuation problem and gives us an explanation for the otherwise rather
mysterious contrast between (12b) and (12c).

Based on the assumption that the VP is emptied up to the verb,
Hinterhölzl (1999) develops a theory of restructuring that makes heavy use of
remnant movement and proposes that restructuring breaks down into three
movement operations that occur for licensing purposes, as is illustrated in (24):

(A) Movement of the infinitival VP via [Spec CP] (Step 1) into [Spec F1P] of the selecting verb (Step 2)
(B) movement of the infinitival TP into [Spec PredP] of the selecting verb (Step 3)
(C) movement of the infinitival T-head to the local T-head (Step 4)

Step 1 occurs to license the deficient complementizer as a [+V] element
Step 2 occurs to check the subcategorization of the selecting verb (its status)
Step 3 occurs to license the embedded TP as a predicate
Step 4 occurs to license PRO creating a single extended projection as a side-effect

(24) a. \[ CP weil [TP Peter schon lange [PredP [F1P [VP wollte [CP [TP mich heute [F1P besuchen]]]]]]]]
   Step 1: movement of the infinitival VP to SpecCP

b. \[ CP weil [TP Peter schon lange [PredP [F1P [VP wollte [CP [TP besuchen] [TP mich heute [F1P]]]]]]]]
   Step 2: movement of the infinitival VP to SpecF1P (if only Step 1 and Step 3 occur overtly the normal Dutch order is derived)

c. \[ CP weil [TP Peter schon lange [PredP [F1P [F1P besuchen] [VP wollte [CP [TP besuchen] [TP mich heute [F1P]]]]]]]
   Step 3: movement of the infinitival TP into SpecPredP

d. \[ CP weil [TP Peter lange [PredP [TP [VP wollte [CP [TP mich heute [F1P] [F1P besuchen] [VP wollte [CP [TP tF1P] [TP tTP]]]]]]]]
   Step 4: T-to-T-movement allows for local scrambling and cliticization

e. \[ CP weil [TP Peter lange [PredP [TP [VP wollte [CP [TP tF1P] [TP tTP]]]]]]

4.1 Implications of this Account for the Theory of Remnant Movement

In this account of restructuring, embedded infinitives can no longer be analyzed as (possibly referential) remnant categories that contain scrambling traces. Thus, the illicit cases of remnant scrambling can no longer be ruled out
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by Attract Closest. In this account, embedded infinitives are simply infinitival VPs that contain traces of licensing movement, among which, traces left behind by Case movement. In particular, we have to find another explanation for the fact that these infinitival VPs may topicalize but cannot undergo scrambling in the matrix clause as is illustrated again in (25).

(25) a. [zu lesen] hat das Buch keiner versucht.
    to read has the book nobody tried
    Nobody has tried to read the book.'

b. ??daß [zu lesen] das Buch keiner versucht hat.
    that to read the book nobody tried has
    that nobody has tried to read the book.'

Our explanation of the contrast is rather simple. These infinitival VPs are predicates and as such resist scrambling. This explanation is based on the assumption that [SpecCP], the so-called topicalisation position, is a multi-purpose position that can host focussed phrases, which are not necessarily referential as well as discourse topics and sentence topics. While discourse topics are necessarily referential (token topics), sentence topics can be predicates or so-called type topics.

If we assume that only quantificational expressions (for reasons of scope-taking) and token-topics may scramble, then we can rule out scrambling of predicates including VPs — given the natural assumption that the VP denotes an event type (with the TP denoting an event-token). That the correct generalisation is indeed unavailability of predicates for scrambling, is shown in (26). (26) shows that scrambling of a predicate is equally bad whether it is the entire predicate as in (26a) or only a remnant as in (26b) that undergoes scrambling.

(26) a. ??daß [die Maria geliebt] Hans hat.
    that the Maria loved Hans has
    ‘That Hans has loved Maria.’

b. ??daß [geliebt] Hans die Maria hat.
    that loved Hans the Maria has
    ‘That Hans has loved Maria.’

This observation is corroborated by the following facts. There is a type of scrambling that Neeleman (1994) termed focus-scrambling, but really involves a contrastive topic, which may also apply to predicates, as is shown by the contrast between (27a) and (27b). (27a) involves illicit scrambling of the adjectival predicate across the position of the direct object. (27b) involves
scrambling of a contrastive topic to the top of the middle field and is fine. As (27c) shows this type of scrambling is also possible of a remnant VP.

(27)  
a. **daß Hans grün den Zaun strich.**  
that Hans green the fence painted  
‘That Hans painted the fence green.’  
b. Daß so grün nur der Hans den Zaun streichen würde.  
that so green only the Hans the fence paint would  
‘That only Hans could paint the fence so green.’  
c. Daß so geliebt die Maria nur er hat.  
that so loved the Maria only he has  
‘That only he loved Maria to such a degree.’

5. Partial Deletion

In Hinterhölzl (2000), we argue that cases of PP-out-of-NP, as illustrated in (28), should not be accounted for in terms of extraction of the PP, be it rightward extraction (extraposition) or leftward extraction plus subsequent remnant movement. There, we showed that the stress properties and the focus potential of these postverbal PPs indicate that no extraction out of NP took place. As is illustrated in (29), these PPs can receive nuclear stress and give rise to a wide focus reading. Furthermore, we showed that the well-known differences between leftward and rightward extractions — no leftward extraction out of subjects as illustrated in (30) and no leftward extraction out of specified NPs, as is illustrated in (31) — cannot be explained in terms of different extraction paths as proposed by Müller (1995).

(28)  
Hans hat ein Buch (über Chomsky) gekauft (über Chomsky)  
Hans has a book (about Chomsky) bought (about Chomsky)  
‘Hans has bought a book about Chomsky.’

(29)  
Ich glaube daß Hans ein Buch gekauft hat über Chomsky.  
I believe that Hans a book bought has about Chomsky  
‘I believe that Hans has bought a book about Chomsky.’

(30)  
a. Über Chomsky hat mir [kein Buch t] gefallen.  
about Chomsky has me dat no book liked  
‘I did not like any book about Chomsky.’
since me-dat the book liked has about Chomsky
since I liked the book about Chomsky.’

(31) a. ’Who did you see the picture of.
b. Hans hat das Buch gelesen über Chomsky.
   Hans has the book read about Chomsky
   Hans has read the book about Chomsky.’

Instead, we argued that these cases can be handled appropriately in terms of partial deletion. Partial deletion is based on the copy-theory of movement and employs the idea that no mechanism in the computational system forces that the entire copy is spelled out in the checking position, as illustrated in (32a), but may make use of selected processes of Forward Deletion (FWD) and Backward Deletion (BWD), as is illustrated in (32b). Hinterhölzl (2000) outlines a restrictive theory of deletion in which Spell-out is tied to the particular execution of the feature checking mechanism proposed by Nunez (1995). In this system of feature checking, only the feature of the copy that merges with the target category is checked. The corresponding feature of the copy in the base position remains unchecked and, if uninterpretable, causes the derivation to crash unless removed by complete phonological deletion. It thus follows that the computational system does not impose any restriction on the Spell-out of pied-piped material (cf. (33)).

(32) a. [c X Y ] . . . . [c X Y ] standard case: one copy completely deleted.
   b. [c X Y ] . . . . [c X Y ] FWD of X plus BWD of Y.

(33) Free Deletion of Pied-piped Material (FDPM) (cf. Hinterhölzl (2000))
   a. Material that is moved to check a feature is subject to FWD.
   b. Material that is pied-piped by such movement is subject to optional. BWD

5.1 Deriving Discontinuous NPs

Cávar and Fanselow (1998) argue convincingly that Discontinuous NPs (DNPs), as given in (34), should be handled in terms of partial deletion. C&F show that DNPs cannot be explained by base generation since DNPs obey island constraints — indicating that DNPs involve movement- and respect order constraints observable in single complete NPs. C&F also show that
DNPs cannot be explained in terms of partial movement either since they do not obey conditions on extractions out of DPs as is illustrated in (35).

(34) Englische Bücher hat er keine gekauft
English books has he none bought
He did not buy any English books.’

(35) a. ’Über Chomsky hat ihm kein Buch gefallen.
about Chomsky has him no book pleased
No book about Chomsky did please him.’

b. [Bücher über Chomsky] haben ihm keine gefallen.
books about Chomsky have him none pleased
No books about Chomsky did ever please him.’

In the following, we will show how cases like (34) can be derived within the theory of deletion outlined above. Since (33) restricts BWD to pied-piped material it follows that (34) must involve two movement operations that check two different types of features: An operation of topicalization that moves the entire DP into [SpecCP] and a prior focus-related movement that pied-pipes the topicalized constituent (cf. Čavár and Fanselow 1998). (36b) shows the underlying feature structure. We assume that the topic feature is checked in [SpecCP] and that the (constrastive) focus feature is checked in a Focus Phrase that occurs just above the licensing positions of the arguments of the verb (cf. (20) above).

(36) a. Englische Bücher hat er keine gekauft.
   b. [CP T hat [IP er [FP keineT englischeT BücherT gekauft]]]
   c. [CP T hat [IP [FP liebeT englischeT BücherT] [AgrOP [DP keineF englischeT BücherT] gekauft]]]
   d. [CP T hat [IP [FP liebeT englischeT BücherT] [AgrOP [DP keineF englischeT BücherT] gekauft]]]
   e. [CP T [DP keineF englischeT BücherT] hat [IP [FP liebeT keineF englischeT BücherT] gekauft]]

First the DP is moved into [SpecFP] to check the focus feature of the head. This operation pied-pipes the remaining elements in the DP that carry a topic feature. The head keine of the DP is subject to FWD. This is illustrated in (36c). The remaining elements of the DP are subject to optional BWD. However, in (36c) BWD is forced by Attract Closest. The T-feature in C attracts the closest phrase containing constituents marked with a T-feature.
This phrase is the DP in [SpecFP]. Since the constituents marked with a T-feature cannot extract out of DP and since focus is a positional feature, as we will explain below, FWD of *englische Bücher* would not result in a convergent derivation. The conflict can be resolved if these elements are effected by BWD as in (36d). In this case, the T-feature will attract the copy in the base position resulting in the correct derivation as shown in (36d).

In checking an interpretable feature either copy may be spelled out unless the attracting head has a positional feature. A positional feature requires that the attractee is spelled out in the checking domain of the attractor (cf. Pesetsky 1998). Typical examples of positional features in many languages are [wh], [neg] and [focus]. Which head in a given language has a positional feature is subject to crosslinguistic variation.

Note that even if we assume that extraction of NPs out of DPs is different from extraction of PPs (cf. (35)), which seems unmotivated, an account of (36a) in terms of remnant movement is impossible. If the elements *Englische Bücher* were extracted out of the base position of the object DP, subsequent movement of the DP to [SpecFP] would lead to a violation of Strict Cyclicity.

Since cases of partial deletion cannot be reduced to remnant movement and since both operations yield similar results the question arises whether in turn remnant movement can be reduced to partial deletion. Before we look at specific cases in the next section, we want to investigate whether there are any further restrictions on deletion.

In looking at additional examples, we will make the following assumption about pied-piping: the head plus constituents agreeing with it (the Specifier) may induce movement of the whole phrase (typically, pied-piped constituents are complements of the head).

Assuming that *Bücher* as the head, furnishing new information, can induce pied-piping of the whole phrase into [SpecFP], the ungrammaticality of (37) shows that BWD may not affect left peripheral material. The illicit step occurs in (37d), if BWD could affect the expression *neue* then the derivation of (37a) would converge, contrary to the fact. (38) shows that BWD may not affect medial material. Again, the illicit step seems to occur in (38d) where the expression *englische* is affected by BWD. From (37) and (38) we may thus conclude that BWD can only affect right peripheral material in a phrase.
(37) Was für neue Sachen hat Hans gekauft?  
Which new things did Hans buy?

a. *Neue hat Hans Bücher gekauft.  
   new has Hans books bought

b. [CP that [IP Hans [FP [DP neue? Bücher? gekauft]]]].


e. [CP that [IP [FP viele? englische? Bücher? [AgrOP gekauft]]]].

(38) Was für Englische Sachen hat Hans gekauft?  
Which English things did Hans buy?

   English has Hans many books bought

b. [CP that [IP er [FP [DP viele? englische? Bücher? gekauft]]]].


6. Cases of conflicting structural requirements

To see whether partial deletion can indeed replace remnant movement, let us take a closer look at our cases of conflicting structural requirements which are repeated in (39). Given what we discovered about the restrictions on deletion in the previous section, we can immediately rule out the analysis in (39a) since it involves medial deletion. Thus cases like (39a) must be handled in terms of remnant movement.

(39) a. [fragen müssen ob wir zustimmen] wird er wohl [fragen müssen ob]...

b. [ein Haus bauen wollen] wird er [ein Haus bauen wollen].

c. [er wird [postf ein Haus [FIP bauen wollen]]].

The analysis in (39b) is valid since it involves a simple case of BWD of right-
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peripheral material. Since after restructuring the embedded object and the embedded infinitive do not form a constituent anymore, as is illustrated in (39c), topicalization of these elements would involve movement of the entire PredP pied-piping the modal which is thus subject to BWD. However, there is an interesting asymmetry that indicates that also cases like (39b) should be handled in terms of remnant movement.

There is a clear asymmetry between bare infinitives and to-infinitives with respect to the topicalizability of verbal projections as is shown by the contrast in (40).

(40)  a. Ein Buch geben hat er seiner Frau wollen.
       a book give has he his wife wanted
       'He wanted to give a book to his wife.'
   b. ??ein Buch zu geben hat er seiner Frau vergessen.
       a book to give has he his wife forgotten
       'He forgot to give a book to his wife.'

Haider (1991) notes that with to-infinitives either the whole infinitival clause (41b) or the verb cluster (or parts of it) can be topicalized (41e), but not the infinitive with one of its arguments (41c-d). It is hard to see how this asymmetry can be accounted for by an analysis in terms of partial deletion.

(41)  a. Daß er mir sein Argument zu erläutern zu versuchen vergessen hat.
       that he me his argument to explain to try forgotten has
   b. [mir sein Argument zu erläutern] hat er zu versuchen vergessen.
       me his argument to explain has he to try forgotten
   c. *[sein Argument zu erläutern] hat er mir zu versuchen vergessen.
       his argument to explain has he me to try forgotten
   d. *[sein Argument zu erläutern zu versuchen] hat er mir vergessen.
       his argument to explain to try has he me forgotten
   e. [zu erläutern zu versuchen vergessen] hat er mir sein Argument
       to explain to try forgotten has he me his argument
       nicht
       not
       '(That) he has (not) forgotten to try to explain me his argument.'

We will not give a full account of the above contrast here but will, on the way towards an explanation of the contrast, make note of the facts that point to an account in terms of movement. It is important to note that the verbs that show the dual behavior (topicalization of the dependent infinitive with an
argument (42b) or with the selecting verb (42a)) are exactly those verbs that can invert with the rest of the verb cluster. The basic order in the German verb cluster is V3–V2–V1. But temporal auxiliaries and modals can optionally enter into inverted orders of the type V1–V3–V2 (cf. Geilfuß (1990), Hafika (1991)). Also note that nominal arguments can appear in the verbal cluster in inverted orders as is illustrated in (42).

(42)  
\begin{align*}
\text{a. } & \text{Backen können wird er einen Kuchen müssen.} \\
& \text{bake can will he a cake must} \\
& \text{‘He will have to be able to bake a cake.’} \\
\text{b. } & \text{Einen Kuchen backen wird er können müssen.} \\
& \text{c. } \text{Daß er einen Kuchen wird müssen backen können (V1–V2–V3).} \\
& \text{d. } \text{Daß er nach langer Ausbildung wird einen Kuchen backen können.} \\
& \text{that he after long training will a cake bake can} \\
& \text{that he must be able to bake a cake (after long training).’}
\end{align*}

The inversion facts suggest that auxiliaries and modals can move higher up in the clausal domain. If we assume that they can move across PredP, then the VP-topicalization facts follow as is illustrated in (43).

(43)  
\begin{align*}
\text{a. } & \text{[CP hat . . . [PredP ein Haus [VP bauen [VP wollen]]].} \\
\text{b. } & \text{[CP hat . . . [VP wollen][PredP ein Haus [VP bauen tVP]]].} \\
\text{c. } & \text{[CP[PredP ein Haus [tVP bauen tVP]] hat . . . [VP wollen ] tPredP].}
\end{align*}

6.1 VP-Topicalization and extraposed clauses

The problem at hand is illustrated again in (44). (44) shows that the dependent infinitive can be topicalized together with its CP-complement even though the two categories do not form a constituent after restructuring (44bc). We have already ruled out partial deletion as a solution to our problem and contrary to the case in (43) we cannot resort to further movement of the selecting verb since this movement is restricted to modals and auxiliaries.

(44)  
\begin{align*}
\text{a. } & \text{[zu fragen ob wir zustimmen] wird er versuchen.} \\
& \text{to ask whether we agree will he try} \\
& \text{‘He will try to ask whether we agree.’} \\
\text{b. } & \text{‘Er wird [zu fragen ob wir zustimmen] versuchen.} \\
& \text{he will to ask whether we agree try} \\
\text{c. } & \text{Er wird [zu fragen] versuchen [ob wir zustimmen].} \\
& \text{he will to ask try whether we agree}
\end{align*}
Below, we will argue that the solution lies in the way in which CP-complements are licensed. Within a universal base approach one may assume that CP-complements simply remain in the VP (cf. Zwart 1993), as is indicated in (45). However, from the licensing movement of adjectival small clauses it follows that CP-complements cannot remain within VP either (46).

(45) a. Ohne zu sagen daß die Maria krank war.
   without to say that the Maria sick was
   ‘Without saying that Maria was sick.’

b. \[
\begin{array}{l}
\text{[CP . . . [VP zu [VP V CP]]]}
\end{array}
\]

   without happy to be that the Hans not came
   ‘Without being happy that Hans did not come.’

b. ‘Ohne [froh, daß der Hans nicht kam] zu sein.
   without happy that the Hans not came to be

c. \[
\begin{array}{l}
\text{[CP ohne . . . [VP zu [VP sein [AdjP froh [CP]]]]]}
\end{array}
\]

If CP-complements are licensed in situ, then licensing movement of the adjectival predicate will pied-pipe the CP-complement. If deletion of pied-piped material is optional, as we argued above, then we need an extra condition to rule out (46b). This could only be a PF-condition like (47).

(47) A CP-complement may not occur in a cluster of predicates

Since it is not clear what such a condition could be derived from, we will assume licensing movement of the CP followed by licensing movement of the VP (cf. Koopman and Szabolcsi 2000; Kayne 1998). As is illustrated in (48) first the CP-complement moves out of the VP to be licensed in a functional projection in the middle field, say [SpecF2]. Then the infinitival VP (=F1P) moves to a higher functional position, [SpecF3] in (48). These assumptions will then derive (46a) in the following manner: the CP-complement is extracted before the containing AP is moved to its licencing position in [SpecPredP].

(48) \[
\begin{array}{l}
\text{[CP . . . [Pred₃ [[F1P zu [VP V]] F 3 [F3P CP F2 [VP]]]]]]}
\end{array}
\]

In verb-complex formation, the infinitival VP may then extract from within F3P (to check its status with the selecting verb) or pied-pipe F3P containing its CP-complement. Which option is taken should follow from economy. If only a feature of the infinitival VP is to be checked, economy forces movement of the minimal structure. If the infinitival VP and its CP-complement share a
feature, for instance a topic feature, pied-piping, that is, moving a non-minimal structure is allowed since the derivation would otherwise crash on account of an unchecked feature in the CP-complement.

To conclude, we have shown that there are cases of incomplete category dislocation, namely PP-out-of-NP and Discontinuous NPs, that cannot readily be explained in terms of remnant movement and call for an analysis in terms of partial deletion. On the other hand, we showed — given a restrictive theory of deletion — that there are also cases of incomplete category dislocation, namely the cases of conflicting structural requirements that cannot readily be explained in terms of deletion and call for an analysis in terms of remnant movement. It thus follows that both operations can coexist in the grammar. Though both operations yield similar results, they clearly differ in the conditions of their application. Partial deletion occurs when the checking position for the feature of the constituent that may pied-pipe the whole phrase (typically the head and agreeing positions) is closer. Remnant movement occurs when the checking position for the feature of the constituent that may not pied-pipe the whole phrase (typically the complement) is closer, as is illustrated in (49).

(49) a. \( F_a F_b [\text{XP} \ YP(b)] X(a) ZP_b \) . . . . partial deletion
b. \( F_a F_b [\text{XP} \ YP(a)] X(a) ZP_b \) . . . . remnant movement

Notes
1. The terms forward deletion (FWD) and backward deletion (BWD) are loaned from the literature on coordination (cf. Wilder (1994)). The operation of FWD targets left-peripheral material in the first conjunct and deletes this material under identity in all conjuncts following. The operation of BWD, in contrast, targets right-peripheral material in the last conjunct and deletes this material under identity in all preceding conjuncts.

2. An account of (36) in terms of remnant movement is only possible if it is assumed that it is the element ‘keiner’ and not the complement that is extracted out of the DP. This account thus requires analysing this element not as the head of the DP but rather as the Specifier of a functional projection which takes the NP (or AP) as a complement. Such an analysis not only appears to be unmotivated but is generally untenable since it cannot account for cases like (i).

(i) Bücher hat er nur **diese drei** gelesen
    books  has he only these three read
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Chapter 8

Derivations and complexity filters

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1. Introduction

In Koopman and Szabolcsi 2000 (henceforth K&Sz) we account for the different word order and constituency of verbal complexes in Hungarian, Dutch and German by a derivational theory which relies on overt (remnant) XP movement only. The derivations yield paradigms that are not always attested in full in a particular language; there are language specific gaps in the paradigms. K&Sz argue that these gaps should be accounted for by a new brand of filters, complexity filters, which act on the representations that the derivations generate. Complexity filters are sensitive to overt material only, and impose restrictions on the “size” or “internal complexity” of certain constituents in designated Spec positions at the end of the derivation. This chapter establishes the need for complexity filters, drawing heavily on K&Sz, discusses particular filters and the phenomena that they capture, as well as general issues surrounding this type of filter.

2. Verbal complexes: the Koopman and Szabolcsi proposal

K&Sz deal with the analysis of the order and constituency of verbal complexes in Hungarian, Dutch and German. The examples in (1) contain a sequence of infinitives in Dutch and German, and illustrate representative strings of the major word order types: inverted orders (3–2–1), English orders (1–2–3), and climbing orders (3–1–2). The verbs that participate in these verbal complexes have been called restructuring verbs or verb raising verbs depending on the linguistic traditions and the language family. In the examples below, VM refers to “verbal marker”, a cover term used in the Hungarian tradition for small clause predicates. The numbers represent the hierarchical structure given by selection, with 1 the highest.
(1) a. Inversion: German
dass ich Maria \( \text{anrufen} \) \( \text{können} \ \text{wollen} \) VM4 \( V_{\text{inf}}^3 \) \( V_{\text{inf}}^2 \) \( V_{\text{inf}}^1 \)
that I Mary up-call.INF can.INF want
b. English order: Dutch
dat ik Marie \( \text{zal} \) \( \text{wollen} \) opbellen VM4 \( V_{\text{inf}}^3 \)
that I Mary will want.INF up-call.INF
c. VM climbing: Dutch
\( (\text{dat} \ \text{ik}) \) Marie \( \text{op} \) \( \text{zal} \) \( \text{wollen} \) bellen VM4 \( V_{\text{inf}}^1 \) \( V_{\text{inf}}^2 \) \( V_{\text{inf}}^3 \)
\( (\text{that I}) \) Mary up will want.INF call.INF

On the basis of Hungarian verbal complexes, K&Sz show that (1a) and (1c) cannot be derived by head movement, but must be derived by (remnant) phrasal movement. K&Sz furthermore establish that Hungarian surface strings like (1b) do not correspond to a base generated order either. Intermediate infinitives can be topicalized, a phrasal property, without their complements. If intermediate infinitives can be moved as remnant XPs, the derivation of such strings must involve a stage at which intermediate infinitives are phrasal remnants. Thus, all orders in (1) involve derivations creating phrasal remnants, and remnant movements. K&Sz develop a unified remnant movement analysis for these verbal complexes: each surface string is derived by the same (phonologically) overt (remnant) XP movements. Depending on how overt material gets carried along (“pied-piped”) or separated (“split”) in the course of the derivation, different surface orders and constituencies obtain. As a result of the derivations, surface representations vary in precise ways with the type of derivation, and the length of the derivation, in particular with the number of cycles. One might wonder if these surface representations serve any other purpose. We argue they do: they provide the vocabulary for filters that exclude certain ungrammatical patterns which are surprising from a language internal point of view, from a crosslinguistic point of view, as well as from a theoretical point of view. Once the need for these filters established, I will show that their effects are ubiquitous.

2.1 Explaining the derivations: the structure and the players

Since all orders are derived by remnant movement, large structures are necessary, so as to allow the creation of the relevant XP remnants. Rather than view large structures as inherently problematic, we exploit them, and argue that they allow for a simplification of the computational system. Basic move-
ment operations can be simplified, and automaticized. Movement is XP movement only, it is feature driven, and of overt phonological material only (as in Kayne 1998). Movement is not subject to economy conditions: the computational system is blind and fully automatic. Different surface patterns result from the particular history of the derivation: which parts of the structure may be split (expressed by language specific “splitting” parameters), and what “size” constituent is allowed to occupy a particular Spec position at the end of the derivation (expressed by language specific complexity filters). Splitting parameters and complexity filters are independent, but in many cases interact to restrict what size constituent can be pied-piped, and what parts of the structure must be “chopped up” into smaller pieces. Large structures are not only unavoidable, but empirically desirable: they allow for a substantially broadening of syntax (the syntax of morphology can be incorporated quite nicely), and for insights in the nature of crosslinguistic variation. Large structures can be viewed as being constructed out of many small identical repeating structures, little cycles. In each of these cycles, a series of identical movements takes place.

The remainder of this section rapidly introduces the background that is necessary to focus on how representations underlying the inverted, climbing and English orders vary at the end of the derivation, and how complexity filters are sensitive to these representations. For more extensive discussion, and spelled out derivations, the reader is referred to K&Sz 2000.

2.1.1 The structure of an Infinitival CP
We roughly assume the structure in (2) for an infinitival CP. (For simplicity, I have omitted PredP, a projection between CP and InfP. PredP attracts VP+.) Each projection has a Spec position and a head position, which is omitted in the structures below for ease of exposition, unless it contains some overt material. Structures are universally unidirectional, as in Kayne 1994. Thus:

- Every VP is dominated by VP+, where complex predicate are formed. (see Section 2.1.2)
- Every VP+ is dominated by licensing positions for XPs, (LP(xp)), also referred to as StackPs by K&Sz. StackPs are interspersed throughout the structure (see K&Sz for more discussion).
- Movement of XPs to LPs/stackPs creates remnant VP+s or remnant phrasal categories more generally.
- Infinitival morphology is introduced in InfP: InfP attracts some (phrasal) projection containing V.
All infinitival complements are CPs.

A projection containing InfP needs to move to CP to "type" the CP as infinitival. This in turn will enable a higher selector to satisfy its relevant c-selection feature.

Within infinitival complements, a series of movements must take place from bottom to top:

1. VM (small clause predicate) to VP+ for complex predicate formation
   - XP to LP(xp) for XP-licensing
   - VP (or VP+) to InfP for inflection on V
   - InfP to CP to "type" CP as infinitival

2.1.2 VP+: the location of complex predicate formation

Complex predicates are established in the following configuration (VM represents different small clause categories; VP+ and VP are two different projections; the head position of VP+ is systematically omitted):

All possible categories of small clauses are represented in (4), except for verbal small clauses. K&Sz argue that restructuring verbs form complex predicates with verbal small clauses, and attract not a VP, but a VP+ of the form in (4).
Restructuring verbs thus obligatorily and universally form a substructure of the type illustrated in (5) in the course of the derivation.

(5) Restructuring verbs require of carrier with a VP+ feature in SpecVP+:

```
                     VP+/want
                       /
                      /  
                     VP/  VP+/want
                   /    /
                  /     /
                 go    want
[PP home] [NP piano] [PP up] [AP clean]
```

The distribution of small clauses is thus an essential part of restructuring paradigms, by virtue of (5). This is a crucial difference from other proposals which in essence treat restructuring separately from other small clause predicates.

Given the players, and the structure, some restricted variation in pied-piping and splitting is responsible for different orders. VP+/go could have extracted from the complement, yielding (5), or VP+/go could have pied-piped some other category, with its own licensing requirement, as in (6).

(6) The attracted VP+ pied-pipes XP; XP may have its own licensing requirements:

```
                      VP+/want
                        /
                       /  
                      VP/  VP+/want
                   /    /
                  /     /
                 go    want
[PP home] [NP piano] [PP up] [AP clean]
```

(5) results in inverted (3–2–1) or climbing orders (3–1–2). If XP equals CP, (6) results in English orders.

VP and VP+ enter into different relations. VP is attracted by InfP: if VP pied-pipes VP+ inverted orders obtain, if VP does not, but splits out of VP+, VP+ is a remnant, and climbing orders result (see Section 2.1.3). VP+ itself will be attracted by a higher restructuring predicate, and will extract as VP+ or pied-pipe some other category (see Section 2.2). Schematically:
2.1.3 *How the verb gets infinitival inflection*

Depending on whether VP or VP+ combines with infinitival morphology or not, climbing orders (4–1–2–3) or inverted orders (4–3–2–1) result. K&Sz assume that the verb and the suffix combine not by head movement but by remnant XP movement. Either remnant VP+ or remnant VP movement yields the desired linear string with $V$ preceding the infinitival morpheme -en. However, VP+ or VP movement will yield different surface constituency (nodes containing overt material are boldfaced), as shown in (8).

The two options are in fact part of the grammars of Hungarian, Dutch and German. In German, the unmarked case is movement of VP+ for infinitival morphology, in Dutch, movement of VP.\(^9\)
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(9) (Remnant) VP+ moves to InfP \(\rightarrow\) inversion

\[
\begin{array}{c}
\text{(VP+ is attracted to VP+ \(\text{(VP+ of selecting restructuring V}\))}} \\
\text{InfP \(\langle\text{to CP to type CP}\rangle\)} \\
\text{VP+} \\
\text{\(en\)} \\
\text{\(op\)} \\
\text{\(an\)} \\
\text{\(up\)} \\
\text{\(bel\)} \\
\text{\(ruf\)} \\
\text{\(call\)} \\
\text{VP1} \\
\text{VP+1} \\
\end{array}
\]

Since the infinitival morpheme cannot be stranded, the InfP constituent in (9) is frozen; VP+ will pied-pipe InfP to satisfy other restructuring predicates, and InfP will have to move to CP to type CP. In other words, InfP carries out the tasks of both VP+ and InfP. If VP splits out of VP+ and moves to InfP, a different surface structure results:

(10) VP splits out of VP+, and moves to InfP: \(\rightarrow\) Dutch infinitives, Hungarian neutral sentences

\[
\begin{array}{c}
\text{InfP \(\langle\text{to CP}\rangle\)} \\
\text{VP} \\
\text{\(bel\)} \\
\text{\(en\)} \\
\text{\(\ldots\)} \\
\text{\(VP+\)} \\
\text{\(\langle\text{to VP+ of higher restructuring V}\rangle\)} \\
\text{\(op\)} \\
\text{\(VP\)} \\
\text{\(bel\)} \\
\end{array}
\]

In this structure, InfP and VP+ each do their own business. In particular, VP+ will move to satisfy a higher restructuring predicate, and will distribute as the VP+ of that predicate. InfP will move to CP (to type the infinitival), and hence distributes as CPs do.

2.1.4 What happens when a restructuring predicate is merged next?
Suppose that, after completion of the infinitival cycle, a restructuring verb is merged. The restructuring verb checks that it selects for the right type of category (in this case an infinitival CP). It attracts a carrier of an (active) VP+ feature, i.e. the VP+ inside the infinitival CP.
In this configuration, the \( (+vp) \) feature deletes (i.e. it can be used only once).

Given the options for infinitival morphology outlined above and general pied-piping conventions, there are now three different candidate structures that can satisfy the needs of the restructuring verb. These are exemplified in (12), (13), and (14) respectively. Each of these will result in a different surface order and constituency.

(12) Inversion: (remnant) VP+ with \( (+vp) \) feature pied-pipes InfP, InfP extracts out of CP to VP+:

\[
\begin{aligned}
\text{InfP} & \rightarrow \text{VP+} \\
\text{VP+} & \rightarrow \text{VP} \\
\text{VP} & \rightarrow \text{XP} \\
\text{XP} & \rightarrow \text{V} \\
\text{V} & \rightarrow \text{wil} \\
\end{aligned}
\]

This will yield inverted strings (Dutch: \textit{opbellen wil} or German: \textit{anrufen wil}).

(13) Climbing: (remnant) VP+ extracts from the infinitival CP to VP+:

\[
\begin{aligned}
\text{InfP} & \rightarrow \text{VP+} \\
\text{VP+} & \rightarrow \text{VP} \\
\text{VP} & \rightarrow \text{XP} \\
\text{XP} & \rightarrow \text{V} \\
\text{V} & \rightarrow \text{op bel} \\
\text{The particle has the distribution of VP+.} \\
\end{aligned}
\]

\[
\begin{aligned}
\text{InfP} & \rightarrow \text{VP+} \\
\text{VP+} & \rightarrow \text{VP} \\
\text{VP} & \rightarrow \text{XP} \\
\text{XP} & \rightarrow \text{V} \\
\text{V} & \rightarrow \text{wil en} \\
\text{The infinitival V has the distribution of an infinitival CP.} \\
\end{aligned}
\]
This derivation yields climbing orders: the particle or the small clause predicate “climbs”, and the infinitive distributes like a CP: \textit{op wil bellen}=[\text{VP, op \textit{bellen}}] \textit{wil} [\text{CP \textit{bellen}}].

(14) English orders: VP\textsubscript{1+} with the (vp+) feature pied-pipes InfP and CP; CP moves to LP(xp):

This derivation underlies English orders (\textit{wil opbellen}). CP moves out of SpecVP+ to LP(cp), since it needs to be licensed as a CP. This movement results in a VP+\textsubscript{2} structure in which VP+\textsubscript{2} contains no overt phonological material at all, as shown below:

(15) Representation after CP movement (extraction from SpecVP+ to LP(xp)):
2.2 VP+ varies in complexity depending on the derivation

These derivations lead to the following observations:

(16) The “complexity” of the internal structure of VP+ varies in very precise ways, depending on the history of the derivation.

First, it varies as to whether or not there is overt material in VP+ at the end of the derivation (climbing and inversion versus English orders). Secondly, when VP+ contains overt material, it varies as to how much structure dominates the overt material (inversion > climbing), and what exact categories dominate overt material in SpecVP+. In inverted structures, SpecVP+, contains an overt VM, V and Inf. In terms of structure dominating the most deeply embedded overt material in VP+i, VP+i+2 is separated from V1 by the categories VP1, VP1+, and InfP. This is the “heaviest” and most complex VP+i+2 of the three structures under consideration.8

(17) Inversion: complexity of SpecVP+i: categories dominating the most deeply embedded overt material ⟨VP, VP+i+1, InfP⟩

In the climbing case, only the XP in SpecVP+i contains overt material, since the verb has moved out of the constituent. In terms of structure dominating overt material, VP+i+2 contains PP, and VP+i+1. Therefore, it is structurally less complex than the VP+i+2 in the case of inversion.
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(18) Climbing: complexity of SpecVP₂; categories dominating the most deeply embedded overt material \( \langle \text{PP, VP+₁} \rangle \)

\[
\begin{array}{c}
\text{VP+₂} \\
\text{VP+₁} \\
\text{PP} \\
\text{VP} \\
\text{op} \\
\end{array}
\]

In English orders, VP+₂ contains no overt material, because CP has extracted from VP+. Since there is no overt material at the end of the derivation, VP+₂ has zero complexity:

(19) English orders: zero complexity

\[
\begin{array}{c}
\text{VP⁺} \\
\text{CP} \\
\text{InfP} \\
\text{VP⁺} \\
\text{op} \\
\text{VP} \\
\end{array}
\]

The complexity of a constituent in a particular designated position (here SpecVP₂) is a matter of depth of embedding (the number of nodes separating overt material from the designated node (VP+₂), as well as the type of categories dominate the overt material. This leads to the following generalizations:

(20) Order of complexity of VP⁺ decreases in specific ways:
    Inverted orders (3–2–1) > climbing orders (3–1–2) > English orders (1–2–3).

(21) SpecVP⁺ contains different categories dominating overt material:
    Inverted orders (InfP, VP⁺, VP) Climbing order (VP+, XP), English order (0)
Moreover, as a function of the derivations, complexity increases with the number of cycles in inverted structures and climbing structures, but stays constant in English orders. This is briefly illustrated in the following section for inverted, climbing and English orders respectively.

2.3 Complexity of VP+ increases with the number of cycles for inverted and climbing orders, but not for English orders.

Once the derivation has reached the stage in (12), the following sequence of movements takes place within the infinitival CP (see (3)):

(22) (remnant) VP+ moves to InfP to get inflected;
XPs move to LP(xp)
(remnant) InfP moves to CP to type CP as infinitival
XPs move to LP(xp)

Next, a second cycle starts with the merger of a second restructuring verb. Restructuring verbs form a complex predicate by attracting a VP+ constituent with a \( \langle \text{vp+} \rangle \) feature. (They also check independently that they have an infinitival CP complement). The relevant VP+ extracts from the infinitival CP and pied-pipes InfP to VP+. This yields the VP+ below:

(23) \[
\begin{array}{c}
\text{VP+} \\
\text{InfP} \\
\text{VP+1} \\
\text{an} \\
\text{op} \\
\text{up} \\
\text{ruf} \\
\text{bec} \\
\text{call} \\
\end{array}
\]

If this VP+ is contained in an infinitival clause, VP+ moves to InfP to get inflected, and VP+ will subsequently pied-pipe InfP in the other tasks that VP+ must perform:
Adding a third restructuring verb and extracting the VP\(_2\) from CP adds further structure and overt material to VP\(_3\) of the third restructuring verb, thus further embedding the lowest infinitival:

Inversion therefore yields maximally complex VP+s. The complexity grows with the length of the derivation (i.e. with the number of CP cycles), both in terms of the number of nodes dominating the most deeply embedded overt material, and in terms of the categories dominating the most deeply embedded categories: InfP\(_1\) is more deeply embedded in (25) than in (23).

Climbing structure also grow in complexity with the number of cycles; yet fewer nodes and fewer types of categories dominates the most deeply embedded overt material than in the climbing case (InfP is outside VP+, since VP moves to InfP). In the second cycle VP+ has the following structure:
Adding a third restructuring verb, and extracting VP+2 from the infinitival CP yields a VP+, of the following shape at the end of the derivation:

In the English orders, VP+ does not grow in complexity at all: at each cycle VP+ contains a trace of the CP that has moved out of VP+. Since there is no overt material in VP+, the complexity measure is null, and remains null. It simply is irrelevant that the CP trace itself becomes more complex.

3. Does UG care about complexity? The case of Dutch infinitives

As a consequence of the derivations, the internal representations of the different VP+s vary in very precise ways at the end of the derivation. They
differ in internal complexity, where the internal complexity varies as a function of the length of derivations:

\[(30) \text{a. Order of complexity from greatest to least:} \]
\[
\text{inversion} > \text{climbing} > \text{English order}
\]

\[
\text{b. Number and types of different categories dominating overt material} \\
\text{inversion} > \text{climbing} > \text{English orders}
\]

\[
\text{c. Complexity increases with the number of cycles, in the inversion} \\
\text{and climbing cases, but not in the English orders.}
\]

Does UG care about complexity of this type? If it does, what type of phenomena would we expect to find in natural languages? If languages care about internal complexity in designated positions, grammaticality judgments should depend on the length of the derivation in inversion or climbing cases, but not in English orders. Moreover, such cases should resist alternative explanations, be it in semantic, syntactic, morphological, or prosodic terms. It turns out that the distribution of Dutch infinitives in verbal complexes exactly fits the bill. Dutch imposes an upper bound on complexity on infinitives in inversion and climbing cases, but not in English orders. This restriction can be expressed as a filter, which sets an upper bound on allowable complexity on infinitives in VP+.

\subsection{3.1 Dutch (restructuring) infinitives}

Besides the generally possible English (CP-pied-piping) orders, Dutch also allows for inversion of infinitives (InfP extraction):

\[(31) \text{a. dat ik vandaag } \text{wil } \text{schijnden} \quad V_1 V_{\text{inf}} 2. \\
\text{that I today want paint.inf} \\
'\text{That I want to paint today.'}
\]

\[
\text{b. dat ik vandaag } \text{schijnden wil} \quad V_{\text{inf}} 2 V_1. \\
\text{that I today paint.inf want} \\
'\text{That I want to paint today.'}
\]

The inverted infinitives have the same properties as inverted infinitives in Hungarian or in German: in particularly, they can be fronted. This is a diagnostic property of inversion:

\[(32) \text{Schilderen kan hij niet} \quad \text{paint.inf can he not} \\
'\text{He cannot paint.'}
\]
Crucially, the inverted infinitives are not in some preverbal focus position, since they can cooccur with focused constituents:

\[ (33) \text{ omdat hij \textit{deze} boom schilderen wil } \]

because he \textit{this} tree \textit{paint} want

Since Dutch InfPs can invert, the configuration in (34) is wellformed in Dutch.

\[ (34) \]

\begin{center}
\begin{tikzpicture}
  \node {VP+}
  \child {InfP}
  \child {VP+}
    \child {en}
    \child {\textit{deze}}
  \child {\textit{boom}}
  \child {\textit{schilderen}}
  \child {\textit{wil}}
\end{tikzpicture}
\end{center}

\section*{3.2 Restrictions on inversion of infinitives}

As is well-known from the Dutch literature,\textsuperscript{11} there are curious restrictions on inversion of infinitives. These restrictions do not hold for other categories of VP+s, notably for remnant VP+s, an important fact given our perspective. The restriction can be formulated as follows (Broekhuis 1992):

\[ (35) \text{ Infinitives may invert iff they are in a V1–V2 environment, where V1 is a } \textit{tensed} \text{ restructuring V, and V2 is a } \textit{bare} \text{ infinitive (which itself does not restructure with an infinitive)} \]

A discussion of the first restriction in Section 3.2.1 will allow the motivation of the complexity filter. In Section 3.2.2, it is shown how the other restrictions can be captured by the filter, modulo an independently motivated and necessary analysis of the infinitival marker \textit{te}.

\subsection*{3.2.1 No inversion of infinitives in V1–V2–V3 environment}

Dutch infinitives may invert in V1–V2 environment, but not in V1–V2–V3 environments, whether it is full inversion:\textsuperscript{12}

\[ (36) \text{ a. zal willen schilderen } \text{ V1–V2–V3.} \]

\[ \begin{array}{l}
\text{will want-INF paint-INF}
\end{array} \]

\[ \text{‘. . . will want to paint.’} \]
b. *zal schilderen willen \( \text{will paint.inf want.inf} \) \( \text{\(V1-V3-V2\).} \)
c. *schilderen willen zal \( \text{paint.inf want.inf will} \) \( \text{\(V3-V2-V1\).} \)

Or remnant VP+ movement (climbing):

(37) *... schilderen zal willen \( \text{paint.inf will want.inf} \) \( \text{\(V3-V1-V2\).} \)

Only English orders are allowed in this configuration.

(38) zal willen schilderen \( \text{will want.inf paint.inf} \) \( \text{\(V1-V2-V3\).} \)

While remnant VP+ climbing is excluded for infinitives, it is perfect for all other categories of small clauses, including participles:

(39) a. op bel zal bellen \( \text{up will call.inf} \) \( \text{PP} \)
b. schoon maak zal maken \( \text{clean will make.inf} \) \( \text{AP} \)
c. piano speel zal spelen \( \text{piano will play.inf} \) \( \text{NP} \)
d. naar LA vlieg zal vliegen \( \text{to LA will fly.inf} \) \( \text{PP} \)
e. geschilderd heb zal hebben \( \text{ge.paint.part will have.inf} \) \( \text{PartP} \)
f. *... schilderen wil zal willen \( \text{paint.inf will want.inf} \) \( \text{\(\text{\(V1-V2-V3\).} \)} \)

The restriction on infinitives in VP+ climbing contexts is exceptional, as is the one-cycle restriction on inversion.

In sum, inversion and remnant movement of VP+ infinitives are fine in V1–V2 contexts, but excluded in V1–V2–V3 contexts. Moreover, English orders (38), do not show any effects of the length of the derivation. This strongly suggests that (36) and (37) are excluded by a restriction on allowable complexity, as discussed in the preceding section. We state this as a filter which takes the most complex attested case as representing the upper bound on allowable complex structure.¹³
(40) Complexity filter on Spec,VP+: at the end of the derivation, the maximum allowed size of InfP dominating overt material in Spec,VP+ is:

```
VP+
   /\      (\)
  InfP   en
     \   /  \\
      VP+  \\
           /\  \
          VP  en
               /
              V
```

This filter allows for a single case of inversion (= inversion in V1–V2 environment), but excludes additional inversions (inversion in V1–V2–V3 environment). The most deeply embedded InfP will be dominated by structure that exceeds the allowed complexity, as the following representation makes clear:

```
(41) *
```

```
VP+
   /\      (\)
  InfP   en
     \   /  \\
      VP+  \\
           /\  \
          VP  en
               /
              V
```

This filter also correctly excludes the ungrammatical string * zal schilderen willen (V1–V3–V2), and excludes climbing of infinitives (=remnant VP+ movement (37)):

```
(42) *
```

```
VP+
   /\      (\)
  InfP   en
     \   /  \\
      VP+  \\
           /\  \
          VP  en
               /
              V
```

```
VP+
   /\      (\)
  InfP   en
     \   /  \\
      VP+  \\
           /\  \
          VP  en
               /
              V
```

```
VP+
   /\      (\)
  InfP   en
     \   /  \\
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The filter says nothing about other cases of remnant VP+ climbing. Indeed these VP+s never contain InfP, and hence can continue to grow in complexity with each additional cycle, happily climbing up:

\[ \text{(43)} \]

Finally, the filter allows English orders (V1–V2–V3), because these orders do not involve any complexity in SpecVP+.

The next section briefly discusses how the complexity filter on VP+ captures the second restrictions in (35), modulo an independently motivated hypothesis about the infinitival marker *te*.

### 3.2.2 V2 must be a bare infinitive, and cannot be a te-infinitive

Curiously, V2 must be a bare infinitive, and cannot be a te-infinitive:

\[ \text{(44)} \]

German differs from Dutch in this respect: zu-infinitives do invert. The surface constituency is one in which the zu-infinitive has inverted, that is restructuring has applied (see Wurmbrand, 1998). In our analysis, then, the zu-infP is a VP+ remnant, which does not contain any of its dependent arguments:

\[ \text{(45)} \]

Finally, inversion is possible only in tensed (46a) but not in infinitival clauses (46b, c):

\[ \text{(46)} \]
Infinitives are again exceptional. All other VP+ categories, including participles, can (or must) move as remnant VP+s to a position preceding te:

(47)  a. om Jan *op bel te bellen* PP
     C John up to call.INF
     'To call up John.'
   b. om de kamer *schoon maken te maken* AP
     C the room clean to make.INF
     'To clean the room'.
   c. om *piano spelen te spelen* NP
     C piano to play.INF
   d. (om) naar LA vliegen te vliegen PP
     (C) to LA to fly.INF
   e. (om) *geschilderd hebben te hebben* (PartP)
     C ge.paint-ed have to have.inf
   f. *(om) schilderen wil te willen* (*InfP)
     C paint.INF to want.INF

All these infinitival clauses contain *te*. The restriction can therefore be restated as:

(48) Inversion is impossible in *V1 te V2* and *te V1–V2* environments.

(48) can be further reduced to the previous *V1–V2–V3* case, under the additional assumption that *te* is (or involves) a restructuring verb:

(49) *te* is a restructuring verb

This allows the following reformulation:

(50) Inversion is impossible in *V1 te V2–V3* and *V1 te V2–V3* environments

(50) now reduces to the general impossibility of inversion in *V1–V2–V3* environments (Section 3.2.1), which is captured by the VP+ complexity filter (40) in Dutch. Therefore the filter captures all restrictions elegantly and straightforwardly. Crucial of course for this account are the representations that the derivations generate: the queer restrictions on Dutch infinitives provide strong support for our approach, in so far as it provides insight into the simple pattern that underlies these apparently diverse restrictions.

Independent motivation for analyzing *te/zu* as a restructuring predicate comes from the position of *te/zu* within complex predicates. As is well-known, *te* must be preceded by remnant VP+ small clauses 51a–e). (Dutch *te* cannot be preceded by remnant VP+ that contains InfP (51f)): 
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(51) Dutch:
  a. op bel te bellen.
     op   to call.INF
  b. schoon maken te maken.
     clean   to make.INF
  c. piano spelen te spelen.
     piano   to play.INF
  d. naar LA vliegen te vliegen.
     to LA   to fly.INF
  e. gelachen hebben te hebben gelachen.
     ge.laugh.PART to have.inf/to have.inf ge.laugh.PART
  f. *[InfP gaan moeten] te moeten.
     go.inf   to must.INF

Since restructuring predicates attract VP+, the positioning of VP+ reveals the presence of a restructuring predicate. That this is a remnant VP+ must be connected to the property that te requires a bare InfP to its right (see Section 3.4 as to how this property might be implemented by a particular complexity filter).

In sum, the proposed complexity filter targets the category InfP in a specific position (SpecVP+); it only allows up to a certain size of (overt) InfP in VP+ at the end of the derivation, and captures the impossibility of inversion or climbing of infinitives in V1–V2–V3 environments. At the same time it allows remnant VP+ movement (e.g. climbing) of other VP+ categories freely.

3.3 Crosslinguistic evidence

Languages with similar verbal complexes as Dutch, but without the Dutch complexity filter on infinitives allow for inversion or climbing of the infinitive in precisely those contexts where Dutch excludes it. This is true for Hungarian, and German, where the paradigms are regular, and infinitives behave like other types of VP+s.

(52) Hungarian:
  a. Inversion (K&Sz 2000: 73 ex (105)).
     Nem fogok dolgozni kezdeni akarni
     not will-1SG work.inf begin.inf want.inf
     'I will not want to begin to work.'
b. Remnant VP+ climbing (neutral clauses K&Sz 2000: 74, ex (108)).

Dolgozni fogok akarni work-INF will-1SG want-INF
'I will want to work.'

(53) German

a. Inversion

weil Peter Maria anrufen können will VM4 V3–V2–V1
because Peter Maria up-call be-able want
'Because Peter wants to be able to call up Mary.'

b. Inversion of zu-infinitivals

weil er zu schwimmen versuchte V2–V3–V1
because he to swim-INF tried
'Because he tried to swim.'

c. Remnant VP+ climbing in zu-infinitivals

ohne singen weil zu wollen V3–V1 zu V2
without. sing-INF to want-INF
'Without wanting to sing.'

d. Remnant VP+ climbing in IPP environments in

southern German dialects (Den Besten and Edmondson 1983):

. . . singen hat wollen V3–V1–V2
sing-INF has want-INF
'Has wanted to sing.'

The restriction on infinitives in Dutch is thus exceptional. This is captured by a language specific complexity filter.

3.4 Why alternative accounts fail

The case for the need of complexity filters will be strengthened in the absence of a reasonable alternative explanation. Moreover, if complexity filters of the type defended here are needed, K&Sz proposal will be strengthened, since the relevant vocabulary for the filter is provided by the representations that K&Sz’s derivations generate. The goal in this section is to establish that other alternatives whether semantic, syntactic, or prosodic, or in terms of other types of surface filters, simply do not appear to be available.14

3.4.1 A semantic account?

Semantic accounts are doomed. How could a semantic account ever be able to
capture the restriction on infinitives in Dutch? Why would the semantics have trouble with infinitives that are too deeply embedded, but not with equally complex participles, or other types of small clause predicates? Quite generally, the ordering of the verbs in the verbal complex has no discernable semantic effects. This is in part what makes verbal complexes both so difficult and interesting: they provide a unique window into the workings of the computational system.

3.4.2 Syntactic accounts
Could the restriction on inversion of infinitives be due to some violation of the basic computational system, say, the theory of movement? Dutch has both inversion of infinitives, and the necessary ingredients for inversion of infinitives, i.e. extraction of VP+/InfP, and remnant VP+ movement. From a mechanical point of view, there is no way to express that infinitives can only invert once, whereas all other categories can continue to do so.

Since the restriction concerns InfP, a Case theoretic explanation might be invoked (Broekhuis 1997). However, it seems highly unlikely that Case theory is involved. First, Dutch infinitives do not have the distribution of Case marked DPs. They distribute like other small clauses when in preverbal position and like CPs when in postverbal position: this is exactly what K&Sz’s account captures. The potential motivation for Dutch infinitives needing Case therefore is weak, and must exclusively be based on the (sometimes) nominal nature of the infinitival ending en. Secondly, even if Case theory is in some way the culprit, it remains unclear how to capture the distribution of infinitives in a non-ad hoc fashion. A tensed restructuring verb should be able to somehow license “Case” on an infinitive to its left (therefore allowing for optional inversion), but an infinitival verb should not be able to do. A tensed restructuring verb should not be able to license Case on a climbed VP+, so as to exclude V3–V1–V2 orders. An infinitival restructuring predicate would have to license Case on a dependent infinitive in such a way that the infinitive shows up to its right. Finally, since nominal small clauses can occur in precisely those contexts in which infinitives are excluded (47d) versus 47f), a truly unique account will have to be given for infinitives in Dutch. These are serious problems, which to say the least will require a quite creative solution. However, the pursuit of this type of analysis misses an important generalization: the distribution of restructured infinitives is a subset of the distribution of small clause predicates on the one hand, and of CPs on the other. Our derivations capture this directly. Furthermore, the derivations provide all the
necessary ingredients to express the restriction in an insightful fashion. From this point of view, then, there simply is no deep syntactic reason why these patterns are excluded. Complexity filters are in fact ubiquitous (for discussion, see Section 3). They enforce all kinds of quite arbitrary restrictions that are subject to microparametric and crosslinguistic variation. Of course, one would like to know why the complexity filter applies to the category of infinitives in Dutch. At the present stage of the theory, the answer cannot go beyond the fact that the filters captures the synchronic distribution of infinitives in Dutch, which happens to present this gap. How this situation could have arisen historically is an interesting but independent question.

3.4.3 A prosodic account
Den Besten and Broekhuis 1989 and Broekhuis 1992 argue that (37c) is to be excluded for prosodic reasons. Den Besten and Broekhuis observe that inverted infinitives must carry primary stress. Small clause predicates in Dutch must carry primary stress as well. Only one primary stress is possible before the finite verb, where small clause predicates must occur. This is what excludes (36b), repeated here as (54) (primary stress is indicated by an acute accent and underlining the stressed syllable): both infinitives should be stressed, but this is excluded:

(54) *schilderen willen zal
    paint.INF want.INF will
    ‘Will want to paint.’

Den Besten and Broekhuis 1989 argue that (54) is to be excluded in the same way as (55) (Broekhuis 1992: 195 (43c)):

(55) *Dat je hem toch niet aardig vinden kan
    that you him PRT not nice find.INF can
    ‘That you cannot seriously consider find him nice.’

Small clause predicates must receive primary stress in preverbal position, and hence cannot cooccur with an inverted infinitive, which needs primary stress as well. (54) and (55) clash with the prosodic patterns of Dutch, and that is why they are ungrammatical: the prosody of Dutch “filters” out these cases. This account does not carry over to 3–1–2 strings, since here there is no prosodic problem: there is only one inverted infinitive before the finite verb:

(56) *schilderen zal willen
    paint.INF will want.INF
Broekhuis 1992 tentatively proposes that this string is excluded by a “parsing” constraint, which is caused by the mixing up of infinitives.

Den Besten and Broekhuis’s account is problematic on theoretical grounds. First, it is unclear why inverted infinitives require stress. Where does this requirement come from? Why wouldn’t (54) with stress on the leftmost or rightmost infinitive not be acceptable, or why wouldn’t (55) be grammatical with stress on either the infinitive or the small clause predicate? Secondly, it is implausible that the V3(inf) V1–V2 strings in (56) are difficult to parse in Dutch: V3(part) V1–V2 strings (gezongen zal hebben ‘lit. sang will have’ or any type of SC(3) V1–V2 string (op zal bellen, ‘lit. up will call’) are extremely common and trivial Dutch patterns. Thirdly, such strings are perfectly possible in languages with similar verbal complexes (i.e. which allow remnant VP+ to be formed), as shown above, and therefore pose no processing difficulties in these languages.

Under Den Besten and Broekhuis’s proposal, prosodic constraints reflect the surface patterns that Dutch allows: their prosodic constraint filters out those strings that never surface. However, this leaves unanswered the question how the stress patterns are determined: what exactly is the connection between syntactic representations and stress assignment (prosody) that yields these prosodic patterns? The null hypothesis, which I adopt, is that the syntax phonology interface is as simple and direct as possible. Any departure from this assumption needs careful argumentation, and historical arguments that show the syntax phonology interface is not direct should be subject to constant scrutiny and reevaluation with the continued development of syntactic theory. According to the null hypothesis, the prosody (stress patterns) derives from stress assignment principles in conjunction with the actual set of possible surface structures in a particular language. However, the prosody depends on the syntax. According to Cinque 1993, sentence stress universally appears on the most deeply embedded constituent. Cinque’s theory works quite well with our representations, as I will discuss below, since by virtue of remnant XP movement, the hierarchical information remains encoded in the representations. This is indeed what seems to matter for sentence stress assignment in Dutch. The actual linear position in which the stressed element ends up is irrelevant.

As Den Besten and Broekhuis 1992 point out, small clause predicates in Dutch receive primary stress. Small clause predicates are obligatorily in VP+, because of complex predicate formation. The most deeply embedded constituent is the lowest predicate, which ends up in VP+. Small clause predicates
therefore carry primary stress. Furthermore, in the presence of restructuring predicates, the most deeply embedded VP+ is not the VP+ of the restructuring predicate, but rather the most deeply embedded VP+ under a string of restructuring predicates. This is because restructuring predicates obligatorily form complex VP+s. Moreover, regardless of whether the derivations yield inverted orders, climbing orders or English orders, the most deeply embedded VP+ can be easily located in the surface representations because of remnant movement. Sentence stress should therefore show up on the mostly deeply embedded VP+, regardless of the linear position of this VP+ ends up. As the following examples show, this is correct.

(57) VP+ contains an infinitive
   a. Dat ik [VP+2 schilderen] wil/ wil [VP+2 schilderen]/wil kunnen
      that I paint.INF want/want paint.INF want can.INF
      [VP_2 schilderen]
      paint.INF
      ‘That I want (to be able) to paint,’
   b. Dat zij schijnt te [VP3, schilderen].
      that she seems to paint.INF
      ‘That she seems to paint.’

VP+ contains a participle
   c. Dat zij veel [VP+3 geschilderd] zal hebben/zal hebben
      that she a lot ge-paint.PART will have/ will have.INF
      [VP+3 geschilderd].
      ge-paint.PART
      ‘That she will have painted a lot.’

VP+ contains a PP small clause
   c. Dat zij het boek [VP+3 uit] wil lezen/ wil kunnen
      that she the book out want read.INF/want can.INF
      [VP+3 uit] lezen.
      out read.INF
      ‘That she wants (to be able) to finish the book.’
   d. Dat hij [VP+3 naar Groningen] zal lopen.
      that he to Groningen will walk.INF
      ‘That he will walk to Groningen.’
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VP+ contains a NP small clause:

e. Dat hij wil [VP+2 piëno] spelen/ [VP+3 piëno] wil spelen/
   that he want piano play.INF/ piano want play.INF/
   /wil kunnen [VP+4 piëno] spelen
   will can.INF piano play.INF
   'That he wants to play piano.'

f. Dat Marie Jan [VP+2 een schät] vindt.
   that Mary John a darling finds

It is easy to see how Den Besten and Broekhuis’s generalizations emerge from the representations in conjunction with Cinque’s universal main stress assignment rule. Why do inverted infinitives obligatorily carry main stress and immediately precede the finite verb? This is because they receive main stress by virtue of being the most deeply embedded constituent, and because this is the only VP+ with an infinitive to survive in this position because of the complexity filter.

Two stressed inverted infinitives may not precede the verb:

(58) *[VP3, kómen. [VP2, willen]] zal
    come.INF want.INF will

This is because stress is located on the most deeply embedded VP+ (VP+3). Linear order is in fact irrelevant here. (59) is just as bad as (58):

(59) *zal willen kómen
    will want.INF come.INF

Of the potential possible stresses, the only pattern to survive is b because of the complexity filter:

(60) a. *kómen willen zal
    come.INF want.INF will
    OK for stress/*because of filter

b. zal willen kómen
    will want.INF come.INF
    OK for stress/OK for filter

c. *kómen zal willen
    come.INF will want.INF
    OK for stress/*because of filter
From the present perspective then, there is no reason to assume a prosody
driven account. On the contrary, our approach finds quite strong additional
support, in so far as the representations potentially provide for a direct
mapping from the syntax on the prosody.

3.4.4 A surface filter account?
At this point, K&Sz’s filter account seems to be the best available account. But
once filters are admitted, one might wonder if a different type of filter account
would not be sufficient, one for example that simply uses filters only sensitive
to linear order16 (and not to hierarchical order).

(61) Surface filters based on linear orders
a. *Vinf V1 Vinf
b. *V Vinf V1
c. *T e Vinf V1((inf) : reduces to b)
d. *Vinf te V1) : reduces to a)

If the analysis of te as a restructuring V is adopted (61c) and (61d) further
reduce to (61b) and (61a) respectively. These surface filters must make reference
to the position of V1 (the highest V in a series) and to the category infinitive,
since participles are not subject to the same restrictions. While these filters may
work, they suffer from a general problem with filters: why these filters and not
some others? These filters have no connection with the universal syntax of verbal
complexes; they are independent from any other patterns of verbal complexes
that a particular language may or may not show, and they have nothing to say
about an independently necessary theory of sentence stress assignment. This
type of surface filters should be rejected, since they are completely arbitrary.
Filters should only be adopted, if they can be stated using the ingredients which
are independently necessary. They should allow keeping the (indispensable)
computational system optimally simple and general. The complexity filter
precisely does this. It can only be stated on the representations that the deriva-
tions generate. These representations capture surface constituency, linear order
and stress assignment of sequences involving restructuring predicates.

4. Complexity filters

Complexity filters must be part of UG. We are in fact not the first to argue for
the need of some complexity measure: our discussion is very similar to Stabler
1994 who argues for the need for a bound on allowable complexity. What is novel in our approach is the way this bound on “complexity” is expressed and integrated with the basic syntactic derivations and representations.

This section discusses other instances of complexity filters, how one “diagnoses” the effects of particular complexity filters, and how these filters might be learned.

Given the discussion of Dutch, complexity filters reveal themselves as follows:

(62) a. “size-restriction” effects on particular Spec positions;
   b. restrictions on inversion; asymmetries between inverted structures (these grow with the length of the derivation, and might therefore show complexity effects), and English orders, which do not grow in complexity with the length of derivations;
   c. restrictions on recursion;
   d. “restrictions that are sensitive to particular categories (the Dutch filter applies to infinitives, not to participles)

Additional examples of (62a) are easy to come by, and are, I suspect, abundant, once it becomes clear what to look for. In general, complexity filters appear to capture well-known facts that have so far resisted accounts.

As a first example, consider the placement of the infinitival markers te Dutch (the same analysis extends to German zu). An outstanding problem is the placement of te/zu: it must be preceded by separable prefixes (remnant VP+), but followed by a bare infinitive (an InfP which contains only VP). Recall that te involves a restructuring predicate, which attracts a remnant VP+ to its VP+ (Section 3.2.2), hence the placement of small clauses to the left of te.

(63) a. op bellen te bellen *te opbellen.
   clean to make-INF to clean-make-INF
   b. schoon maken te maken *te schoonmaken.
   c. naar LA varen te vliegen *te naar LA vliegen.
   to LA to fly-INF to naar LA fly-INF
   d. (om) geschilderd hebben te hebben *te geschilderd hebben.
      C. ge-paint-en have to have-INF to ge-paint.PART have-INF
   e. *(om) schilderen willen te willen *te schilderen willen.
      C. paint-INF to want-INF to paint-INF want-INF
Observationally, *te must be followed by a bare InfP, which cannot be embedded in a complex VP+. This restriction can be formulated as a complexity filter, which states that SpecXP (= teP) minimally and maximally allows InfPs of the following size (see K&Sz 166 ff. for a more detailed structure involving *te; *te will end up preceding InfP).

(64) Complexity filter on SpecXP(= teP): At the end of the derivation, Spec, XP(= teP) may not be more complex than:

This filter allows full verbs (like *swim) in VP+, as well as the VP of verbs that must form complex verbs (*opbellen ‘call up’):

It does not allow complex VP+: the right-hand column in (63) violates the filter (64), as is illustrated for * *te opbellen: (i.e. VP+ does not match the shape the filter allows)
Because of (64), then, VP must split out of VP+ when it moves to InflP (pied-piping VP+ to InflP would invariably lead to a violation of (64)). As a result, te attracts a remnant VP+ (cf the left-hand column in (63)). In this way, complexity filters restrict the size of a pied-pipable constituent. A pied-piped constituent must be able to survive in the Spec position where it is pronounced. If the constituent is too complex, the constituent must be undone into smaller pieces. It is important to note that the filter holds of a particular Spec position: whether or not this position linearly precedes or follows some overt item is irrelevant, as this example shows.

As a second example, we choose V to C movement in the Germanic languages: as is well-known, the finite verb that is attracted to the root C in Dutch cannot be accompanied by particles nor small clause predicates, but must “excorporate”, i.e. be bare. This restriction can be implemented as a complexity filter on the SpecCP position in root clauses (where C stands for the position that attracts the finite verb, most likely Rizzi’s 1996 Fin. I analyze V to C movement as remnant VP movement to SpecFinP, and assume, adopting Rizzi 1996, that there are Topic and Focus projections higher than CP):

(67)  At the end of the derivation, SpecFinP in root clauses cannot contain a constituent more complex than:

```
     FinP (= C = root clause)
       /  \
    AgrSP  Fin
      /    /  \
    TP    AgrS
     / \
   VP   T
```

This filter forces excorporation, now conceived of as a (remnant) VP movement out of VP+ in root clauses. Since this filter holds for a designated Spec position, more complex constituents are in principle fine in other Spec positions. This is desirable, since particles and small clauses cannot be pied-piped to T when the root C is present, but may be pied-piped in non-root environments (see K&Sz: 134ff.). Finally, the filter also prohibits material lower than V to be pied-piped, and thus in effect forces a VP remnantification. Any phenomenon of this type can potentially be treated by complexity filters. Thus, the English
auxiliary/do-support/main verb distribution might in fact be captured by complexity filters on SpecNegP, and SpecCP(+Root, +Q).

A third candidate are German DPs. There are two positions where genitive DPs can surface in German (Longobardi 2001: 567):

(68) \textit{Marias sorgfältige Beschreibung Ottos}  
Maria’s accurate description of Otto

However, there is a curious restriction on the leftmost genitive position: it may contain only bare proper names genitives or pronouns. No such restriction holds for the lower genitive position:\textsuperscript{19}

(69) \textit{Des Zeugens/*Dieser Frau/* Meiner Schwester/sorgfältige Beschreibung Ottos}  
the witness’/ this woman’s/my sister’s/ careful description of Otto

(70) \textit{Marias sorgfältige Beschreibung des Zeugen/dieser Frau/ meiner Schwester/sorgfältige Beschreibung Ottos}  
Maria’s careful description of the witness/this woman/my sister’s/ careful description of Otto

This suggests a complexity filter on the leftmost genitive position along the following lines (internal structure of genitive DP is simplified):

(71) German: at the end of the derivation, Spec,Gen1 may not contain a DP more complex than:

\[
\text{DP} \\
\begin{array}{c}
\text{DP} \\
\text{D} \\
\end{array} \\
\text{gen}_1
\]

Because of this filter, only DPs with a raised proper name or a raised pronoun will survive. Any structures in which overt material lower than D is present will be filtered out.

A fourth and final case concerns restrictions on the internal structure of prenominal adjectives: as is well-known, pronominal adjectives may not be followed by phrasal material on their right, whereas postnominal APs show no such restriction:\textsuperscript{20}
(72) a. This proud (*of his daughter) father.
b. This father proud of his daughter.

These facts might be potentially captured by a complexity filter on some prenominal Spec position, which would prohibit overt material lower than A, though reasonable alternative accounts have been proposed for this particular case as well (Stabler 1994; Sportiche 1994).

All examples of complexity filters so far list the configurations in which overt material may occur. Restrictions on inversion in combination with the left right asymmetries of the Dutch type seem more difficult to find. Stabler 1994 notices that morphological causatives, as opposed to syntactic causatives, in general cannot reiterate. If they can, as in Bolivian Quechua, there are restrictions on reiteration suggesting some sort of complexity bound. In our proposal, this restriction on iteration would be expressed by a complexity filter on inversion, similar to the Dutch filter.

An additional example of a restriction on inversion, can perhaps be found in English. Ross 1972 discusses the need for an “intelligent output condition” to capture the doubling phenomena in English (also known as the doubling filter):

(73) a. He began singing.
b. He began to sing.
c. He is singing.
d. *He is beginning singing.
e. He is beginning to sing.

Ross establishes that this phenomena only holds for a certain class of verbs taking -ing complements. These are exactly the verbs that trigger inversion in Hungarian and Dutch, i.e. these verbs belong to the class of restructuring verbs universally. If these -ing complement taking verbs (begin and be) are indeed universal restructuring verbs, they attract VP+. They thus have what it takes to form complex VP+s, which will increase in complexity depending on the number of cycles. It is interesting that the pattern in (73) shows a restriction on inversion which is exactly parallel to Dutch: one cycle of -ing embedding is fine, two cycles are disallowed (73d). Moreover, CPs (to CPs) do not seem to add complexity, presumably since they vacate SpecVP+, and can therefore reiterate (I tried to begin to paint). These data suggests that a complexity filter, very similar to the Dutch filter on InP rules out (73d). These data are doubly interesting, since restrictions on inversion, but no restrictions
on CP recursion holds in English as well, even in the absence of left right asymmetries on the surface. It must therefore be the case that the visible left right asymmetry of Dutch is obscured by leftward movement of VP in English. Furthermore, “inverted” structures do not necessarily show up as nested structures (V2–V1), but can be “hidden” in V1–V2 structures as well, obscured by further movements.

In what other ways could a category sensitive complexity filter on inverted structures reveal itself? Staying with verbal complexes, the following phenomena would be diagnostic. Suppose that in some hypothetical language, restructuring predicates fall into two classes: those which cooccur with verbal stems and those which cooccur with some other inflectional form (M). Suppose furthermore that the surface constituency corresponds to inversion, as in Hungarian:

\( (74) \)

\[
\begin{align*}
\text{a. } & [\text{VP}_1, [\text{MP} \{\text{VP}_2, \text{VP}\}] \text{ VP}_1]. \\
& \text{swim can} \\
\text{b. } & [\text{VP}_1, [\text{MP} \{\text{VP}_2, \text{VP}\} \text{ M}] \text{ VP}_1]. \\
& \text{swim-M begin}
\end{align*}
\]

The language has several restructuring predicates, which can all occur in the context in (74), yielding strings like the following:

\( (75) \)

\[
\begin{align*}
\text{a. } & \text{Swim-M want.} \\
\text{b. } & \text{Swim-can.} \\
\text{c. } & \text{Swim can-M begin.}
\end{align*}
\]

However, certain combinations of these restructuring predicates cannot cooccur, even though such combinations are in principle possible and attested in other languages (i.e. *want to begin to swim*), while others can:

\( (76) \)

\[
\begin{align*}
\text{a. } & \text{*Swim-M begin-M want.} \\
\text{b. } & \text{*Swim-M begin-M want.} \\
\text{c. } & \text{Swim-can-M want.}
\end{align*}
\]

(76a,b) would be excluded by a complexity filter sensitive to the categorial feature of M.

Impressionistically speaking, many languages have cooccurrence restrictions of this type. Typically, then, any case in which several morphemes compete for the same slot but cannot cooccur, though these same morphemes can and do cooccur in other languages, should be looked at closely within this light, and this, regardless of surface order, as English doubling suggests.
Quite generally, then, complexity filters are formulated on the representations that are generated; they hold for designated Spec positions, and express how much structure is allowed to dominate overt material, or what the shape of the overt material may be. So far, the discussion has focused on filters that state what the maximal allowable size dominating overt material is. We might raise the question if there are also filters that impose a minimal size. I believe there might be: this might actually be the proper way to express the bound morpheme property.

Complexity filters raise an important learnability question: how can the form of complexity filters be deduced from primary data without recourse to indirect negative evidence? I believe complexity filters can be deduced without recourse to indirect negative evidence. Indeed, they seem to reflect templates of the representations that the grammar imposes on the primary data. In an overt-movement type of theory, a large part of acquisition must consist in figuring out surface constituency: what size constituent is sitting in which projection. One of the tasks in acquisition might be to fix for each head how complex a constituent it allows in its Spec position, where complexity is calculated in terms of structure dominating overt material. These “templates” are a structural summary of the representations that the language learner imposes on the primary data, with the most complex template listed. It is rather natural to list these templates as part of the lexical properties of a particular head in the mental lexicon. An ungrammaticality judgment involving a size restriction can be viewed as matching the representation against a particular mental template (a complexity filter), and recognizing that there is no match in one’s internalized grammar. In this sense, learning these filters does not appear to require indirect negative evidence. The “acquisition” of templates is probably never quite finished: any change in the primary data can lead to a change in the internalized grammar. This latter point might be partly responsible for the gradual adjustments in judgments by linguists. Linguists actively working on verbal complexes, for example, tend to find more and more patterns acceptable over time. This is probably due to the fact that as linguists, we are creating our own primary data, which consist not only of possible patterns but also of impossible ones. We may finish by modifying our own internal templates. It is interesting that over time the tendency is to accept more, not fewer, patterns, indicating an increase, not a decrease, in allowable complexity.
Notes

1. Versions of this chapter have been presented in Venice, Siena, and Florence in (1999), at the remnant movement workshop in Berlin (July 1999), and in seminar at UCLA (spring 2000). I would like to thank the audiences for discussion and suggestions. I would also like to thank an anonymous reviewer for helpful comments.

2. 1–2–3 in the text is used to refer to hierarchical order, with 1 the highest. Later in this chapter, when illustrating particular derivations, I will use subscripted 1, 2, 3 to refer to the order of merger, with 1 the most deeply embedded.

3. K&Sz assume a residue of head movement mainly to facilitate the mechanics of pied-piping (K&Sz: 41).


5. Sportiche (1997) argues on the basis of selection and reconstruction that DPs do not directly merge with V; rather NPs merge with V and functional categories (number, determiners etc) are merged higher in the structure. (cf. also Kayne 1999 and 2000 on Cs and Ps). The LP(xp) positions in the structure above are most likely positions where functional material is merged, i.e. positions were DPs and PPs etc are “grown”.

6. There are also “marked” cases in German where VP moves (see Section 3.3), and “marked” cases in Dutch where VP+ can move (wil opbellen, ‘want upphone’) The latter is sensitive to the internal complexity of VP+ (see K&Sz 2000: 159 ff.).

7. In the spirit of this chapter, the bound property of en can be expressed as a filter on SpecInfP, which will require overt material in SpecInfP at the end of the derivation.

8. This way of measuring complexity is sufficient for the discussion here. How to exactly calculate complexity remains a question for future research. What is clear is that it must be sensitive to overt categories, depth of embedding and types of categories. If it is only based on the structure dominating the most deeply embedded overt element, or on the structure dominating each overt category remains to be determined.

9. See K&Sz 2000: Ch. 8, for more extensive discussion.

10. More precisely, K&Sz (2000) argue that this is a diagnostic criterion for PredP, which attracts VP+: PredP is a focusable category, (with DP, PP, AP). InP, CP etc are not (K&Sz, 2000: 82).


12. The b order is sometimes cited as grammatical. This order is not part of my dialect. The filter predicts that the grammaticality judgments for V3–V2–V1 and V1–V3–V2, and V3–V1–V2 orders should cluster together.

13. This filter is formulated as a filter on PredP in K&Sz. Since I have left PredP out of consideration here, I have reformulated the filter here as a filter on VP+.

14. A morphological account cannot be considered: we are clearly dealing with words, e.g. independently inflected verbs, and not with morphological units in the traditional sense. Furthermore, in our proposal, there is no separate morphological component, and hence no special morphological properties.
15. I simplify the discussion by leaving objects of transitive verbs out of the discussion.
16. This type of solution was suggested by an anonymous reviewer.
17. See K&Sz (2000: 192–4) for other complexity filters in Hungarian and Dutch.
18. Participial ge- is subject to a similar filter (K&Sz 2000: 193).
19. Thanks to Julia Merger-Morales for help with the German examples.
20. Also relevant might be the pattern found in Nawdem (Gur): this proud father of his daughter. (Koopman, fieldmethods class, UCLA, 1998)
21. The restriction on prenominal adjectives versus postnominal adjectives might in fact illustrate just such a case: ‘inversion’ of AP would be OK, but not when AP = proud of DP, which like Dutch CP must be move on and end up in a position where they eventually follow the N (like Dutch CPs).

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Chapter 9

Feature movement
or agreement at a distance?

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1. Introduction and background

Covert movement has had an interesting history in generative grammar. As far as I know, it was first explicitly proposed by Chomsky (1976) to explain why certain items that appeared in situ in surface representation behaved in some respects as if they had undergone movement. May (1977) developed the idea in much more detail. Chomsky’s and May’s analyses relied on a type of covert movement that was parallel to overt movement, primarily the movement of an XP. In an attempt to deal with certain empirical problems with this theory of covert movement, Hornstein and Weinberg (1990) suggested that some of the standard cases of covert movement should be re-analyzed as involving movement of something less than a maximal projection, possibly a head. However, the standard account of phenomena of the type that Chomsky and May were concerned with remained XP movement.

The classic cases of covert movement were all A-bar-movement, chiefly operations proposed in order to explain various scope phenomena, including the scope of quantifiers and that of in situ interrogative operators. Chomsky (1986) introduced an instance of covert A-movement: covert movement of the ‘associate’ to the position occupied in overt syntax by there, as in (1).

(1) a. There is a woman here. S-structure
    b. A woman is t here. LF

For Chomsky, this expletive replacement operation had a number of positive consequences, one of which was that it allowed for the Case of the associate to be properly determined (since Chomsky assumed that the surface position of a woman in (1) is not a Case position1) and for the agreement with Infl to be
appropriately established. However, as was shortly noted, for a wide variety of purposes, the associate in an existential sentence does not behave as if it is Spec of Infl. Chomsky (1991) pointed out the problem for scope, and den Dikken (1995) did for binding. The following is a representative list of relevant phenomena taken from Lasnik (1995b), which provides an overview of the issue. In all of these cases, the examples in (2) crucially differ from the corresponding examples in (3).

(2)  
   a. Many linguistics students aren’t [t here]
   b. Some linguists seem to each other [t to have been given good job offers]
   c. No good linguistic theories seem to any philosophers [t to have been formulated]
   d. Some defendant, seems to his lawyer [t to have been at the scene]

(3)  
   a. There aren’t many linguistics students here
   b. *There seem to each other [t to have been some linguists given good job offers]
   c. *There seem to any philosophers [t to have been no good linguistic theories formulated]
   d. *There seems to his lawyer [t to have been some defendant, at the scene]

2. Covert (feature-driven) movement as feature movement

To accommodate the scope difference in (2a) vs. (3a), Chomsky (1995: 273) proposed that it is only the formal features of the associate that undergo covert movement (at least when the movement is formal feature driven), leaving everything else, including properties relevant to scope, behind. Lasnik (1995b), Lasnik (1995c) extended this proposal to the anaphor binding, negative polarity licensing, and bound pronoun licensing in the b, c, and d examples respectively.

Chomsky (1991) suggested another instance of covert A-movement. Developing and extending the phrase structure proposal of Pollock (1989), Chomsky offered roughly the following as the basic structure of a transitive clause:
In English, subject overtly raises out of VP to Spec of Agr$_s$, where its nominative Case is licensed, and where subject agreement is satisfied. Similarly, on Chomsky’s conjecture, object raises, but covertly, to Spec of Agr$_o$, where accusative Case is licensed and object agreement is satisfied. The raising was assumed to be covert since if it were overt, English would be expected to have O–V order instead of V–O. As discussed by Lasnik and Saito (1991), Chomsky’s proposal, under a straightforward extension to ECM subjects of infinitivals, had the benefit of explaining a variety of phenomena of the sort analyzed by Postal (1974) where the ECM subject behaves as if it c-commands elements of the higher clause. The following examples are representative:

(5) The DA proved [two men to have been at the scene of the crime] during each other’s trials
(6) The DA proved [noone to have been at the scene] during any of the trials
(7) The DA proved [no suspect to have been at the scene of the crime] during his trial

But significantly, in the corresponding expletive constructions, binding and licensing fail:

(8) *The DA proved [there to have been two men at the scene of the crime] during each other’s trials
(9) *The DA proved [there to have been noone at the scene] during any of the trials
(10) *The DA proved [there to have been no suspect, at the scene of the crime] during his trial

Again, there is reason to believe that covert movement doesn’t create new
binding and licensing configurations. But if that is generally true, then (5)–(7) must involve *overt* raising, which, via pied-piping, carries along an entire category, even if only formal features are actually targeted by the operation.

Chomsky (1995) outlines and justifies a theory with some of the required properties. “The operation Move, we now assume, seeks to raise just F.” (p.262) “. . . only PF convergence forces anything beyond features to raise.” (p. 265). Chomsky elaborates on this in a way I will make extensive use of later:

> For the most part — perhaps completely — it is properties of the phonological component that require pied-piping. Isolated features and other scattered parts of words may not be subject to its rules, in which case the derivation is canceled; or the derivation might proceed to PF with elements that are ‘unpronounceable,’ violating FI. (pp. 262–3)

> Just how broadly considerations of PF convergence might extend is unclear, pending better understanding of morphology and the internal structure of phrases. Note that such considerations could permit raising without pied-piping even overtly, depending on morphological structure . . . (p. 264)

### 3. Overt Object Shift in English

This theory has the desired effect for the expletive constructions exemplified above, since for covert feature-based movement, only formal features will move, leaving behind the relevant binding and licensing properties. As for the non-expletive ECM constructions, overt raising, with pied-piping, must have taken place, at least when there is ‘high’ binding or licensing. A similar conclusion can be drawn for simple transitive constructions, as noted by Lasnik and Saito, on the assumption that direct object is, in initial structure, lower than the adverbials represented above:

(11) The DA accused two men during each other’s trials

(12) The DA questioned none of the defendants during any of the trials

(13) The DA questioned no defendant, during his trial

All else equal, though, if raising of the nominal expression is overt, we incorrectly predict NP–V order instead of V–NP. An elegant solution to this problem is provided by Koizumi (1993), Koizumi (1995), who argues that V
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raises to a still higher position. Koizumi’s ‘split VP’ hypothesis is illustrated for the simple transitive (14) in (15).

(14) You will believe Bob

(15) \[
\begin{array}{c}
\text{Agr}_P \\
\text{NP} \\
\text{you} \\
\text{Agr}_S \\
\text{TP} \\
\text{T} \\
\text{will} \\
\text{NP} \\
\text{t} \\
\text{V} \\
\text{believe} \\
\text{NP} \\
\text{Bob} \\
\text{Agr}_{\alpha} \\
\text{VP} \\
\text{V'} \\
\text{V} \\
\text{NP} \\
\text{t} \\
\end{array}
\]

Once we accept overt (A-)movement for the cases where new binding and licensing configurations are created, there is an obvious alternative to feature movement for the complementary cases: no movement whatsoever. Chomsky (2000) proposes exactly this. Instead of agreement and feature checking being instantiated by ‘Attract’, which results in the matching features moving upward to the attractor, there is simply the operation ‘Agree’, with no movement. This is the seeming culmination of a natural progression, from XP movement to feature movement to no movement at all. Obviously, the evidence for feature movement as against XP movement is perfectly consistent with mere long distance Agree. Is there any evidence under other circumstances for feature movement, as opposed to no movement? I will argue that there is.
4. PF Repair by deletion

4.1 Pseudogapping

There are certain constructions where deletion of (a category containing) an item is an alternative to the normally obligatory raising of that item. I will show how feature movement can provide the basis for an account of this. The first construction I will examine in this connection is Pseudogapping.

Pseudogapping is an ellipsis construction that was first examined in detail by Levin (1978) and Levin (1979/1986). In simple cases, like the following from Levin (1978), it seems to involve simply omission of the main verb:

(16) a. If you don't believe me, you will Ø the weatherman.
    b. I rolled up a newspaper, and Lynn did Ø a magazine.
    c. Kathy likes astronomy, but she doesn't Ø meteorology.

But, as massively documented by Levin, more than just the verb can be missing. The following examples, from Lasnik (1995d), illustrate this.

(17) a. The DA proved Jones guilty and the Assistant DA will prove Smith guilty.
    b. John gave Bill a lot of money, and Mary will give Susan a lot of money.

Note that in these examples, the elided material does not seem to constitute a constituent, nor even a continuous portion of the structure. Jayaseelan (1990) insightfully analyzes Pseudogapping as involving movement of the survivor NP out of the VP followed by remnant VP ellipsis. In Lasnik (1995d) and Lasnik (1999b) I follow Jayaseelan's basic line, except that I argue that the survivor saving movement is raising to Spec of Agr$_O$ rather than Heavy NP Shift. I illustrate the analysis for the elliptical clause in (18) in (19).

(18) You might not believe me but you will Bob
At this point, a question arises. Since the V need not raise to a position higher than the raised object in (18), why must it in the non-elliptical counterpart (20)?

(20) *You will Bob believe

Let us assume, following Lasnik (1995d), that the object NP raises to satisfy the EPP requirement of Agr, and that V raises in order for a strong feature to be checked. Let us assume further the theory of strong features of Chomsky (1995) whereby an attracting head, rather than a moving item, possesses (or doesn’t) a strong feature. The ‘shell’ V of the higher VP then has a relevant V-attracting strong feature. In this theory, a strong feature must be eliminated virtually as soon as it appears in a structure:

[we] simply define a strong feature as one that a derivation ‘cannot tolerate’: a derivation $D \rightarrow \Sigma$ is canceled if $\Sigma$ contains a strong feature. . . A strong feature thus triggers a rule that eliminates it: [strength] is associated with a pair of operations, one that introduces it into the derivation. . . a second that (quickly) eliminates it. (p. 233)

(20) is straightforwardly excluded. Either there was no raising of the features
of believe, in which case the relevant unchecked strong feature of the higher V causes the derivation to terminate. Or else the features of believe were attracted, but pied-piping did not take place, resulting in a PF crash. Recall now Chomsky’s conjecture above that in principle there could be movement without pied-piping, depending on morphological factors. Ellipsis, regarded as PF deletion, could be just such a morphological factor, since material that is deleted is rendered invisible at the PF interface. Consider the structure of (20), with feature movement, so that the strong feature of the higher V is satisfied, but without pied-piping:

\[
(21)
\]

Suppose, following the modification of Ochi (1999) of Chomsky’s theory, that once the matching feature of the lower lexical V is ‘attracted’, it is just the lower V that becomes phonologically defective. There are then two ways to avoid a PF crash. The ‘normal’ way is by pied-piping the entire V, giving standard VO word order. But now there is an alternative form of salvation. If a category containing the defective V is deleted, the defect will be obliterated as far as PF is concerned. On my account, that is precisely what happens in Pseudogapping: the VP headed by the defective V deletes by VP ellipsis. This
complementarity between normally obligatory movement and ellipsis thus receives a rather straightforward account in terms of feature movement. It is not clear how this would be expressed if feature movement were eliminated from the theory in favor of long distance agreement.

4.2 Sluicing

Certain instances of Sluicing have the same abstract property as Pseudogapping, in that a normally obligatory movement is rendered optional in the context of ellipsis. Sluicing was first investigated by Ross (1969), who regarded it as an embedded WH-question phenomenon. He gave examples such as (22).

\[
(22) \quad \text{Speaker A: Mary will see someone.}
\]
\[
\quad \text{Speaker B: I wonder who \underline{Mary will see}.}
\]

The construction is very plausibly analyzed as WH-movement followed by IP ellipsis. This was essentially Ross’s account, taken up again by Saito and Murasugi (1990). It will be important for the argument I will develop to see that Sluicing is not limited to embedded questions. It can also occur in matrix WH-questions:

\[
(23) \quad \text{Speaker A: Mary will see someone.}
\]
\[
\quad \text{Speaker B: Who \underline{Mary will see}?}
\]

Just the same line of analysis presented with respect to Pseudogapping seems appropriate here as well. The WH-phrase raises and the IP is elided. But here too, the question is why the normally obligatory raising of Infl to C (in matrix interrogatives) does not apply.

\[
(24) \quad \text{*Who Mary will see?}
\]
\[
(25) \quad \text{Who will Mary see?}
\]

The same answer is available. Assume, as is standard, that matrix interrogative C contains the relevant strong feature, with the matching feature of Infl (presumably a tense feature) raising overtly to check it. This leaves behind a phonologically defective Infl, which will cause a PF crash unless either pied-piping or deletion of a category containing that Infl (Sluicing) takes place. (26) illustrates the latter option.
Again, this state of affairs receives a natural account in terms of feature movement, while it is not clear how it can be captured if feature movement is replaced by Agree.

There are two questions that could be raised about this argument. First, since Sluicing is generally regarded as an embedded question phenomenon, it is conceivable that (23) doesn’t display Sluicing at all, but rather, is just some sort of sentence fragment. I think this alternative is unlikely, as there are no obvious differences between (23) and classic cases of Sluicing. Further, there is one striking similarity between matrix and embedded instances, a similarity not shared by any other construction in English, as far as I know. Ross (1969) first observed that there is a curious prepositional phrase word order inversion possible in certain instances of Sluicing:

\[(27)\]  
\begin{align*}  
  a. & \text{ Lois was talking, but I don’t know to whom.} \\  
  b. & \text{ Lois was talking but I don’t know who to.} 
\end{align*}

Merchant (1999) notes that just this same inverted word order is available in the matrix construction:

\[(28)\]  
\begin{align*}  
  a. & \text{ Lois was talking. To whom?} \\  
  b. & \text{ Lois was talking. Who to?} 
\end{align*}

I cannot go into possible analyses of this inversion here, but the fact that it shows up in these two constructions, and only these, is strong evidence that the constructions are the same. Since the embedded instances are uncontroversially Sluicing, the matrix instances are (or at least can be) too.
There is a second, harder, question. The argument I presented crucially relies on Sluicing not being C’ ellipsis. If Sluicing were C’ ellipsis, then the matrix Sluice “Who?” could be derived by raising Infl via pied-piping, then eliding C’:

(29) Who \[ C’ \{ [\text{Mary see t }] \} \]

It does seem reasonable to assume that Sluicing is not C’ ellipsis, since it is fairly generally believed (though without overwhelming evidence, as far as I know) that intermediate level projections are not accessible to the computational system. However, there is evidence from other languages suggesting that Sluicing is C’ ellipsis. Merchant (1999) discusses a number of languages where a standard WH-question has a fronted WH-phrase and an overt complementizer. But in all of these languages, the sluiced versions of the questions omit the complementizer (and obligatorily so). A representative language is Slovene; the following examples are attributed by Merchant to Tatjana Marvin:

(30) a. Rad bi vedel, koga \( da \) je Peter videl.
   glad subj know whom C aux Peter seen
   ‘I would like to know who Peter saw.’

b. Peter \( je \) videl nekoga \( in \) rad bi vedel, koga (*\( da \)).
   Peter aux seen someone and glad subj know whom that
   ‘Peter saw someone and I would like to know who.’

Merchant wants to maintain that rules do not target non-maximal projections. To account for such examples as (30), he suggests that the Cs in the languages in question have an inherent proclitic nature. In support of this suggestion, he observes that “complementizers show a high degree of susceptibility to prosodic incorporation into following domains, at least in right-branching languages . . .” [p. 97] When Sluicing deletes the IP in (30), then, the complementizer \( da \), having cliticized onto the first element of the IP, would be deleted along with the IP. Merchant acknowledges that this proposal needs further investigation, but it does seem to me a plausible direction.6

5. A constraint on one type of Remnant Movement

One final argument for feature movement is suggested by an old paradigm originally discussed by Kroch and Joshi (1985). Kroch and Joshi observed that one type of what is now called ‘remnant movement’ is ill-formed. (31), with a hypothesized structure roughly as in (32), is a representative example.
Kroch and Joshi, followed by Lasnik and Saito (1992), proposed that examples like this violate a version of the Proper Binding Condition of Fiengo (1977). In (32), \( t_t \), the trace of there, is not bound by the latter. Note, by the way, that a very close analogue of (31) is acceptable:

(33) How likely to win is John

Lasnik and Saito (1992), again following Kroch and Joshi (1985), suggested that control, rather than raising, can be involved here, as illustrated in (34).

(34) [How likely [PRO to win]] is John

Since only an argument can control PRO, and since control generally has a weaker structural requirement than the strict c-command demanded by trace binding, the contrast between (31) and (33) follows. However, in current syntactic theories, the status of the Proper Binding Condition is unclear. Further, there is some reason to believe that A-movement, unlike A-bar-movement, doesn’t leave a trace. Hence, it is desirable to seek an alternative account. Barss (1986) had already proposed an account that did not rely on the Proper Binding Condition (nor, for that matter, on traces of A-movement). Consider the following structure, parallel to (32) above:

(35) *[How likely [t to be a man outside]] [C^1 is [IP there . . . ]

Barss, following Chomsky (1986), argues that a man must replace there in LF, but this movement is illicit here, being ‘sideways’, and certainly not upwards. Now expletive replacement per se cannot be correct, as discussed above with respect to examples (2)–(3). But the essence of Barss’s account can be maintained under the feature movement analysis: the agreement features of Infl must be checked, and there has no agreement features of its own. If, as is widely assumed, movement must be upwards, the required feature movement is impossible:

(36) *[How likely [t to be a man outside]] [C^1 is [IP there . . . ]

No such account is available on the long distance agreement theory, even assuming that agreement requires c-command. Prior to the WH-movement of the How likely . . . phrase, we would have the structure in (37).
(37) There is [how likely [ to be [a man outside]]]

[F]               [F]

And in this structure, Agreement is surely possible, given the well-formedness of (38).

(38) There is (very) likely to be a man outside

Note that under the feature movement analysis, the acceptability of (38), or even much simpler examples like (39), seems to become a problem.

(39) There is a man outside

Consider the structure in (40).

(40) [There is [a man outside]]]

[F]               [F]

If feature movement takes place, we are left with a phonologically defective constituent, a man. And unlike what we saw with acceptable examples discussed earlier, no ellipsis is needed here. The result is well-formed as it stands. I conclude that in this case the relevant feature movement must not be visible to the PF component. Thus, it must be the case that there is a separate LF cycle in which feature movement can take place, as in the T-model, and in the Chomsky (1995) extension of it. Given this conclusion, one could, I suppose, imagine a way to preserve Agree even in the face of the problem raised by (31). If Agree were limited to a separate later covert cycle, and if we continued to assume a c-command requirement, then at the point in the derivation where Agree would attempt to operate, it would be too late. The associate would have been carried by overt WH-movement outside the c-command domain of the matrix Infl. However, that ordering limitation on Agree would be completely stipulative; phonological considerations could not be relevant (as they might be in the case of feature movement). Further, Chomsky (2000), in introducing Agree as the entire replacement for feature movement, fundamentally rejects any such organization of the grammar:

There is a single cycle; all operations are cyclic. Within narrow syntax, operations that have or lack phonetic effects are interspersed. There is no distinct LF component within narrow syntax. . .Agree alone, not combined with Merge in the operation Move, can precede overt operations, contrary to the assumptions of MP and related work. (pp.131–2)
6. The EPP

The analyses of Pseudogapping and Sluicing presented above have a rather surprising, even ironic, consequence for the EPP. The original formulation, in Chomsky (1981)\textsuperscript{10} is, roughly, that certain heads demand specifiers. Chomsky (1995) suggests a different interpretation of the EPP requirement. A head with a strong feature must have that feature checked in overt syntax (in fact, almost immediately after the introduction of the head into the structure\textsuperscript{11}). Given this, the Extended Projection Principle reduces to a strong feature of a functional head high in the clausal structure (causing the relevant feature to raise), combined with a PF based generalized pied-piping requirement (causing the residual constituent to raise). Since we have seen that when features move in overt syntax, deletion is an alternative to pied-piping, we now have a testing ground for comparing these two approaches to the EPP. Suppose that the EPP is instantiated by a strong feature in ‘Infl’, perhaps, as Chomsky suggested, a D feature, with a matching feature in nominal expressions. For concreteness, I will assume that it is in Agr\textsubscript{5}, though whether in Tense or Agr\textsubscript{5} is immaterial to this part of the discussion. Consider then an example like (41), with an underlying structure roughly as in (42).

(41) Mary said she can’t swim, even though she (really) can swim

(42) \[
\begin{array}{c}
\text{Agr}_5 \\
\text{Agr}_S' \\
\text{Agr}_5 \\
\text{[strong F]} \\
\text{T} \quad \text{TP} \\
\text{can} \\
\text{NP} \quad \text{V'} \quad \text{swim} \\
\text{she} \quad \text{[F]} \\
\end{array}
\]

When the strong feature of Agr\textsubscript{5} attracts the matching feature of she, we obtain (43), via standard VP ellipsis, if pied-piping obtains.

(43) Mary said she can’t swim, even though she (really) can swim.

But, analogous to the alternative ellipsis possibilities seen with Pseudogapping and Sluicing, we might expect to be able just to raise the relevant features of she if the residue can be deleted.\textsuperscript{12} However, contrary to this expectation, VP ellipsis
without pied-piping is impossible for the structure in (42), as seen in (44), where the unraised VP-internal subject is elided along with the rest of the VP.

(44) *Mary said she can’t swim, even though (really) can she swim.

The only obvious way to exclude (44) is to demand that the entire subject raise. And that is the original version of the EPP. Interestingly, Chomsky (2000) arrives at the same conclusion, but for very different reasons. He rejects feature-based movement entirely, replacing feature checking via movement with a relation of long distance agreement, Agree, as discussed above. On this conception, the EPP has nothing to do with feature checking in the sense of Chomsky (1995). Rather, in a return to the earliest view, it is the requirement that certain functional heads demand a specifier. What is ironic is that even though I have argued for feature movement, that very argument has ultimately led to the conclusion that Chomsky arrived at based on the rejection of feature movement: that the EPP is not feature driven movement. Why the EPP should be different in this way from the other instances of movement considered here is an important question, but one that I am not prepared to answer at this point. For one thing, so few cases have been considered that trying to discern a pattern is a risky business. However, I suspect that Boeckx and Stjepanovic (2001) are onto something in suggesting that the true generalization involves head movement, where ellipsis does provide an alternative to raising, vs. XP movement, where it doesn’t. They offer the tantalizing suggestion that this dichotomy might follow from the proposal of Chomsky (2000) that head movement is a PF process, rather than a true syntactic one. They reason that the derivational decision to pied-pipe involves considerable ‘look-ahead’ since the adverse effects of bare feature movement are not evident until PF, where deletion operates. If head movement is a PF process, the interaction is at least confined to one component. Conversely, if XP movement is syntactic, potential interaction between full movement and deletion would be across the Spell-out divide thus involving look-ahead of a much greater degree, and hence plausibly much more computationally complex.

7. Conclusion

Given current understanding, any conclusion about feature movement vs. long distance agreement would be dramatically premature. However, I hope to have shown that it might be possible to tease apart these two theories, and even to
find evidence that the former is superior.

Notes

* I would like to acknowledge the very helpful comments and suggestions of the participants of the 1999 Potsdam Workshop on Remnant Movement, F-movement and their implications for the T-model, and those of an anonymous reviewer for this volume. Portions of this material have also been presented in my seminar at the University of Connecticut, at the 1999 LSA Linguistic Institute Workshop on The Role of Grammatical Functions in Transformational Syntax, and in colloquia at Princeton University, the University of Maryland, the University of California, Santa Cruz, and the University of California, Berkeley. I am indebted to all of those audiences for their perceptive questions and counterexamples. This chapter was completed while I was a Fellow at the Center for Advanced Study in the Behavioral Sciences. I am grateful for the support provided by The John D. and Catherine T. MacArthur Foundation, grant #95-32005-0.

1. See Belletti (1988) and Lasnik (1992), Lasnik (1995a) for a contrary point of view.

2. A reviewer points out that Chomsky (1995) seems to take conflicting positions on this issue, since on p.377, he suggests that if QR exists, it is feature movement (and it would then obviously be feature movement with scope consequences). Perhaps the difference between QR and other instances of movement is that with QR, the only relevant feature is ‘[quant]’; if it didn’t move, there would be no movement at all.

3. The intended, and possible, meaning here is that the DA, perhaps through incompetence or trickery, proved during Smith’s trial that Jones was guilty, and during Jones’s trial that Smith was guilty. A reviewer suggests that the adverbial “on the basis of each other’s testimonies” might make the relevant binding more salient.

4. A reviewer raises the interesting question of whether the feature of believe that raises in (21) does so by way of AgrO. Assuming that the accusative Case of Bob is to be licensed in the Spec-head relation with AgrO, the accusative Case licensing feature of the verb must appear in AgrO eventually. It is not clear whether this has to happen in overt syntax. If it does, then plausibly the whole bundle of formal features moves as a unit, as proposed by Chomsky. Additionally, either there is a strong feature of AgrO that attracts a feature in the bundle, or, alternatively, a locality constraint of the Head Movement Constraint variety forces the movement to be by way of the intermediate landing site.

5. At this point, I abstract away from ‘split-Infl’ details for ease of exposition.

6. A reviewer observes that Merchant’s suggestion does not carry over to Swedish, another language with overt complementizers in embedded questions but not in sluiced versions:

(i)  *Johan såg någon, och jag undrar vem (*som)
     John saw someone and I wonder who that

The problem is that a parenthetical can intervene between som and IP, suggesting that som is not a proclitic:
(ii) Jag undrar vem som — efter allt som nu har hänt —
I wonder who that — after all that now has happened —
skall lita på Göran Persson
shall trust in Göran Persson

I will have to leave this important issue open.

7. See Lasnik (1999a) for discussion.
8. Though without overwhelming evidence, as far as I know.
9. Here, I must assume, with Chomsky (1995), that features cannot be attracted out of a trace/copy.
10. Though not given the name EPP until Chomsky (1982).
11. See Lasnik (1999c) for discussion of the mechanics of feature strength.
12. Note that Case checking should not be at issue, since Case can surely be checked at a distance, either by feature movement or by Agree.
13. A reviewer points out that under the assumption articulated above that 'object shift', like subject shift, is driven by an EPP requirement of AgrO, the ungrammaticality of (i) is correctly predicted, along the same lines as (44).

(i) *You may not like Bob, but you must believe

As shown in (ii), to derive (i) by VP ellipsis of the lower VP, we will invariably be left with an AgrO with no specifier.

(ii)

\[
\begin{array}{c}
\text{Agr}_P \\
\text{NP} \\
\text{you} \\
\text{Agr}_O \\
\text{TP} \\
\text{T} \\
\text{must} \\
\text{NP} \\
\text{t} \\
\text{V} \\
\text{believe} \\
\text{V} \\
\text{Agr}_P \\
\text{Agr}_O' \\
\end{array}
\]

A reviewer points out that under the assumption articulated above that 'object shift', like subject shift, is driven by an EPP requirement of AgrO, the ungrammaticality of (i) is correctly predicted, along the same lines as (44).

(i) *You may not like Bob, but you must believe
Chomsky (2000) suggests that the obligatoriness of overt WH-movement in languages like English is also an EPP phenomenon. All else equal, we should then expect that here, too, the requirement cannot be evaded by feature movement and ellipsis. In the conference presentation on which this chapter is based, I gave some evidence that the prediction is confirmed. In Sluicing constructions, the WH-phrase evidently cannot be left in situ, as part of an ellipsis site:

(i) Mary will see someone. Tell me who Mary will see.
(ii) Mary will see someone. *Tell me Mary will see who.

The argument is, however, less than overwhelming since Sluicing, in addition to its syntactic requirements, has an array of discourse requirements as well, one of them demanding focus on the WH-phrase. But if it has not been pied-piped and is instead part of a deletion site, there is no way it can be focused. A reviewer gives another argument, which might circumvent this interfering factor, that mere feature movement does not obviate the need for WH-movement. VP ellipsis is possible in (iii) but not in (iv), where one might a priori imagine that feature movement of who would suffice to satisfy the requirements of the +WH complementizer:

(iii) I know you cannot trust Bob, but I wonder who you can
(iv) *I know you cannot trust Bob, but I wonder you can

Jim McCloskey (personal communication) points out an exception to the fledgling generalization that in the case of head movement, deletion is an alternative to pied-piping. He observes that in languages where V raises to T, one should now expect that VP ellipsis can leave just the subject as a remnant. But this is, in fact, not possible. Even English provides such a situation, since auxiliary verbs raise to T. Consider the following:

(i) Mary isn’t here even though John is [vp, here]

Now suppose just the features of is were to raise, with the residue remaining in situ. VP deletion ought to salvage the sentence, but it doesn’t:

(ii) *Mary isn’t here even though John T [vp, is, here] [F] [F]

This particular example is not actually very damaging to the hypothesis, since VP ellipsis is known to obey a kind of head government constraint, demanding a morphologically realized head as the licensor of its null VP complement. Versions of this constraint have been discussed by Zagona (1988) and Lobeck (1990), among others. In (iii), head government fails, since is didn’t raise. A harder version of this problem is seen in (iii)–(iv).

(iii) Mary is here even though John is not here
(iv) *Mary is here even though John not is here

As Baltin (1993) and Potsdam (1997) point out, not is a possible ellipsis licensor. In subjunctives, VP ellipsis is normally impossible, but with negation, it becomes reasonably acceptable:
(v) "I desire that John be here and that Mary be here also"
(vi) "I desire that John be here and that Mary not be here"

I will have to leave this as an open question.

16. As it presumably must be, given its clear syntactic consequences for binding, licensing, etc.

References

Chapter 10

Two types of remnant movement*

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1. Introduction

This chapter is concerned with stating and accounting for differences between two types of remnant movement that have been proposed in the literature. Remnant movement is movement of an XP β from which extraction of α has taken place earlier in the derivation; cf. (1). This phenomenon has been argued to support a derivational approach to syntax (cf. Chomsky (1998)): Since remnant movement creates an unbound α trace that is separated from its antecedent by an XP in non-selected position (i.e., a barrier), the well-formedness of the resulting structure is unexpected under representational approaches that require proper binding of traces and check locality constraints at S-structure; but nothing is wrong with (1) under a derivational approach in which proper binding is replaced by strict cyclicity and locality is checked directly after each movement operation.

(1) \[ [\ldots t_1 \ldots] \ldots [\ldots a_i \ldots [\ldots t_2 \ldots]] \]

Remnant movement has been suggested for two different kinds of constructions. On the one hand, Thiersch (1985) and den Besten and Webelhuth (1987; 1990) have argued that cases of incomplete category fronting like (2a) in German should be analyzed as involving a combination of scrambling of NP, and remnant VP topicalization. On the other hand, it has recently been proposed that remnant movement is a much more general phenomenon that also underlies certain other constructions where this may not be immediately obvious. Most notably, Kayne (1998) analyzes constructions like (2b) in English as involving obligatory overt negative NP, preposing followed by TP-internal remnant VP fronting. Henceforth, I will refer to the two constructions as “primary” and “secondary” remnant movement, respectively.
The goal of this chapter is twofold. In Section 2, I will show that the two constructions exhibit radically different properties. In Section 3, I will argue that a unified analysis is possible despite these differences if we assume that shape conservation (Williams (1999)) can be a trigger for movement, in addition to feature checking (Chomsky (1995)). In particular, we will see that whereas primary remnant movement is feature-driven, secondary remnant movement is a repair strategy that is triggered by shape conservation. This latter idea will be implemented in a restrictive model of optimality theory ("local optimization") for which I will present empirical support. Section 4 draws a conclusion. Finally, Section 5 is an appendix that discusses extending the analysis to other cases of secondary remnant movement.

2. The properties of primary and secondary remnant movement

This section highlights five differences between primary and secondary remnant movement. These differences are related to (i) independent availability, (ii) secondary object fronting, (iii) extraction, (iv) movement types, and (v) successive cyclicity.

2.1 Independent availability

In primary remnant movement constructions, movement of both $\beta_1$ and $\alpha_1$ in (1) must be independently available. Thus, German remnant VP topicalization as in (2a) presupposes that VP topicalization and NP scrambling are independent options in the language, which indeed they are:

(2) a. $[_{\text{VP}} \ t_1 \text{Gelesen }] \text{hat das Buch}_1 \text{keiner } t_2.$
    read has the book no-one
    'No-one read the book.'
 b. John $[_{\text{VP}} \text{reads} \ t_1 ] \text{no novels, } t_2.$

Similarly, the English primary remnant movement construction in (4a) relies
on the independent existence of VP topicalization and NP raising of the subject, as in (4b–c).

\begin{enumerate}
  \item[(4)] a. \( \text{VP}_2 \text{ Criticized } t_1 \text{ by his boss } ] \text{ John}_1 \text{ has never been } t_2. \)
  \item b. \( \text{VP}_2 \text{ Criticize John } ] \text{ he wouldn’t } t_2. \)
  \item c. \( \text{John}_1 \text{ has never been } \text{VP}_2 \text{ criticized } t_1 \text{ by his boss }. \)
\end{enumerate}

In line with this, English lacks the counterpart to the German remnant movement construction in (2a), viz., (5a), for the simple reason that although it has VP topicalization (cf. (5b)), it does not have scrambling (cf. (5c)):

\begin{enumerate}
  \item[(5)] a. *\( \text{VP}_2 \text{ Kicked } t_1 \text{ the dog}_1 \text{ never has } t_2. \)
  \item b. \( \text{VP}_2 \text{ Kicked the dog}_1 \text{ John never has } t_2. \)
  \item c. *\( \text{John never has the dog}_1 \text{ VP}_2 \text{ kicked } t_1 \). \)
\end{enumerate}

In contrast, in secondary remnant movement constructions like (6a) (=(2b)), movement of neither \( \alpha_1 \) nor \( \beta_2 \) is independently available. This is clear for negative NP preposing; cf. (6c). Given that independent VP\( _2 \) fronting in (6b) would be string-vacuous, the question arises of whether this is an option. Since Kayne assumes that the “more emphatic, less neutral character” of sentences like (6a) “must be correlated with VP-movement,” and since it is unclear which feature could trigger TP-internal VP fronting in (6b), we may conclude that it is not. Consequently, none of the two movement operations in (6a) is independently available in secondary remnant movement constructions.

\begin{enumerate}
  \item[(6)] a. \( \text{John } \text{VP}_2 \text{ reads } t_1 \text{ no novels}_1 t_2. \)
  \item b. *\( \text{John } \text{VP}_2 \text{ likes that novel}_1 t_2. \)
  \item c. *\( \text{John no novels}_1 \text{ VP}_2 \text{ reads } t_1 \). \)
\end{enumerate}

### 2.2 Secondary object fronting

Double object constructions reveal a second difference. Primary remnant VP topicalization in German may carry along or strand (by scrambling) any of the two objects:

\begin{enumerate}
  \item [(7)] a. \( \text{VP}_2 t_1 \text{ Ein Buch} \text{ zum Geburtstag geschenkt } ] \text{ hat sie dem } \text{ Jason}_1 t_2. \)
  \item b. \( \text{John } \text{VP}_2 \text{ likes that novel}_1 t_2. \)
  \item c. *\( \text{John no novels}_1 \text{ VP}_2 \text{ reads } t_1 \). \)
\end{enumerate}

‘She gave Jason a book as a birthday present.’
b. \[ \text{VP2 Dem Jason} t_3 \text{ zum Geburtstag geschenkt} \] hat sie \text{ART Jason:DAT for the birthday given has she}
\text{ein Buch} t_2.
\text{a book:ACC}

c. \[ \text{VP2 t_1 t_3 Zum Geburtstag geschenkt} \] hat sie dem Jason \text{ART Jason:DAT}
\text{ein Buch} t_2.
\text{a book:ACC}

In contrast to this, whether secondary remnant VP fronting carries along an NP in a double object construction or strands it prior to VP fronting depends on whether the pre-movement order is maintained. If the negative NP is the first object, the second object cannot be fronted together with the verb, but must leave the VP by an earlier operation that I will call “secondary object fronting” (indicated here by underlining); this operation targets a position below that of the negative NP, thereby restoring the pre-movement order:

\[
(8) \begin{align*}
\text{a. } & \text{John VP2 gave t_1 to Mary3 no books1 t_2.} \\
\text{b. } & \text{John VP2 gave t_1 t_3 no books1 to Mary3 t_2.} \\
\text{c. } & \text{John VP2 gave t_1 a book3 no-one1 t_2.} \\
\text{d. } & \text{John VP2 gave t_1 t_3 no-one1 a book3 t_2.}
\end{align*}
\]

If, on the other hand, the negative NP is the second object, the first object must be fronted together with the verb, and cannot undergo secondary object fronting:

\[
(9) \begin{align*}
\text{a. } & \text{John VP2 gave the book1 t_3 to no-one3 t_2.} \\
\text{b. } & \text{John VP2 gave t_1 t_3 to no-one3 the book1 t_2.} \\
\text{c. } & \text{John VP2 gave Mary1 t_3 no books3 t_2.} \\
\text{d. } & \text{John VP2 gave t_1 t_3 no books3 Mary1 t_2.}
\end{align*}
\]

2.3 Extraction

Both the remnant XP $\beta_2$ and the antecedent of the unbound trace $\alpha_1$ in (1) are barriers for further extraction in primary remnant movement constructions. This is a standard freezing effect that is expected if (a) moved items end up in non-selected positions, where they are barriers (cf. Cinque (1990) vs. Lasnik and Saito (1992)), and (b) strict cyclicity ensures that extraction from an XP to a position $\gamma$ cannot take place prior to XP-movement to a position $\zeta$, where
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\[ \zeta \text{ is lower than } \gamma \text{ (cf. Chomsky (1995) and references cited there). The freezing effect is shown for the remnant XP } \beta \text{ in (10) and (11), and for the antecedent of the unbound trace } \alpha \text{ in (12) (barriers are underlined).} \]

(10) a. Ich denke \( [_{CP} \ [_{VP2} \ t_3 \ t_1 \ \text{gegeben}] \) hat dem Fritz \( t_2 \) das Buch\( t_3 \).
   \[ \text{I think } \text{given } \text{has ART Fritz the book} \]
   \[ \text{no-one} \]
   \[ \text{‘I think that no-one gave Fritz the book.’} \]
   b. *Wem, denkst du \( [_{CP} \ [_{VP} \ t_3 \ t_1 \ \text{gegeben}] \) hat das Buch\( t_2 \) keiner \( t_3 \)?
   \[ \text{whom think you } \text{given } \text{has the book } \text{no-one} \]
   \[ \text{‘To whom do you think that no-one gave the book?’} \]

(11) a. Ich denke \( [_{CP} \ [_{VP2} \ written \ t_1 \ for \ children3] \) those books\( t_1 \) could not
   \[ \text{possibly be } t_2 \]
   b. *Children, I think that \( [_{CP} \ [_{VP} \ written \ t_1 \ for \ t_3] \) those books\( t_1 \) could
   \[ \text{not possibly be } t_2 \]

(12) a. \( [_{VP2} \ t_1 \ \text{Gerechnet}] \) hat gestern \( [_{PP} \ da3-mit] \) wieder keiner \( t_2 \)
   \[ \text{counted } \text{has yesterday there-with again no-one} \]
   \[ \text{‘Again, no-one reckoned with it yesterday.’} \]
   b. *[\( [_{VP2} \ t_1 \ \text{Gerechnet}] \) hat da3 gestern \( [_{PP} \ t_3 \ \text{mit}] \) wieder keiner \( t_2 \).

\[ \text{counted } \text{has there yesterday with again no-one} \]
\[ \text{‘Again, no-one reckoned with it yesterday.’} \]

In contrast, neither the remnant XP \( \beta_2 \) nor the antecedent of the unbound trace \( \alpha_1 \) is a barrier for further extraction in secondary remnant movement constructions; cf. wh-movement in (13a) and topicalization in (13b), respectively. Given the interaction of barriers theory and strict cyclicity, this anti-freezing effect is a priori unexpected.

(13) a. Which book\( t_3 \) did John \( [_{VP} \ give \ t_3 \ t_1] \ [_{PP} \ to \ no-one] t_2 \)?
   b. About Nixon, John \( [_{VP} \ read \ t_1] \ [_{NP} \ only \ one \ book] t_3 \ t_2 \).

2.4 Movement types

It has often been noted that not all movement types seem to be able to affect (primary) remnant XPs equally well, the crucial distinction being that between middle field-external and middle field-internal movement operations. E.g., whereas topicalization of a remnant infinitival VP is possible in German
(cf. (14a)), scrambling of the same remnant VP leads to ungrammaticality (cf. (14b)).

(14)  a. \[ VP_2 \text{ Zu lesen } ] \text{ hat das Buch, keiner t}_2 \text{ versucht.} \\
     \text{to read has the book no-one tried} \\
     \text{‘No-one tried to read the book.’}
     b. *daß \[ VP_2 \text{ zu lesen } ] \text{ das Buch, keiner t}_2 \text{ versucht hat.} \\
     \text{that to read the book no-one tried has} \\
     \text{‘that no-one tried to read the book.’}

No such asymmetry arises with topicalization vs. scrambling of full, i.e., non-remnant, infinitival VPs:

(15)  a. \[ VP_2 \text{ Das Buch zu lesen } ] \text{ hat keiner t}_2 \text{ versucht.} \\
     \text{the book to read has no-one tried} \\
     \text{‘No-one tried to read the book.’}
     b. daß \[ VP_2 \text{ das Buch zu lesen } ] \text{ keiner t}_2 \text{ versucht hat.} \\
     \text{that the book to read no-one tried has} \\
     \text{‘that no-one tried to read the book.’}

Again, things are different with secondary remnant movement. Indeed, secondary remnant VP fronting is not only permitted to target a middle field-internal (post-subject) landing site (cf. (16a) = (2b)); it is required to do so (cf. the failed attempt at topicalization in this context in (16b)).

(16)  a. John \[ VP_2 \text{ reads t}_1 ] \text{ no novels}_1 t_2. \\
     b. *\[ VP_2 \text{ Reads t}_1 ] (I \text{ think that}) John t’_2 \text{ no novels}_1 t_2.

2.5 Successive cyclicity

Unbound intermediate traces that result from successive-cyclic movement via SpecC cannot occur in primary remnant movement constructions. In (17a), a complex VP, that is headed by a bridge verb and contains an argument CP, is topicalized across a \textit{wh}-island. Complement topicalization from a \textit{wh}-island typically results in a mild, Subjacency-like effect in German (cf. Fanselow (1987)), and VP topicalization behaves as expected here. However, in (17b), successive-cyclic \textit{wh}-movement has taken place from CP prior to complex VP topicalization; the \textit{wh}-island itself is created by the antecedent of the traces t, t’. In this case, an unbound intermediate trace t’ comes into being, and strong ungrammaticality arises.
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(17) a. \( \text{Gesagt CP daß sie Fritz liebt } \) weiß ich nicht \( \text{CP ob} \)
\( \text{Gesagt CP daß sie hat } \) weiß ich nicht whether
\( \text{Gesagt CP daß sie hat } \) weiß ich nicht whether
\( \text{I do not know whether she said that she loves Fritz.} \)

b. *\( \text{Gesagt CP daß sie hat } \) weiß ich nicht whom
\( \text{Gesagt CP daß sie hat } \) weiß ich nicht whom
\( \text{I do not know who she said that she loves.} \)

Note that the effect in (17b) cannot be due to an intrinsic island property of VP2 or CP3: Successive-cyclic \textit{wh}-movement is possible with VP2 in situ and CP3 in extraposed position:

(18) \( \text{Ich weiß nicht CP wen CP Gesagt hat CP daß sie t liebt } \)
\( \text{I know not whom she said has that she loves } \)
\( \text{I do not know whom she said that she loves.} \)

Again, the case is different with secondary remnant movement constructions. Kayne (1998) discusses examples like (19a), which exhibit both a narrow scope reading for the negative NP (\textit{force} > \textit{no-one}), and a wide scope reading (\textit{no-one} > \textit{force}). The narrow scope reading involves local negative NP preposing within the infinitive and local secondary remnant VP preposing of exactly the type we have been concerned with so far; cf. (19b). However, Kayne argues that to obtain the wide scope reading, the negative NP \textit{no-one} must undergo long-distance movement into the matrix clause. By standard locality assumptions, this movement must proceed via SpecC. Hence, subsequent secondary remnant fronting of the matrix VP creates an unbound intermediate trace. This is shown in (19c), where \textit{no-one} takes scope over \textit{force} (as a result of \textit{c}-commanding a trace of the VP headed by \textit{force}, i.e., via reconstruction).

(19) a. \( \text{I will force you to marry no-one.} \)
\( \text{I will force you CP to CP marry t } \) \( \text{I will force you CP to marry t } \)
\( \text{I will force you CP to marry t } \) \( \text{I will force you CP to marry t } \)
\( \text{I will force you CP to marry t } \) \( \text{I will force you CP to marry t } \)
\( \text{I will force you CP to marry t } \) \( \text{I will force you CP to marry t } \)

Thus, the difference between legitimate unbound intermediate traces with secondary remnant movement, as in (19c), and illegitimate unbound interme-
diate traces with primary remnant movement, as in (17b), is a priori unexpected.

To sum up this section, we have seen that primary and secondary remnant movement constructions differ radically. One might want to take this to indicate that one of the two approaches should be abandoned. Given that both approaches have their virtues, I will not draw this conclusion here. Rather, I will develop a unified approach that explains the diverging properties of primary and secondary remnant movement constructions by distinguishing between feature-driven movement and repair-driven movement.

3. A Unified Approach

3.1 Shape conservation and local optimization

All movement operations can plausibly be viewed as being feature-driven in primary remnant movement constructions. Thus, (20a) involves a combination of NP raising (triggered by the EPP feature) and VP topicalization (triggered by a topic feature); and (20b) has NP scrambling (which I will here assume to be triggered by a specific scrambling feature) followed by VP topicalization (again triggered by a topic feature). In contrast, in secondary remnant movement constructions, it looks as though only one movement operation is feature-driven; in the construction at hand, this is negative NP preposing. All other movement operations are parasitic — they depend on the first operation having taken place. The absence of a feature that triggers secondary remnant movement and secondary object fronting is illustrated in (20c).

(20) a. [\[VP Criticized] t_{1} by his boss ]-[\[TOP] John_{1}-[D] has never been t_{2}.
   b. [\[VP t_{1} t_{3} Zum Geburtstag geschenkt ]-[\[TOP] hat sie dem for the birthday given has she ART]
      Jason_{1}-[\[SCR] ein Buch_{3}-[\[SCR] t_{2}]
      Jason a book
   c. John [\[VP gave] t_{1} t_{3} ]-[\[NEG] no books_{3}-[\[NEG] to Mary_{1}-[\[O] t_{2}.]

Then, given constraints like the Feature Condition (FC) in (21) and Last Resort (LR) in (22) (cf. Chomsky (1995)), a problem arises: Some instances of movement in secondary remnant movement constructions are not triggered by FC, and they thus violate LR. Consequently, a different trigger must be
Two types of remnant movement

involved, and respecting this trigger must permit a violation of LR, which is otherwise impossible. Thus, secondary remnant movement emerges as a repair strategy: exceptionally, LR can be violated so as to prevent even greater damage.

(21) Feature Condition (FC):
Strong features must be checked by overt movement.

(22) Last Resort (LR):
Overt movement must result in checking of a strong feature.

I would like to suggest that the trigger in question is the Shape Conservation (SC) constraint that is proposed on independent grounds in Williams (1999). For the sake of concreteness, I will assume that SC basically demands that the shape of predicate phrases, or vPs, must be preserved in derivations:

(23) Shape Conservation (SC):
Feature checking must not change the linear order of lexical items established in vP.

The English vP shape that will be relevant is completely standard, and given in (24).

(24) \[
[vP \, NP_1 \, \left\langle v \right\rangle \, v + V \, \left\langle vP_2 \right\rangle \, \left\langle v \right\rangle \, t_y \, \left\langle [NP_3/PP_3] \right\rangle]
\]

The analysis then relies on three assumptions. First, feature-driven movement of the negative NP_1 in (20c) ends up in the specifier of a functional head Neg that bears a strong \([\text{neg}]\) feature. Given SC, it follows that vP_2-[\text{ø}] (and not VP, as assumed thus far) must be fronted to an outer specifier of Neg (i.e., to a position that precedes NP_1-[\text{neg}] within the same projection), as an instance of repair-driven movement. We can also conclude that repair-driven movement of PP_3-[\text{ø}] in (20c) must end up in an inner specifier of the very same domain, NegP.

The second assumption concerns a qualification. Whereas negative NP preposing requires vP shape conservation, other movement operations do not. This is obvious in the case of \(wh\)-movement in English: Checking of \([\text{wh}]\) with an object NP in the C domain does not trigger repair-driven movement of TP_4 to an outer specifier of C: cf. (25a) vs. (25b).

(25) a. \(\text{what}_1-[\text{wh}]\) did \(\text{TP}_3\, \text{you}_1\, [v\, t\, \text{see} t_1]?)
   b. \(^*\text{[TP}_3\, \text{You}_2\, [v\, t\, \text{see} t_1]-[\text{ø}\, \text{what}_1-[\text{wh}]\) did \(t_4\?}
This means that SC either does not hold for \textit{wh}-movement in English (and many other movement operations), or that it holds, but in a weaker form. I will draw the second conclusion here and suggest that SC is to be split up, and made sensitive to feature classes: Features like [\textit{neg}] obey a strong SC constraint that permits a violation of LR (cf. the references in note 2 and the appendix for other possible features with this property), whereas features like [\textit{wh}] obey only a weaker SC constraint that does not permit a violation of LR (other features in this class include [\textit{top}] and [\textit{scr}]). It is tempting to conclude that the relevant distinction is between features that trigger A-movement and features that trigger A-bar movement. Indeed, most cases of NP raising to Spec\textsc{T} will automatically satisfy SC; cf. (26a). NP raising in passive constructions as in (26b) and successive-cyclic NP raising as in (26c) may initially look problematic, though.

\begin{align*}
(26) & \quad \begin{aligned}
a. & \quad \text{[TP John$_1$ T [\textit{vp} t$_1$ likes [\textit{vp} t$_v$ Mary]]].} \\
b. & \quad \text{[TP John$_1$ was [\textit{vp} kissed t$_1$]].} \\
c. & \quad \text{[TP John$_1$ T [\textit{vp} t'$_1$ to [\textit{vp} t$_1$ like [ t$_v$ Mary]]]].}
\end{aligned}
\end{align*}

Suppose first that \textit{v} is present only if an external argument is present, i.e., that the root vPs in (26b–c) are actually VPs. Then, SC is vacuously respected in (26b), and (26c) is accounted for as well: the linear order of the three items \textit{John}, \textit{like}, and \textit{Mary} is not changed by [D] feature checking with \textit{John} in either the embedded or the matrix Spec\textsc{T} position. However, this approach is called into question by the observation that secondary remnant movement takes place in passive constructions in English. This is indicative of SC and thus suggests that a vP is involved throughout (also see Chomsky (2001)).

\begin{align*}
(27) & \quad \begin{aligned}
a. & \quad \text{[TP The books$_1$ were [\textit{vp} given t$_1$ t$_3$ ] to no-one$_3$ t$_2$ ].} \\
b. & \quad \text{*[TP The books$_1$ were to no-one$_3$ [\textit{vp} given t$_1$ t$_3$ ]]}. \\
\end{aligned}
\end{align*}

In view of this, I will assume that there is an intermediate movement step of NP$_1$ to Spec\textit{v} of the root clause in (26b), (26c), and (27a) that determines the respective vP shapes. Then, we can conclude that SC is systematically respected by NP raising in English. In the same way, Scandinavian object shift is well known for its rigid order preservation. Thus, let us assume that there are only two general SC constraints — SC\textsubscript{\textit{A}} (including [D], [\textit{neg}]) and SC\textsubscript{\textit{A}} (including [\textit{wh}], [\textit{top}], [\textit{scr}]).

Third, since the analysis involves the notion of repair and depends on the violability and ranking of constraints, it lends itself to an optimality-theoretic implementation. The implicit ranking just sketched can be made explicit as
follows (the ranking of FC and SC\_A is not determined by the evidence discussed here):

\[(28) \{FC, SC\_A\} \gg LR \gg SC\_A\]

Repair phenomena are certainly among those constructions where optimality theory has proven most successful, and the notion of repair itself can be given a precise characterization in this approach: A repair is a competition in which the optimal candidate incurs an (otherwise fatal) violation of a high-ranked constraint \(C_i\) in order to respect an even higher-ranked constraint \(C_j\). However, standard global optimization procedures as laid out in Prince and Smolensky (1993) induce complexity of a type that more recent versions of the minimalist program (those that do without transderivational constraints) manage to avoid (see Collins (1997) and Frampton and Gutman (1999), among others). In view of this, and deviating from the vast majority of work in optimality-theoretic syntax, I would like to suggest that syntactic optimization is local, not global, and takes place repeatedly throughout the derivation.15

For the sake of concreteness, suppose that syntactic derivations proceed as in Chomsky (1995, ch. 4): Merge and Move alternate, with each XP a cyclic node. Crucially, the subderivation from one cyclic node \(\alpha\) to the next cyclic node \(\beta\) is subject to input/output optimization. An XP is optimal if the subderivation that creates it best satisfies an ordered set of violable constraints and respects inviolable constraints (like strict cyclicity), which can be conceived of as parts of the definitions of Merge and Move. Thus, an XP that is the optimal output of a subderivation forms the input for the next subderivation, together with a new lexical item \(Y\) (and possibly another optimal ZP if Spec\(Y\) is to be filled by Merge). Optimization determines the new optimal output \(YP\), which in turn shows up in the input of the next subderivation, and so on, until the optimal root is reached.16 Based on these assumptions, the differences between primary and secondary remnant movement can now be explained.

### 3.2 Independent availability and secondary object fronting revisited

Consider again a typical secondary remnant movement example like (29c):

\[(29)\]
\[
\begin{align*}
\text{a.} & \quad \left[\text{vP}_\text{John}_3 \text{ reads } \left[\text{vP}_\text{t}_3 \text{ no novels}_1 \right] \right] + \text{Neg} \rightarrow \\
\text{b.} & \quad \left[\text{NegP} \left[\text{vP}_\text{John}_3 \text{ reads } \text{t}_1 \right] \left[\text{Neg}\_1 \text{ no novels}_1 \left[\text{Neg}\_1 \text{ Neg } \text{t}_2 \right] \right] \right] + \text{T} \rightarrow \\
\text{c.} & \quad \left[\text{TP}_\text{John}_3 \text{ T} \left[\text{NegP} \left[\text{vP}_\text{t}_3 \text{ reads } \text{t}_1 \right] \left[\text{Neg}\_1 \text{ no novels}_1 \left[\text{Neg}\_1 \text{ Neg } \text{t}_2 \right] \right] \right] \right]
\end{align*}
\]
What we want to derive is that NP1 moves to SpecNeg to check a strong [\textit{NEG}] feature and thereby respect FC, and that vP2 then raises to an outer SpecNeg position without feature checking in order to respect SC\textsubscript{A}, even if this violates LR. The optimization procedure that is responsible for this outcome is the one that takes the optimal vP2 in (29a) and Neg as inputs and creates a set of NegPs as output candidates. The optimal NegP is the one in (29b), which violates LR but respects FC and SC\textsubscript{A}, and thus has a better constraint profile than its competitors, which fatally violate either FC (by not applying negative NP\textsubscript{1} preposing) or SC\textsubscript{A} (by not applying secondary remnant vP\textsubscript{2} movement). The local competition is shown in Tableau 1.

**Tableau 1. Local optimization of NegP: Secondary remnant movement**

<table>
<thead>
<tr>
<th>Input: [\textit{vP}<em>{2} \textit{John}</em>{3} \textit{reads} [\textit{VP} \textit{tV} \textit{no novels}_{1}]], Neg</th>
<th>FC</th>
<th>SC\textsubscript{A}</th>
<th>LR</th>
<th>SC\textsubscript{A}</th>
</tr>
</thead>
<tbody>
<tr>
<td>\textit{O}<em>{1}: [\textit{NegP} \textit{[vP}</em>{2} \textit{John}<em>{3} \textit{reads} [\textit{VP} \textit{tV} \textit{t}</em>{1}]] \textit{no novels}<em>{1} \textit{Neg} \textit{t}</em>{2}]</td>
<td>*</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>\textit{O}<em>{2}: [\textit{NegP} \textit{no novels}</em>{1} \textit{Neg} \textit{[vP}<em>{2} \textit{John}</em>{3} \textit{reads} [\textit{VP} \textit{tV} \textit{t}_{1}]]]</td>
<td></td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>\textit{O}<em>{3}: [\textit{NegP} – \textit{Neg} \textit{[vP}</em>{2} \textit{John}<em>{3} \textit{reads} [\textit{VP} \textit{tV} \textit{no novels}</em>{1}]}, \textit{Neg} \textit{t}_{2}]</td>
<td></td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>\textit{O}<em>{4}: [\textit{NegP} \textit{[vP}</em>{2} \textit{John}<em>{3} \textit{reads} [\textit{VP} \textit{tV} \textit{no novels}</em>{1}]] \textit{Neg} \textit{t}_{2}]</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>\textit{O}<em>{5}: [\textit{NegP} \textit{reads}</em>{4} \textit{no novels}<em>{1} \textit{Neg} \textit{[vP}</em>{2} \textit{John}<em>{3} \textit{t}</em>{4} [\textit{VP} \textit{tV} \textit{t}_{1}]]]</td>
<td></td>
<td></td>
<td>*!</td>
<td></td>
</tr>
</tbody>
</table>

The optimal NegP \textit{O}_{1} is then merged with T, and subsequent TP optimization produces the expected result: The best subderivation fronts the subject NP\textsubscript{3} to SpecT and has v+V in situ (this output violates none of the constraints at hand). Note that only \textit{O}_{1} can be in the input for the next optimization procedure, not \textit{O}_{2}–\textit{O}_{5} or other suboptimal outputs. It is this property that minimizes complexity: Under standard, global optimization, all these suboptimal outputs would have to be continued to the end (in representational terms: considered as substructures of the whole sentence) and would thereby give rise to exponential growth of the candidate set.

In addition to this conceptual difference, local optimization turns out to also yield a desirable empirical difference. In the present system, it is clear that V raising is not an alternative to remnant vP movement: Local V raising to SpecNeg as in \textit{O}_{3} does not satisfy SC\textsubscript{A}, leading to VOS instead of SVO order; and non-local V-to-T raising later in the derivation can never satisfy SC\textsubscript{A} within NegP. In contrast, under global optimization there would be no SC\textsubscript{A} violation with, e.g., non-local V-to-T raising (violating LR), due to subsequent
Two types of remnant movement

NP₁ raising to SpecT (which ultimately restores SVO order), and repair-driven V raising might incorrectly (given adverb placement facts) be permitted along with (or instead of) remnant vP movement.¹⁷

Next consider the case where secondary remnant movement is accompanied by secondary object fronting, as in the double object construction (30c).

(30) a. \[ vP₂ John₄ gave \[ vP no books₁ \ tᵥ to Mary₃ \] \] + Neg \(\rightarrow\)
b. \[ NegP \[ vP₂ John₄ gave \[ vP t₁ tᵥ t₃ \] no books₁ to Mary₃ Neg t₂ \] + T \(\rightarrow\)
c. \[ vP₂ John₄ T \[ NegP \[ vP₂ t₄ gave \[ vP t₁ tᵥ t₃ \] no books₁ to Mary₃ Neg t₂ \] \]

Again, the important subderivation is the step from vP in (30a) to NegP in (30b), and essentially the same reasoning applies as before. The optimal NegP is one in which NP₁ moves to SpecNeg to check the \(\text{neg} \) feature and thereby respect FC, and PP₁ and vP₂ undergo repair-driven movement to inner and outer specifiers of NegP, respectively, to satisfy SC. This incurs two violations of LR, but, as shown in Tableau 2, all competing subderivations fatally violate higher-ranked constraints. Note in particular that O₁ blocks O₅ as suboptimal; O₅ has secondary remnant vP movement but fails to apply secondary object fronting.¹⁸

Tableau 2. Local optimization of NegP: Secondary remnant movement and object fronting

<table>
<thead>
<tr>
<th>Input: [ vP₂ John₄ gave [ vP no books₁ \ tᵥ to Mary₃ ] ] , Neg</th>
<th>FC</th>
<th>SCₐ</th>
<th>LR</th>
<th>SCₐ⁻¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>O₁: [ NegP [ vP₂ t₄ gave [ vP t₁ tᵥ t₃ ] no books₁ to M₃ ] Neg t₂ ]</td>
<td>⋆</td>
<td>⋆</td>
<td>⋆</td>
<td>⋆</td>
</tr>
<tr>
<td>O₂: [ NegP no books₁ Neg [ vP₂ t₄ gave [ vP t₁ tᵥ to M₃ ] ]</td>
<td>⋆</td>
<td>⋆</td>
<td>⋆</td>
<td>⋆</td>
</tr>
<tr>
<td>O₃: [ NegP Neg [ vP₂ t₄ gave [ vP no books₁ tᵥ to M₃ ] ]</td>
<td>⋆</td>
<td>⋆</td>
<td>⋆</td>
<td>⋆</td>
</tr>
<tr>
<td>O₄: [ NegP [ vP₂ t₄ gave [ vP no books₁ tᵥ to M₃ ] ] Neg t₂ ]</td>
<td>⋆</td>
<td>⋆</td>
<td>⋆</td>
<td>⋆</td>
</tr>
<tr>
<td>O₅: [ NegP [ vP₂ t₄ gave [ vP t₁ tᵥ to M₃ ] ] no books₁ Neg t₂ ]</td>
<td>⋆</td>
<td>⋆</td>
<td>⋆</td>
<td>⋆</td>
</tr>
<tr>
<td>O₆: [ NegP no books₁ to M₃ Neg [ vP₂ t₄ gave [ vP t₁ tᵥ t₃ ] ]</td>
<td>⋆</td>
<td>⋆</td>
<td>⋆</td>
<td>⋆</td>
</tr>
</tbody>
</table>

As before, the step from (30b) to (30c) is straightforward because a constraint conflict does not arise and FC, SCₐ₋₁, and LR can all be satisfied.

Furthermore, a second empirical argument for local optimization can be gained. Suppose that PP₁ in (30) bears a \(\text{top} \) feature. Then, local optimization proceeds exactly as shown here, creating (30b) from (30a) as in Tableau 2,
and then (30c) from (30b). The only difference is that later in the derivation, PP₃ is moved to the topic position, yielding (31).¹⁹

\[
(31) \quad [CP \text{ To Mary, } C \text{ [TP John, } T \text{ [NegP [vP t₄ gave [vP t₁ t₃ ] no books₁ t¹₃ Neg t₂ ]]]]}
\]

Viewed globally, SCA cannot be fulfilled by this sentence. This would threaten to undermine the motivation for remnant vP movement in this context.²⁰ In contrast, no problem arises if optimization is local: The subderivation from vP to NegP respects FC and SCA by violating the lower-ranked LR, and the subderivation from TP to CP respects FC and LR by violating the lower-ranked SCA. Instead of giving a tableau that shows this latter optimization procedure, let me proceed to the case of primary remnant movement, where exactly the same reasoning applies. A simple example is (32d) from German, with its derivation in (32a–c).²¹

\[
(32) \quad a. \quad [vP \text{ der Fritz, ein Buch₁ gelesen }] \quad \quad \quad + [v \text{ hat }] \rightarrow \\
 b. \quad [vP \text{ ein Buch₁ [vP \text{ der Fritz, t₁ gelesen }] [v \text{ hat }]}] \quad + T \rightarrow \\
 c. \quad [TP \text{ der Fritz, } vP \text{ ein Buch₁ [vP t₃ t₁ gelesen ] [v t₀ ]}] [t₀ \text{ hat}]] \quad + C \rightarrow \\
 d. \quad [CP [vP t₃ t₁ Gelesen ] hat [TP \text{ der Fritz, ein Buch₁ t₂ ] tₐ ] ]
\]

'Fritz read a book.'

Consider first the subderivation from vP₂ to VP in (32)[ab]; cf. Tableau 3. Assuming that the object NP₁ has an optional [scr] feature that is matched by [v, hat] (and the subject NP₃ does not), the optimal VP is O₁. Here, NP₁ moves to SpecV (respecting FC), and NP₃ stays in situ (respecting LR and violating SCA): Whereas [neg] obeys SCA, [scr] obeys SCA. This precludes repair-driven movement as in O₃.

**Tableau 3. Local optimization of VP: Scrambling**

<table>
<thead>
<tr>
<th>Input: [vP \text{ der Fritz, ein Buch₁ gelesen }, [v \text{ hat }]]</th>
<th>FC</th>
<th>SCA</th>
<th>LR</th>
<th>SCA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>O₁:</strong> [vP \text{ ein Buch₁ [vP \text{ der Fritz, t₁ gelesen }] [v \text{ hat }]}]</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td><strong>O₂:</strong> [vP \text{ [vP \text{ der Fritz, ein Buch₁ gelesen }] [v \text{ hat }]}]</td>
<td></td>
<td></td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td><strong>O₃:</strong> [vP \text{ der Fritz, ein Buch₁ [vP t₃ t₁ gelesen ] [v \text{ hat }]}]</td>
<td></td>
<td></td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td><strong>O₄:</strong> [vP \text{ der Fritz, [vP t₁ ein Buch₁ gelesen ] [v \text{ hat }]}]</td>
<td></td>
<td></td>
<td>*!</td>
<td></td>
</tr>
</tbody>
</table>

Γ
The optimal VP $O_1 (= (32b))$ is subsequently merged with $T$. Assuming that the EPP feature can optionally be strong in German, and is strong in the case at hand, the optimal output of the subderivation from VP to TP is $(32c)$, in which the subject NP$_3$ moves to Spec$T$ (in addition, V moves to T). Since this subderivation respects FC, LR, and $SC_{A, \bar{A}}$, it is not necessary to illustrate the competition by a tableau. Finally, the optimal TP in $(32c)$ is merged with C. In V/2 languages, an empty finite declarative C bears a $[\text{top}]$ feature (and a feature attracting V). Assuming that $[\text{top}]$ is also instantiated on vP$_2$, the optimal output of the subderivation from TP to CP is $(32d)$, which involves remnant vP$_2$ movement to SpecC and respects FC and LR at the cost of violating the lower-ranked $SC_A$ (cf. $O_1$ vs. $O_3$ in Tableau 4).

Tableau 4. Local optimization of CP: Primary remnant VP movement

<table>
<thead>
<tr>
<th>Input: [TP der Fritz$_3$ ein Buch$_1$ [vP$_2$ t$_3$ t$_1$ gelesen] hat], C[−wh]</th>
<th>FC</th>
<th>$SC_{A}$</th>
<th>LR</th>
<th>$SC_{\bar{A}}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>☞ $O_1$: [CP [vP$_1$ t$_3$ t$_1$ Gelesen] hat [TP der Fritz$_3$ ein Buch$_1$]]</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$O_2$: [CP Hat [TP der Fritz$_3$ ein Buch$_1$ [vP$_1$ t$_3$ t$_1$ gelesen]]]</td>
<td>*!</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$O_3$: [CP der Fritz$_3$ ein Buch$_1$ [vP$_1$ t$_3$ gelesen] hat [TP t’$_3$ t’$_1$]]</td>
<td><em>!</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$O_4$: [CP der Fritz$_3$ [vP$_1$ t$_3$ gelesen] hat [TP t’$_3$ ein Buch$_1$]]</td>
<td>*!</td>
<td>*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$SC_A$ has not yet been fatally violated by a candidate; i.e., it has played no role in the analysis so far. However, there is evidence for a low-ranked $SC_{\bar{A}}$: As soon as two or more subderivations behave identically with respect to higher-ranked constraints, the decision is passed on to the low-ranked $SC_{\bar{A}}$. A particularly obvious case is the superiority effect in English: 22

(33) a. (I wonder) [CP who$_1$ C [TP t$_1$ bought what$_2$]].

b. *(I wonder) [CP what$_2$ C [TP who$_1$ bought t$_2$]].

Suppose that C bears a strong $[\text{wh}]$ feature here which is matched by weak $[\text{wh}]$ features on both $wh$-phrases. Tableau 5 then shows that the subderivation from TP to CP must involve movement of one $wh$-phrase to SpecC, so as to fulfill FC (cf. $O_3$), and must leave one $wh$-phrase in situ, so as to fulfill LR (cf. $O_1$). $O_1$ and $O_2$ ($=(33a–b)$) meet both requirements, and they vacuously fulfill $SC_A$. However, only $O_1$ respects $SC_{\bar{A}}$ by maintaining vP order with $[\text{wh}]$ feature checking; therefore, it blocks $O_2$. Thus, the superiority effect is derived without recourse to constraints like the ECP or the MLC. 23
Tableau 5. Local optimization of CP: The superiority effect

<table>
<thead>
<tr>
<th>Input: [TP who₁ [vP t₁ bought what₂]], C_{v+wh}</th>
<th>FC</th>
<th>SCₐ</th>
<th>LR</th>
<th>SCₐ</th>
</tr>
</thead>
<tbody>
<tr>
<td>O₁: [CP who₁ C [TP t¹₁ [vP t₁ bought what₂]]]</td>
<td>☞</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>O₂: [CP what₂ C [TP who₁ [vP t₁ bought t₂]]]</td>
<td><em>!</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>O₃: [CP — C [TP who₁ [vP t₁ bought what₂]]]</td>
<td>*!</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>O₄: [CP who₁ what₂ C [TP t¹₁ [vP t₁ bought t₂]]]</td>
<td>□□</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.3 Extraction revisited

Recall that both the remnant XP β₂ in (34a) and the antecedent of the un-bound trace α₁ in (34b) are barriers for extraction of some element δ₁ in primary remnant movement constructions (a freezing effect; cf. (10)–(12)), and that neither β₂ nor α₁ is a barrier for extraction in secondary remnant movement constructions (an anti-freezing effect; cf. (13)).

(34) a. δ₃ . . . [β₂ . . . t₂ . . . t₁ . . .] . . . α₁ . . . [ . . . t₂ . . .].
b. δ₃ . . . [α₁ . . . t₂ . . .] . . . [ . . . t₂ . . .].

Assuming that XPs in derived positions are barriers, the freezing effect with primary remnant movement can be accounted for. But how can secondary remnant movement escape this effect? The key to a solution is that secondary remnant movement is triggered by SCₐ rather than by FC. Hence, secondary remnant movement always restores local relations that existed earlier in the derivation. Thus, if α₁, β₂ are not barriers in situ, they will not be turned into barriers in secondary remnant movement constructions because each selected XP will still be in the same minimal domain as the head that selects it. To execute this idea, let us assume the Barriers Condition (BC) in (35a), and define barriers as in (35b); this definition differs from standard approaches (cf. Cinque (1990) and references cited there) mainly in replacing the notion of sisterhood in (35b ii) by the slightly more liberal notion of same minimal domain (see Chomsky (1995, 178)).

(35) Barriers Condition (BC):
   a. Movement must not cross a barrier.
   b. An XP γ is a barrier unless there is a non-derived head σ such that:

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(i) \( \sigma \) selects \( \gamma \).
(ii) \( \sigma \) and \( \gamma \) are in the same minimal domain.

Thus, extraction from \( \alpha_t, \beta_t \) does not violate BC in secondary remnant movement constructions. However, given that feature-driven movement in primary remnant movement constructions typically has the effect that an XP \( \gamma \) and its selecting head \( \sigma \) are not in the same minimal domain anymore, extraction from \( \alpha_t, \beta_t \) violates BC in this case. To derive ungrammaticality from this violation, one could postulate that BC is an inviolable constraint (part of the definition of Move), or that it is ranked high. Let us assume the latter. The optimal subderivation from YP to ZP (where SpecZ is the landing site of \( \delta_1 \) in (34)) can then be one that yields an empty output (which vacuously respects BC/FC and violates a lower-ranked ban on empty outputs) — the derivation cannot continue; it crashes.26

We expect that movement in primary remnant movement constructions does not create barriers if it is extremely local. As noted by den Besten and Webelhuth (1990), this prediction is borne out. Whereas PP1 is a barrier for extraction in (36a) (= (12b)), it is transparent in (36b), where it has undergone extremely local string-vacuous scrambling.

\[(36) \quad a. \quad *[vP2 t1 Gerechnet ] hat da3 gestern [PP1 t3 mit ] wieder keiner t2.\]

'Again, no-one reckoned with it yesterday.'

\n
\[(36) \quad b. \quad [vP2 t1 Gerechnet ] hat da3 gestern wieder keiner [PP1 t3 mit ] t2.\]

'Again, no-one reckoned with it yesterday.'

3.4 Movement types revisited

Based on examples like those in (14), I have so far assumed that middle field-internal movement (e.g., scrambling) cannot affect remnant XPs, whereas middle field-external movement (e.g., topicalization) can. This generalization has proven problematic in the light of secondary remnant movement, which is obligatorily middle field-internal; cf. (16a) vs. (16b). The illformedness of (16b) can now be accounted for by invoking the fact that SC\(_5\)-driven movement is strictly local.27 However, the difference between illegitimate primary remnant scrambling in (14b) and legitimate local secondary remnant movement in (16a) still calls for an explanation. This turns out to be straightforward. Note that the above generalization is not quite correct: Remnant
scrambling is in fact possible if the antecedent of the unbound trace has not also undergone scrambling, but another type of movement, e.g., weak pronoun fronting; cf. (37a) (= (14b)) vs. (37b).

(37) a. *daß [vP2 t1 zu lesen ] das Buch, keiner t2 versucht hat. 
   that to read the book no-one tried has
   ‘that no-one tried to read the book.’

   b. daß [vP2 t1 zu lesen ] es, keiner t2 versucht hat. 
   that to read it no-one tried has
   ‘that no-one tried to read it.’

Similarly, middle field-external remnant wh-movement is impossible if the antecedent of the unbound trace has also undergone wh-movement, and possible if it has undergone another type of movement, e.g., scrambling; cf. (38a) vs. (38b).

(38) a. *[NP2 Was für ein Buch t1 ] fragst du dich [CP [PP1 über wen ] du t2 lesen sollst ] ?
   what for a book ask you refl about whom you read should
   ‘What kind of book do you wonder about whom to read?’

   b. [NP2 Was für ein Buch t1 ] hast du [PP1 über die Liebe ] t2 gelesen ?
   what for a book have you about the love read
   ‘What kind of book did you read about love?’

The strong illformedness of (38a) cannot solely be due to the wh-island. This is shown by (39). Here, a complete wh-phrase is extracted from the wh-island, and the result is much improved.

(39) ??[NP2 Welches Buch über die Liebe ] fragst du dich [CP ob du t2 lesen sollst ] ?
   which book about the love ask you refl whether you read should

The same contrast between remnant and non-remnant wh-movement shows up in English, as noted by Barss (1986) and Saito (1989), among others; cf.:

(40) a. *[NP Which picture of t1 ] do you wonder [CP who1 John likes t2 ] ?

   b. ??[NP Which picture of Mary ] do you wonder

          [CP whether John likes t2 ] ?
Thus, the data suggest that the following generalization is the correct one: A remnant XP cannot undergo a given type of feature-driven movement if the antecedent of the unbound trace has undergone the same type of movement earlier in the derivation; it is neither necessary nor possible to invoke specific stipulations as to which movement type may affect remnant XPs. This generalization can be captured by a constraint like Unambiguous Domination (UD) in (41).

(41) Unambiguous Domination (UD):
In \ldots [\ldots \beta \ldots] \ldots, \alpha and \beta cannot check the same kind of feature (outside \alpha).

It can easily be verified that UD is violated in cases like (37a) and (38a), but respected in (37b), (38b), and typical primary remnant movement constructions that involve a combination of scrambling (or NP raising) and topicalization. Furthermore, it is now clear why secondary remnant movement as in (16a) can never violate UD: The problem that \alpha and \beta check the same feature can never arise if \alpha does not check a feature at all.

3.5 Successive cyclicity revisited

Recall the above generalization according to which unbound intermediate traces resulting from successive-cyclic movement via SpecC cannot occur in primary remnant movement constructions, whereas they can occur in secondary remnant movement constructions (cf. (17b) vs. (19c)). In contrast to what turned out to be the case with the original movement type generalization discussed in the preceding section, this generalization is not directly falsified by further empirical evidence. However, it seems clear that a ban on unbound intermediate A-bar traces in primary remnant movement constructions should not be stated as such; rather, it should be derived from more general assumptions. Elsewhere, I have argued that it can be derived by a conspiracy of extraction and extraposition (cf. Müller (1998, ch. 6; 1999)). Here, I will confine myself to presenting the basic idea, so as to show that there is no principled, construction-specific difference between primary and secondary remnant movement in this domain either. Consider two examples that illustrate the ban on unbound intermediate traces with primary remnant topicalization in German. (42a) has been discussed above (cf. (17b)); (42b) differs from (42a) in that CP\textsubscript{3} is topocalized, not vP\textsubscript{2}.
The crucial assumption we need to make is that argument CPs are base-generated to the left of v+V in German. In principle, they may then either remain in situ, within vP (cf. (43a)), or undergo extraposition to a vP-, TP-, or CP-adjoined position (cf. (43b)), with a clear stylistic preference for the latter option:

(43) a. daß sie [CP2 t¹1 daß sie t¹ liebt] gesagt hat.
   that she:nom Fritz:acc loves said has
   ‘that she said that she loves Fritz.’

   b. daß sie t² gesagt hat [CP2 daß sie Fritz liebt].
      that she said has that she:nom Fritz:acc loves
      ‘that she said that she loves Fritz.’

However, if extraction takes place from CP, CP extraposition is obligatory rather than stylistically preferred. This is shown by the contrast in (44).

(44) a. *(Ich weiß nicht) wen₁ sie [CP₂ t¹1 daß sie t¹ liebt] gesagt
    I know not whom she:nom loves said has
    ‘I do not know who she said that she loves.’

   b. (Ich weiß nicht) wen₁ sie t² gesagt hat [CP₂ t¹ das sie t¹ liebt].
      I know not whom:acc she said has that she:nom
      loves
      ‘I do not know who she said that she loves.’

Thus, obligatory CP extraposition can be viewed as a reflex of successive-cyclic movement from SpecC to SpecC in German, on a par with other
(primarily morpho-phonologocial) reflexes affecting the C system in languages such as Modern Irish, Basque, Ewe, Spanish, and Malay. For present purposes, it is immaterial why this reflex arises in German; what is important here is the mere fact that there is such a reflex. Given this state of affairs, the only thing that needs to be shown is that obligatory CP extraposition forced by successive-cyclic wh-movement must lead to ungrammaticality in the examples in (42a), in contrast to what is the case in (44b). As a matter of fact, the illformedness of (42a) follows from strict cyclicity: Wh-extraction from CP$_3$ must take place prior to CP$_3$ extraposition (because of the Barriers Condition). Strict cyclicity then implies that CP$_3$ extraposition must target a position that is not lower than the landing site of wh-movement of wen$_1$; i.e., CP$_3$ extraposition must minimally end up in the next higher CP domain. However, the fact that the extraposed CP$_3$ is carried along with vP$_2$ under vP$_2$ topicalization shows that the landing site of CP$_3$ was lower than that, in violation of strict cyclicity. Similarly, obligatory extraposition accounts for the illformedness of (42b). As before, given successive-cyclic wh-extraction from CP$_3$, we know that CP$_3$ has to undergo extraposition (to the CP domain, given strict cyclicity). Remnant CP$_3$ topicalization then takes place not from the in situ-position of CP$_3$, but from the extraposition site. This mixing of A-bar movement types (CP$_3$ extraposition followed by CP$_3$ topicalization) then qualifies as an instance of improper movement. Such improper movement can be blocked in various ways (see, e.g., the Principle of Unambiguous Binding (PUB) in Müller and Sternefeld (1993), which requires A-bar traces to be bound from one type of position only; or the transderivational constraint that minimizes optional features in Chomsky (1995: 294; 2001: 34)).

Evidently, the notion of an unbound intermediate trace does not play a role in this approach to (42a). There is no ban on unbound intermediate traces as such; rather, the problems with examples like (42a) and (42b) are solely due to obligatory CP extraposition triggered by successive-cyclic wh-movement. Since obligatory CP extraposition is not an issue in English, derivations like the one in (19c) are unproblematic.\(^\text{30}\)

4. Conclusion and outlook

I have tried to show that the different properties of primary and secondary remnant movement do not force us to abandon one of the two concepts. Most
of the differences follow from the fact that primary remnant movement is feature-driven, whereas secondary remnant movement is not: It is a repair strategy forced by Shape Conservation and the Feature Condition, in violation of Last Resort. As a consequence of this, secondary object fronting may also be required; Barriers Condition violations can be avoided; and Unambiguous Domination violations do not show up. Furthermore, an apparent difference between primary and secondary remnant movement with respect to the legitimacy of unbound intermediate traces was shown to be spurious; what distinguishes the two constructions is the presence vs. absence of obligatory CP extraposition.

On a more general note, I have argued that since repair-driven secondary remnant movement presupposes constraint violability and ranking, it lends itself to an optimality-theoretic analysis. What is more, it provides evidence that syntactic optimization is local, not global (as is standarly assumed): On the one hand, there are ill-formed derivations that are indeed locally suboptimal, but globally optimal (cf. Tableau 1). And on the other hand, there are well-formed derivations that are locally optimal, but globally suboptimal (cf. Tableau 22). In general, it seems that syntactic repair is typically a local phenomenon: An “offending” property is removed instantaneously, not at some earlier or later stage in the derivation. This holds for other cases of repair-driven movement that have been proposed in the literature; cf. Heck and Müller (2000), where arguments are given for local analyses of, e.g., semantically vacuous QR that is forced by a higher-ranked parallelism constraint (Fox (1995)), and wh-scrambling that is forced by a higher-ranked Neg-intervention constraint (Beck (1996)). Moreover, many other cases of syntactic repair that have been approached in terms of global optimization (cf., e.g., Grimshaw (1997) on do-support, Pesetsky (1998) and Legendre, Smolensky, and Wilson (1998) on resumptive pronouns, Schmid (1998) on the Westgermanic “Ersatzinfinitiv”) can be treated by local optimization. It remains to be seen, though, whether local optimization can (or should) do all the work that global optimization has been held responsible for in syntax.

Finally, a discussion of parametrization options in the present system has been conspicuously absent in the preceding pages. Basically, two possibilities arise. The approach has inherited both the concept of feature strength from the minimalist program, and the concept of constraint reranking from optimality theory. At present, I take it to be an open question whether both concepts are needed, or whether one can (or should) be dispensed with in favour of the other.
5. Appendix: other cases of secondary remnant movement

As noted in note 2, secondary remnant movement has found applications beyond Kayne’s (1998) treatment of negative NPs; cf. den Dikken (1996), Hinterhölzl (1997), Ordóñez (1997), Johnson (1998), Noonan (1999), and Koopman and Szabolcsi (2000), among others. What has been said above about secondary remnant movement in Kayne’s (1998) approach also holds for other analyses, to various degrees. In what follows, I will briefly discuss aspects of three of these analyses, viz., Johnson (1998), Noonan (1999), and Koopman and Szabolcsi (2000), and point out their consequences for the present approach.

5.1 Quantifier raising in Johnson (1998)

Johnson proposes an approach to quantifier raising (QR) that is in many respects similar to Kayne’s (1998) approach to negative NPs. He suggests that quantifier raising can take place overtly in English; but the effects of this operation are masked by subsequent remnant VP (or “VC,” for “verbal complex” — this projection may contain negation, e.g.) fronting to a higher position. This is shown in (45a).

(45) a. Jill [VP2 didn’t answer t1] [NP two thirds of the questions] t2.
    b. Jill [VP2 didn’t answer [NP two thirds of the questions]] t2.

By assumption, overt QR is necessary to give NP1 scope over negation in (45) (by virtue of c-commanding a trace of VP2 that contains negation; i.e., under VP2 reconstruction). Narrow scope with respect to negation is accomplished by leaving NP1 in situ. Still, VP2 is assumed to obligatorily undergo fronting. Of course, in this case, the fronting is string-vacuous and non-remnant; cf. (45b). Thus, there are two substantial differences to (my reconstruction of) Kayne’s analysis. First, if we assume that QR is driven by a feature [QUANT] (cf. Chomsky (1995, ch. 4)), we have to conclude that this feature is only optionally strong, in contrast to [NEG]. Second, in contrast to what is the case in Kayne’s approach, remnant VP fronting is in fact not assumed to be a repair strategy; rather, there must be some feature that triggers this movement. However, it seems that the main motivation behind VP fronting in Johnson’s analysis is the illformedness of (46), where overt QR is not accompanied by remnant VP movement.
Moreover, the combination of optional overt QR and obligatory VP fronting in English does not suffice to predict all orders correctly. This becomes obvious when we consider double object constructions. Suppose that (the extended) VP contains negation, that the first object is a quantified NP and the second object a proper name, and that the quantified NP takes scope over negation by QR. If nothing else is said, Johnson’s approach wrongly predicts the ungrammatical surface orders in (47a) and (47c). Thus, as in Kayne’s approach, secondary object fronting to a lower position must apply, yielding (47b) and (47d) (as before, this process is indicated by underlining).

(47)  
   a. *Jill [VP didn’t give t1 to John3] two books1 t2.  
   b. Jill [VP didn’t give t1 t3] two books1 to John3 t2.  
   c. *Jill [VP didn’t give t1 her new book3] two friends1 t2.  
   d. Jill [VP didn’t give t1 t3] two friends1 her new book3 t2.

Clearly, the search for a feature as a trigger is futile here — whether or not secondary object fronting applies depends solely on what NP QR has applied to. This is shown by the impossibility of secondary object fronting in cases where the quantified NP taking wide scope is the second object, not the first one; cf.:

(48)  
   a. Jill [VP didn’t give her new book3 t1] to two friends1 t2.  
   b. *Jill [VP didn’t give t3 t1] to two friends1 her new book3 t2.  
   c. Jill [VP didn’t give John3 t1] two books1.  
   d. *Jill [VP didn’t give t1 t3] two books1 John3.

Hence, we may conclude that something like SC must play a role in Johnson’s approach anyway. Since there does not appear to be substantial independent evidence in support of string-vacuous non-remnant clause-internal VP fronting in English, we may conclude that it is possible to treat remnant VP fronting in this approach exactly like remnant VP fronting in Kayne’s approach, as a repair strategy forced by SC. Given that [QUANT] is an A-feature that may be strong in English, this follows without further assumptions. It is then expected that secondary remnant movement in Johnson’s approach shares other properties with secondary remnant movement in Kayne’s analysis. This seems to be the case. Since QR is usually clause-bound, unbound intermediate traces cannot be tested easily. However, VP fronting in Johnson’s approach does not give rise to UD effects. In addition, neither the remnant VP nor the antecedent of the unbound trace is a barrier for further extraction in constructions in
which the quantified NP takes scope over negation. This anti-freezing is illustrated for \textit{wh}-extraction in (49a) (with respect to VP$_2$), and for topicalization in (49b) (with respect to NP$_1$).

(49)  
a. (I wonder) which new book Jill [VP$_3$ didn’t give t$_1$ t$_2$] to two 

   friends$_1$ t$_2$  

b. This man Jill [VP$_3$ has not seen t$_1$ [NP$_2$ many pictures of t$_3$] t$_2$].

5.2 CP fronting in Noonan (this volume)

Noonan’s goal is to show that cases of long-distance \textit{wh}-movement in Modern Irish should be reanalyzed as involving CP fronting and secondary remnant movement. Consider the following example.

(50) [CP Céard$_1$ a chreideann Seán [CP t$_1$ a dhéanfá pro t$_1$]]  

   what aL believes Séan aL would say:2sg  

‘What does Sean believe that you would say?’

(50) is the structure that is standardly assigned to this kind of sentence; but this is not the structure that Noonan argues for. Specifically, she proposes that \textit{wh}-movement from a CP always involves an object-shift-like operation applying to CP in Irish (also cf. the above suggestion for German). This CP shift is reflected by the marker aL in the higher clause (which is thus indicative of CP movement, and not of \textit{wh}-movement per se, as is standardly assumed); and it triggers secondary remnant movement that restores the original order. The first relevant step in the derivation of (50) that Noonan postulates is local, feature-driven DP preposing of cédarld (‘what’) to the embedded SpecC position in (51a) (accompanied by V raising). Next, by assumption, CPs that contain \textit{wh}-phrases must undergo feature-driven movement to a focus/Case head in the matrix clause; cf. (51b) (accompanied by V raising in the matrix clause). Third, Noonan assumes that the \textit{wh}-phrase cédarld moves to the matrix SpecC position, as in (51c). Finally, secondary remnant FP movement to a position between the matrix SpecC position and the fronted CP$_2$ restores the word order and yields the string in (50); cf. (51d).

(51) Noonan’s derivation:

   a. [CP$_2$ cédarld a dhéanfá pro t$_1$] → . . . →  

   b. [CP$_2$ cédarld a dhéanfá pro t$_1$] [FP$_1$ a chreideann Séan t$_2$] →  

   c. [CP cédarld [CP$_2$ t$_1$ a dhéanfá pro t$_1$] [FP$_1$ a chreideann Séan t$_2$]] →  

   d. [CP Céard$_1$ [IP$_1$ a chreideann Séan t$_2$] [CP$_2$ t$_1$ a dhéanfá pro t$_1$] t$_3$].
As it stands, this derivation is not directly compatible with the approach developed above. The reason is that CP₂ fronting in the second step is the movement operation that triggers secondary remnant movement; but the repair operation is not local — it occurs in the last step, preceded by wh-movement. (Wh-movement in turn cannot trigger secondary remnant movement in Irish; cf. (51a).) Interestingly, there is another peculiarity with the last two steps in (51): Remnant FP₃ fronting violates strict cyclicity. This, as such, is not a problem for Noonan (this volume) because she explicitly assumes that remnant FP fronting in (51) is a post-cyclic rule, triggered by (unspecified) prosodic considerations. However, suppose now that the trigger for remnant FP fronting is not prosody, but SC, and that the last two movement operations in (51) are reversed, as required by strict cyclicity. Then, we obtain the following derivation:

(52) Derivation required by SC₂:
   a. \([C_P₂ \text{ céard₁ a dhéanfá pro } t₁] \rightarrow \ldots \rightarrow\]
   b. \([C_P₂ \text{ céard₁ a dhéanfá pro } t₁ \  \ [I_P₃ \ a \ chreideann \ Séan \ t₂] \rightarrow\]
   c. \([I_P₃ \ a \ chreideann \ Séan \ t₂ \  \ [C_P₂ \ céard₁ a dhéanfá pro } t₁ \ t₃ \rightarrow\]
   d. \([C_P \ céard₁ \ [I_P₃ \ a \ chreideann \ Séan \ t₂ \  \ [C_P₂ \ t¹₁ \ a \ dhéanfá pro } t₁ \ t₃ \)

Feature-driven fronting of CP₂ in (52b) immediately triggers secondary remnant movement of FP₃ to an outer specifier of the same domain in (52c); finally, wh-extraction from CP₂ takes place (cf. (52d)). Assuming that FP can be equated with vP (Noonan suggests TP, but the difference is probably not crucial, with a proviso concerning local V raising), and that the feature checked by CP₂ fronting is an A-feature, the basic properties of Noonan’s analysis are derived: As in Kayne’s approach, secondary remnant movement is a repair strategy that is parasitic on another, feature-driven movement operation (CP₂ fronting; cf. the role of negative NP preposing in Kayne (1998)). Furthermore, the moved CP₂ is not a barrier for wh-extraction because CP₂ fronting and secondary remnant movement of FP₃ end up in the same domain; hence, the anti-freezing effect is accounted for. Finally, UD cannot block clause-internal remnant FP₃ movement because this movement operation is not feature-driven. (Since CP fronting is always clause-bound in Noonan’s analysis, repair-driven remnant FP₃ movement as such will never be successive-cyclic either; for this reason, it is difficult to test whether unbound intermediate traces are possible in this construction.)

5.3 Verbal complexes in Koopman and Szabolsci (2000)

Based on Hinterhölzl (1997) and others, Koopman and Szabolsci set out to
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Two types of remnant movement develop a principled account of verb cluster formation in languages like Hungarian, Dutch, and German. This account crucially rests on (a) the postulation of extremely articulated syntactic structures, and (b) massive remnant movement (and pied piping). I will not try to sketch this approach here, or to give a sample derivation of verb cluster formation that would illustrate it. I would like to confine myself to pointing out that, despite of what one might think at first sight, most of the instances of remnant movement envisaged by Koopman and Szabolcsi (2000) actually behave like primary remnant movement, not like secondary remnant movement: They are feature-driven, they show freezing effects (e.g., a remnant XP that is moved to a specifier position is a barrier for further extraction), and they obey a constraint like UD in a non-trivial way (being feature-driven). Still, there is one type of movement (remnant or other) that behaves differently. In order to ensure that all derivations respect strict cyclicity, Koopman and Szabolcsi (2000, ch. 4.2) introduce “stacking positions,” i.e., positions that provide landing sites that XPs can reach without feature checking. Of these positions, they say: “The [stacking] positions . . . are not extrinsically ordered, rather, movement into them is constrained by the convention that it must replicate the already existing linear order of the pertinent XPs.” Movement which is not feature-driven and replicates pre-movement order is of course strongly reminiscent of secondary movement forced by SC. However, at present I would like to leave open the question of whether a simple application of SC is possible for Koopman and Szabolcsi’s order-preserving movements to stacking positions.

Notes

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1. Also see Stechow and Sternefeld (1988), Bayer (1996), Müller (1998), Grewendorf and Sabel (1994; 1999), and references cited there.
3. Kayne states that negative NP preposing will “in turn . . . require the . . . VP to prepose,” which suggests that TP-internal VP fronting is not independently available in English.

4. Derivations of the type in (8a) have sometimes been argued to underlie heavy NP shift; but this issue is clearly not relevant in the case at hand.

5. Note that Kayne (1998) treats only- phrases on a par with negative NPs.


8. See Grewendorf and Sabel (1999) and Sauerland (1999). Arguably, there is more than one possible trigger for scrambling in German, and this fact might be formally encoded by assigning a complex internal structure to the scrambling feature. This would not affect the issue at hand, though.

9. This presupposes that structures are linearized in syntax already, not at some later point (PF). For predecessors of this constraint, see Lakoff (1971), Kroch (1974), Huang (1982), Reinhart (1983), Lasnik and Saito (1992), Watanabe (1992), Haegeman (1995), Meinunger (1995), and Müller (2001). In general, these constraints are defined in structural rather than linear terms. This would not be sufficient for the present analysis — SC-driven movement restores linear order, not c-command.

10. Here, v introduces the external argument, and V is obligatorily raised to v. Whether NP2 occupies SpecV as a result of movement or base-generation in dative shift constructions is immaterial for present purposes — as long as there is no vP yet, all movement (including V-to-v raising) satisfies SC vacuously. As for German, I will postulate the vP shape in (i).

   \[
   \text{(i) } [vP \text{ NP}_1 [v³ \text{ VP} \text{ NP}_2 [v³ \text{ t}_2 \text{ [NP}_3/\text{PP}_3\text{ ]}] v+V ]]
   \]

   This is essentially the same structure, the only difference being that v+V is right-peripheral in vP.

11. This position follows typical adverb positions; cf. the evidence against V-to-T raising in English.

12. An idea that does not strike me as completely implausible would be to assume that a derivation as in (25b) might underlie certain \textit{wh}-in situ languages for which it has been argued that \textit{wh}-in situ has properties commonly associated with overt chain formation; cf., e.g., Watanabe (1992) on Japanese. Given a vP shape as in German (with SOV order), secondary remnant movement would target an inner SpecC position, and secondary argument fronting, an outer SpecC position:

   \[
   \text{(i) } [\text{CP John-wa} [C \text{ nani-o} [C \text{ [t}_1 \text{ t}_2 \text{ kaimasita } [C \text{ ka } t_3]]]] \text{ ? John-top what-acc bought Q ‘What did John buy?’}
   \]

   The main (but probably not insurmountable) problem with such an analysis would be the phenomenon of optional \textit{wh}-scrambling. One might argue that such an approach would be
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in the spirit of Kayne’s (1998) program, where apparent X-in situ that exhibits properties of X-movement is reanalyzed as X-movement with subsequent secondary remnant movement. However, I will not pursue this issue here.

13. I am grateful to the reviewer for pointing this out.

14. Multiple object shift strictly preserves vP shape, and it seems possible to reanalyze double object NP1–Pronoun2 orders as the result of feature-driven pronominal object shift accompanied by SC-driven NP1 fronting. See Williams (1999), Müller (2001), and references cited there.

15. Versions of multiple optimization in phonology are discussed in Prince and Smolensky (1993: ch.2), McCarthy (2000), Rubach (2000), and the contributions in Hermans and van Oostendorp (2000). Heck (2001) and Wilson (2001) assume multiple (but non-local) optimization in syntax — three times per sentence in the former case (to determine D-structure, S-structure, and LF), and twice in the latter case (to determine interpretation and syntactic expression). The specific approach adopted here is further developed in Heck and Müller (2000). Also note that there is a trade-off: Whereas there is more complexity with global optimization than there is with local optimization, local optimization in turn requires a large number of optimization procedures.

16. One might envisage a third type of optimization that is more complex than the local approach based on iterated XP evaluation but still less complex than the standard, global approach, viz., an optimization of phases (i.e., vP and CP), as in Chomsky (2000, 2001). Such an approach is pursued in Fanselow and Cavar (2001). However, the two problems raised below for the global approach also hold for a phase optimization approach (which implies that evaluation of NegP, TP, and CP takes place simultaneously).

17. Of course, V raising could still independently be filtered out by stipulating a higher-ranked constraint that, e.g., bans movement of a lexical category (cf. Grimshaw (1997), Vikner (2001), and Kayne (1998, n.11), who notes: “The lexical verb in English cannot raise by head movement, yet it must move, consequently the whole VP moves”), or — in the case of O5 in Tableau 1 — by resorting to an appropriate structure preservation requirement. Still, the point remains that local and global optimization differ empirically, and the former approach offers a simpler account in the case at hand.

18. The number of SC_v violations of a given output O is determined as follows: Given a linear precedence a > b in vP (where a, b are lexical items), an occurrence of b > a in O incurs a violation of SC_v, and multiple violations add up. Thus, O5 in Tableau 2 violates SC_v exactly once because PP3 precedes NP1 (and all other instances of vP-internal linear precedence remain unchanged); O2 in Tableau 2 violates SC_v twice because NP1 precedes both NP4 and V; and O6 violates SC_v four times because NP1 precedes NP4 and V, and PP3 does the same.

19. I am assuming here that English topicalization is movement to SpecC, but the same argument can be made if topicalization is adjunction to TP, movement to SpecTop, etc.

20. It would not help to assume that SC can be fulfilled by traces like t¹ because, if nothing else is said, this would mean that SC is trivially respected by all sentences, vP order always being recoverable with the help of vP-internal traces.
21. The derivation given here rests on some decisions that are controversial and, to some extent, arbitrary (concerning the projection of auxiliaries, here identified with a vP-external VP; subject raising to SpecT; V raising to a right-peripheral T; etc.). The only important assumption is that both NP1 scrambling and vP2 topicalization are triggered by features that obey SCÀ.

22. Other phenomena that lend themselves to the same kind of analysis are German weak pronoun fronting and multiple wh-movement in Bulgarian. These phenomena are covered by the violable constraint Par-Move in Müller (2001); it seems that SCÀ can do all the work that was attributed to that constraint.

23. As in approaches that rely on the ECP or the MLC, the question arises of why German does not exhibit superiority effects (at least not with wh-phrases that are clause-mates). I will have nothing new to say about this here, and merely confine myself to pointing out that many of the existing accounts that reconcile the absence of (clause-bound) superiority effects in German with the ECP/MLC can be transferred into the present approach. See, e.g., Fanselow (1997).

24. Whereas the notion “minimal domain” plays a role in the definition of barriers, it must not replace the more restrictive notion of “minimal residue” in the definition of checking domains; otherwise, movement to a specifier position would not be a prerequisite for feature checking by an XP anymore.

25. By “non-derived head” I mean a head in a base position (which may be a trace, as in the case of v-to-V movement, where the trace of V suffices to make an object transparent for wh-extraction). The confinement to non-derived heads in (35b) ensures that y may not become transparent by accidentally ending up in the same domain as o after non-local movement; cf. (10b).

26. Alternatively, one could assume that the optimal subderivation removes the features that triggers δ-movement and, e.g., changes a [+wh] wh-element into a [−wh] indefinite, and a [+wh] C into a [−wh] C. Then, δ can remain in situ without violating BC or FC, at the cost of a violation of a lower-ranked faithfulness constraint; this amounts to neutralization of a [±wh] distinction in the input.

27. This is a necessary condition, but not yet a sufficient one. To completely rule out (16b) on this basis, we can make the standard assumption that finite vPs cannot bear a [top] feature. However, as noted by the reviewer, it might be that a bit more must be said to exclude cases like (i b), formed via (i a).

(i) a. John, has [vP2 t3 read t1 ] no novels1 t2.
   b. *[vP2 t3 Read t1 ] John3 has t¹2 no novels1 t2.

Participle vPs can in principle undergo topicalization (i.e., bear a [top] feature) in English. Thus, unless there is an intervening factor responsible for the illformedness of (sentences like) (i b), one might conclude that remnant XPs are frozen in place if they have undergone secondary remnant movement (but not if they have undergone primary remnant movement). Technically, this could be implemented by stipulating that movement operations that violate LR strip off all remaining movement features — an assumption that is not innocuous in view of some cases discussed in Heck and
Müller (2000), and in view of the speculation in note 30. I will leave this issue open.

28. UD is from Müller (1998, ch. 5). To ensure ungrammaticality of subderivations that violate UD, the same reasoning applies as in the case of BC. The optimal subderivation respects UD by either violating a ban on empty outputs (crash), or by deleting the features that trigger the offending movement operation (neutralization). For more empirical evidence and attempts to derive (something like) this constraint from even more general assumptions, see Takano (1993), Koizumi (1995), Kitahara (1997), and Müller (1998: ch. 5).

29. CP extraposition to vP is possible only if CP does not interrupt a TP-internal V cluster; i.e., if vP is topicalized. For an account of this and ample evidence in support of deriving V CP structures by CP extraposition in German, cf. Büring and Hartmann (1997).

30. Under an approach to improper movement that relies on feature minimization, even obligatory CP extraposition after wh-extraction in some language would be predicted to be unproblematic for secondary remnant movement in this language. The reason is that ensuing “secondary CP fronting” would be a repair strategy forced by SC that does not involve feature checking.

31. Johnson assumes that German also has overt QR, but no VP fronting; i.e., no obligatory movement that masks the effects of QR and reestablishes the pre-movement order. This could be accounted for under either of the options of parametrizing SC-driven movement that were briefly sketched above.

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Chapter 11

On Feature Movement*

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In recent years, the role of morphological features has been assuming greater and greater importance in syntactic theory. Under the minimalist framework (Chomsky 1995, 2000), one of the major tasks that the computational system faces is feature checking: uninterpretable features must be eliminated in order to ensure convergence. One natural consequence of this line of thinking is the claim that syntactic computations operate directly on features. Thus, Chomsky (1995) argues that the default case of movement is feature (F) movement (see also Takahashi 1997; Bošković 1988; Lasnik, this volume).

The main goal of this chapter is to offer additional arguments for the existence of F movement based on null operator (NO) constructions, which Takahashi (1997) argues involve F movement. It is shown that the theory of Attract-F can fruitfully be applied to account for the various traits of NO structures found in different languages.1

This chapter is organized in the following way. In Section 1 Takahashi’s (1997) F movement analysis of NO constructions and its general predictions are summarized, setting the stage for the succeeding investigation. The three sections to follow are devoted to verifying the predictions. Section 2 examines variation in NO movement of subjects across languages. To be more specific, it is shown that the wider possibility of NO constructions in Niuean than in English can be captured in terms of F movement constrained by certain locality conditions. In the course of discussion, it is claimed contra Takahashi (1997) that Chomsky’s (1995) economy condition is not responsible for F movement of NOs. Section 3 deals with the predicted behavior of F movement defined by the operation Attract (Chomsky 1995). There it is suggested that the closeness condition incorporated in Attract can be used to derive the blocking effects of Tense-related elements on NO movement. Then so-called “wh-agreement” in the Palauan language, which basically exhibits the reverse of the familiar subject-object asymmetry in NO movement (in languages like
English), is reanalyzed from the viewpoint of Attract-F. Section 4 is a brief discussion of the (non)interactions between phrasal wh-movement and NO movement as adjunction to heads (Chomsky 1995). It is followed by concluding remarks.

1. **Null Operator Movement as Feature Movement**

It has been argued (Chomsky 1982; Browning 1987, among numerous others) that the tough-construction, such as the one in (1), is derived by null operator (NO) movement.

(1) John is easy to please.

(1) has been analyzed as involving the following kind of derivation (Op stands for NO):

(2) John is easy [CP Op [PRO to please]]

In (2) the NO generated in the object position of please undergoes overt movement into the Spec of CP. The antecedent of the NO John is assumed to be identified via some interpretative algorithm (see for example Massam 1985; Browning 1987).

Working within the framework of Chomsky (1995), Takahashi (1997) presents an analysis of NO constructions whereby NO movement is realized as feature (F) movement rather than category movement. Chomsky (1995: 297) proposes that the transformational operation Attract is defined in the following way:

(3) Attract:

K attracts F if F is the closest feature that can enter into a checking relation with a sublabel of K.

The notion of closeness used in (3) is defined as follows (Chomsky 1995: 358):

(4) Closeness:

β is closer to the target K than α if β c-commands α.

The notion of checking domain characterizes strictly local relations such as Spec-head and head-head relations where feature checking can take place. Chomsky (1995: 262) presents the economy condition in (5) imposed on Attract-F.
In view of (5), Takahashi (1997) argues that the derivation in (2) cannot be maintained: since NOs lack phonological content and are free from PF-crash, their movement must be F movement instead of category movement. Under Takahashi’s analysis, (1) involves the derivation in (6) instead of that in (2) (FF stands for formal feature):

(6) John is easy [CP FF[Op]-C [PRO to please [DP tFF[Op]]]]

In the above derivation, only the relevant formal features of the NO have been raised. Chomsky (1995) claims, based on considerations related to bare phrase structure and Last Resort, that F raising is adjunction of a feature to a head. Accordingly, the raised features in (6) are adjoined to the head C of the complement clause.

F movement, as conceived by Takahashi (1997) drawing on Chomsky 1995, must have the following three basic characteristics: (a) like other kinds of transformation, it should be constrained by locality conditions, (b) being subject to the definition of Attract, it should exhibit minimality effects due to the closeness condition in (4), and (c) it should behave differently from category movement since it is adjunction to a head rather than substitution into a specifier position. In what follows, we will discuss each of these purported characteristics in turn, lending empirical support for the hypothesis that NO movement is indeed an instance of F movement.

2. CED Effects

This section concerns crosslinguistic variation with respect to locality conditions on NO movement. In particular, a comparison is made between tough-constructions in English and those in Niuean, a Polynesian language spoken on Niue Island and New Zealand. It is shown that the F movement analysis correctly captures the variation in question.

2.1 Feature Movement and CED

It is well-known that in English NO movement cannot take place out of subjects, as shown in (7) (see Stowell 1986; Browning 1987, among many others).
(7)  a. "John is easy to believe [t kissed Mary].
    b. "John is easy to believe [t to have kissed Mary].

In this respect, NO movement contrasts sharply with movement of *wh*-phrases, as shown in (8).

(8)  a. Who, do you believe [t, kissed Mary]?
    b. Who, do you believe [t, to have kissed Mary]?

As Takahashi (1997) demonstrates, the seemingly peculiar condition on NO movement in English can be accounted for in terms of the Move-F hypothesis. Specifically, the ill-formedness of (7) is attributable to Huang’s (1982) Condition on Extraction Domain, which states that an element E may be extracted out of a domain D only if D is properly governed. Various kinds of minimalist reformulations of the CED have already been proposed in the literature (see for example Takahashi 1994; Agbayani 1998; Ochi 1998; Uriagereka 1999a, b). It is beyond the scope of this chapter to discuss how the CED should be adequately recast in the current framework. All that matters for present purposes is the fact that descriptively, certain domains are opaque for extraction. For the sake of convenience only, I will continue to refer to the term “proper government”. Now consider the following derivations for (7):

(9)  a. *John is easy [CP FF[Op]-C [PRO to believe [DP tFF[Op]] kissed Mary]]
    b. *John is easy [CP FF[Op]-C [PRO to believe [DP tFF[Op]] to have kissed Mary]]

Subject position in English is not properly governed (see for instance Chomsky 1981; Lasnik and Saito 1984). In (9) the formal features of the NO have been extracted out of the DP not properly governed, leading to a CED violation. Then the ill-formedness of (7) is treated on a par with that of (10) in violation of the Subject Condition:

(10)  a. *Who, did you believe [[t, a picture of t] was on sale]?
    b. *Who, did you believe [[t, a picture of t] to be on sale]?

In (10) the *wh*-phrase *who* has been extracted out of the subject DP, violating the CED. (8) is fine since the entire category of the *wh*-phrase has moved.

Crucial for this account is the assumption that a NO projects a DP, so that extraction of its formal features will indeed be extraction from within the DP. Under the theory of bare phrase structure (Chomsky 1995), in which there is no such thing as a nonbranching projection, we are led to assume a slightly
complex structure of a NO where an NP is merged with a D, a point about which Takahashi (1997) is largely silent. Following a suggestion made by Watanabe (1992), let us posit the structure in (11) for a NO.

(11) 
```
DP
  \[Op\] D' 
  \[D\] \[NP\] 
  \[\[Pro\]\]
```

Watanabe (1992), on the basis of syntactic as well as semantic considerations, argues that the above kind of structure represents the universal structure for quantificational nominal expressions including *wh*-phrases. More specifically, indeterminate NPs in the sense of Kuroda (1965) appear as the complement of a D, and their quantificational force is determined by the D (cf. Chomsky 1964; Katz and Postal 1964). As has been noted in the literature, this process is directly observable in languages like Japanese. The D is assumed to select an invisible operator in its specifier position. Watanabe defends this thesis by presenting intricate facts surrounding *wh*-in-situ in Japanese, pointing to the conclusion that they support the existence of overt movement of an invisible operator out of *wh*-in-situ. I assume, as is reasonable and desirable, that the NO has basically the same structural property as the *wh*-phrase. In (11) the Pro stands for a phonologically null pro-form, whose overt counterpart would be something like *one* (cf. Katz and Postal 1964). The D position is occupied by a null head, which selects an invisible operator in its specifier position. The structure in (11) is exactly parallel to that of nominal *wh*-phrases in Japanese in Watanabe’s theory.

In fact, there is one more crucial assumption made by Takahashi (1997), who attributes it to Željko Bošković and an anonymous reviewer. It is given below:

(12) Derivations in violation of the CED converge.

Recall that according to Takahashi, NO movement is constrained by the economy condition in (5). Given that only convergent derivations compete for the purpose of economy, it must be that the CED-violating derivations in (9) converge; otherwise, it would be possible to raise the entire category of the NO to avoid a CED violation and (7a–b) would be wrongly expected to be well-formed basically in the same way as (8a–b).
Collins (1997) presents both theoretical and empirical arguments against the previously proposed global economy conditions including (5) that involve a reference to the notion of convergence. If Collins (1997) is correct, (5) cannot be the reason for the F movement out of a NO. In addition, the assumption in (12) is highly implausible in light of the observation that the CED is strictly derivational in nature (see the above-mentioned references bearing on the CED) and its violations, under a natural interpretation, should terminate computation immediately. In fact, one can construct an empirical argument that NO movement is not subject to (5) and is always realized as F movement. It has to do with certain Romance paradigms discussed by researchers such as Kayne (1984), Authier (1989), Cinque (1990) and others. Let us take French as a representative example.

As has been pointed out repeatedly, the French counterpart of the English verb *believe* does not permit Exceptional Case Marking (ECM) (Authier 1989: 121).

(13) a. I believe Paul to be stingy.
   b. *Je crois Paul être pingre.

The ungrammaticality of (13b) is due to the embedded subject *Paul* receiving no Case. Curiously enough, ECM becomes possible when the embedded subject undergoes *wh*-extraction, as shown in (14) (Authier 1989).

(14) Quel homme crois-tu être pingre?
   ‘Which man do you believe to be stingy?’

Kayne (1984) accounted for this fact in terms of the matrix verb assigning Case to the Spec of CP in the embedded clause: only DPs that move through the position are eligible for ECM. In a minimalist approach, the *wh*-phrase in (14) would be taken to go through a structural Case position on its way to the [+WH] Spec of CP. Anyway, what is noteworthy here is that the category movement of the *wh*-phrase licenses otherwise illicit ECM.

In sharp contrast to phrasal *wh*-movement, NO movement does not exhibit similar amelioration effects. Observe the following example from Cinque 1990.

(15) *Cet homme est facile à croire être intelligent.
   (Lit. This man is easy to believe to be intelligent.)

(15) is ill-formed. As Chomsky (1995) argues, Case features are uninterpretable and hence derivations with unchecked Case features crash at LF. If
NO movement were subject to the economy condition in (5), it should be possible to raise the entire category of the NO in (15), just as in (14), so that the derivation in question could perform Case checking of the embedded subject successfully and attain convergence at LF. The ill-formedness of (15), I argue, demonstrates that NO movement can never be category movement under any circumstance. (15), like its English counterpart in (7b), is ruled out as a CED violation.

One may suggest that only PF convergence matters for the purpose of (5). This suggestion seems undesirable since it introduces an awkward asymmetry between PF convergence and LF convergence with respect to an allegedly general economy condition. Indeed, Chomsky (1995) is equivocal on this point. On one hand, he writes, “we tentatively assume, then, that only PF convergence forces anything beyond features to raise (Chomsky 1995: 265)”. On the other hand, he makes crucial use of LF convergence in his explanation of expletive constructions based on Procrastinate, whose rationale he ascribes to (5) following Hisa Kitahara and Howard Lasnik. In short, global economy, if it exists at all, selects among convergent derivations, and for its purposes, PF convergence and LF convergence should be equally relevant.

Having established that NO movement must always be F movement, we can now ask why this should be the case. An alternative to (5) is to suggest simply that certain phonologically null elements are nothing but features. This suggestion might sound ad hoc, but there seems to be converging evidence for it. Takahashi (1997), in his examination of PRO, mentions the possibility attributed to Howard Lasnik that PRO is a collection of features. Furthermore, Uriagereka (1999a), based on his discussion of a restriction on wh-movement in Basque, concludes that pro is nothing more than features. Viewed from this perspective, the structure in (11) offers a direct answer: the invisible operator in the Spec of DP to be attracted by a C head is just a bundle of features. If this is correct, then it follows straightforwardly that NO movement is F movement.

The proposed analysis makes the following prediction regarding the CED effects: in languages where subjects (thematic or structural) are properly governed, they should in principle be able to undergo NO movement. We will see in the next subsection that the predication is borne out by Niuean.

2.2 Niuean

Let us now turn to the discussion of Niuean. It is a strict VSO language. Observe the example in (16) (adapted from Seiter 1980: 36):
Let us assume that (16) has the structure in (17) at Spell-Out, where the verb has undergone overt movement to T and the arguments stay where they are generated. This analysis together with the assumption that Niuean has no scrambling captures the rigidity of word order in the language.

Following recent works on ergativity (Murasugi 1992; Maclachlan and Nakamura 1997; cf. Guilfoyle et al. 1992), we equate absolutive Case with nominative Case. Thus the absolutive Case feature is checked against T (in covert syntax). The ergative Case feature, on the other hand, is dependent on V (Murasugi 1992; Maclachlan and Nakamura 1997) and checked in the specifier of vP (see Chomsky 1995 for the “light” v).

What is important in the present context is the fact that both absolutive and ergative arguments are properly governed in Niuean. We can demonstrate this by using the process of quantifier floating, which affects the quantifier *oti* ‘all’. Consider the following pair (Seiter 1980):

\[
\begin{align*}
(18) \ a. & \text{ Moua e maea mo Sione [DP e tau mata afi oti].} \\
& \text{get ERG I.PL.DU.EX with Sione ABS PL piece fire all} \\
& \text{‘Sione and I have already won all the matches.’}
\end{align*}
\]

\[
\begin{align*}
(18) \ b. & \text{ Moua oti e maea mo Sione [DP e tau mata afi t].} \\
& \text{get all ERG I.PL.DU.EX with Sione ABS PL piece fire} \\
& \text{‘Sione and I have already won all the matches.’}
\end{align*}
\]

(18a) exemplifies a canonical Niuean sentence with the quantifier *oti* appearing within the absolutive DP. (18b) is derived by applying quantifier floating.
to (18a). In the latter example, the quantifier has been extracted out of the absolutive DP and cliticized to the verb. The extraction is legitimate since the thematic object, just like its counterpart in English, is properly governed.

Unlike in English, however, the thematic subject or ergative DP in a transitive clause is properly governed in Niuean. This is shown in (19).

   perf kick perf erg 3pl all abs 1sg
   'All of them have kicked me.'

b. Kua tele oti tuai [DP e lautolu t] a au.
   perf kick all perf erg 3pl abs 1sg
   'All of them have kicked me.'

In (19a) the quantifier occupies a position internal to the ergative DP. In (19b) it has been successfully removed from the DP, indicating that the DP is transparent for extraction.

It is not the case that quantifier floating can take place out of just any constituent. As is well-known, the complement of a preposition is not properly governed in many languages. Predictably, the quantifier cannot be extracted out of an oblique DP, as shown in (20).

(20) a. Ne tutala a au [PP ke he [DP tau momotua oti]].
   past talk abs 1sg to he pl elders all
   'I talked to all of the elders.'

b. *Ne tutala oti a au [PP ke he [DP tau momotua t]].
   past talk all abs 1sg to he pl elders
   ('I talked to all of the elders.')

This provides a confirmation that quantifier floating is a syntactic operation. Seiter (1980: 66–7) notes that the quantifier can be extracted out of a semantically locative DP if it is expressed as an absolutive. This too highlights the syntactic nature of quantifier floating.11

With this background in mind, we shift our attention to Niuean NO constructions. Observe the following example (Seiter 1980: 215):

(21) Uka [ke totou e mautolu e tala ia].
   difficult subj read erg 1pl.ex abs story that
   Lit.'It is hard we read that story.'

(21) contains the Niuean tough-predicate uka 'difficult'. The embedded clause is headed by the subjunctive marker ke.12 No NO movement is involved in
(21): both arguments of the verb totou ‘read’ belong in the embedded clause. The matrix subject is assumed to be an expletive pro associated with the embedded clause.

As expected, the Niuean counterpart of English (1) is fine.

(22) Uka e tala ia [ke totou e mautolu t].
    difficult abs story that subj read erg 1pl.ex
    Lit. ‘That story is hard we read.’

In (22) the DP tala ia ‘that story’ appears in the matrix clause. The derivation for (22) is provided below (with English words):

(23) [difficult that story [CP FF[Op]-C [read we [DP tFF[Op]]]]]

In (23) the DP ‘that story’ is generated in the matrix clause, where it receives absolutive Case. In the embedded clause, the thematic subject receives ergative Case and the NO movement takes place out of the properly governed thematic object.

Given that the thematic ergative subject is properly governed in Niuean, the NO movement out of it should be legitimate. That is indeed the case, as shown in (24), the Niuean analogue of ill-formed English (7).

(24) Uka a mautolu [ke totou t e tala ia].
    difficult abs 1pl.ex subj read abs story that
    Lit. ‘We are hard read that story.’

The derivation for (24) is as in (25).

(25) [difficult we [CP FF[Op]-C [read [DP tFF[Op]] that story]]]

Here it is the DP ‘we’ that is merged into the matrix clause. Within the embedded clause, the thematic object is assigned absolutive Case and the NO movement out of the thematic subject is allowed in the expected way.

Seiter (1980) remarks that the tough-construction in Niuean patterns with other operator constructions involving relativization and clefting in that if oblique DPs are to function as variables, they must leave resumptive pronouns in their base positions. Compare (26a) with (26b).

(26) a. Ai mukamuka [ke fakamaama e au e tau mena ke he tagata
    not easy subj explain erg i abs pl thing to he man
    ia].
    that
    Lit. ‘It is not easy we explain things to that man.’
b. Ai mukamuka e tagata ia [ke fakamaama e au e tau not easy ABS man that subj explain erg I ABS PL mena ki *(ai)].
thing to him
Lit. ‘That man is not easy we explain things to (him).’

The difference is that in (26a) the DP ‘that man’ appears after the preposition ke he,\(^{13}\) whereas in (26b) it appears after the matrix predicate. As indicated in (26b), NO movement is prohibited and the use of a resumptive pronoun is mandatory. The Move-F analysis captures the impossibility of NO movement out of the goal DP.\(^{14}\)

In summary, the examination of the Niuean facts leads us to conclude that there is a correlation between the possibility of NO movement and the proper government of its launching site. It can readily be accounted for in terms of F movement subject to the CED.

3. Blocking Effects

This section considers what kind of implications the definition of Attract has for NO movement as F movement. It is shown that the Attract-F analysis proves useful in coming to grips with the fact that movement of a NO is systematically blocked by a species of finite T. Some relevant data from Palauan, a Western Austronesian language discussed extensively by Georgopoulos (1985, 1991a, 1991b), provide a crosslinguistic confirmation of the usefulness of the analysis.

3.1 Feature Movement and Attract

It has been observed that NO movement cannot take place out of a tensed clause, as illustrated in (27).

(27) *?John is easy to believe [(that) Mary kissed τ].

Note that there is no violation of the CED here, since the NO is generated in the object position. Importantly, regular wh-movement behaves differently from NO movement, as shown by the well-formedness of (28).

(28) Who, does John believe [(that) Mary kissed τ]?
(27) and (28) exemplify yet another feature-category discrepancy in A’-movement which calls for an explanation.

The F movement analysis opens up a new way to deal with the contrast between (27) and (28). It has been observed in the literature that there is a strictly local selectional relationship between T and C (see for instance Chung and McCloskey 1987 for Irish complementizers bearing tense features). Besten (1978) has suggested that the COMP position is where tense operators, if any, must appear (see also Stowell 1981; Besten 1983). Within the minimalist approach, the matching that holds between T and C can most naturally be interpreted as a consequence of feature checking. Let us assume then that, like its nominal counterpart D in (11), finite T (but not nonfinite one) has a morphological “operator” feature that undergoes raising to adjoin to C (see Enç 1987 and Hornstein 1990 among others for the parallel between D and T).

Given this assumption, the definition of Attract in (3) automatically rules out (27). The most deeply embedded C in (27), whose single feature is an uninterpretable operator feature, must attract the operator feature of the finite T closer than that of the NO in the object position. When the feature of the T is checked against the feature of the C, the latter gets deleted. Since no checking relation is possible between the C and the NO, the continuing derivation necessarily leads to crash: because of the locality condition on movement (or something like Chomsky’s (2000) notion of phase), the NO in situ is too distant from the C head of the infinitival complement clause of easy for the required checking relation between the two elements to be established.15

The well-formedness of (28) remains to be explained. This account, as it stands, would incorrectly rule out (28), since the relevant features of the wh-phrase in its base-generated position should be too far from the embedded C due to the presence of the intervening feature of the T. This prompts a revision of (3) so that the relevant distinction is drawn between F movement and category movement. The following minimal revision would suffice:

\[
\text{(29) Attract: (revised)}
\]

\[
K \text{ attracts } F \text{ if } F \text{ is the closest feature that enters into a checking relation with a sublabel of } K.
\]

(29) differs from (3) in that it has eliminated the potentiality of feature checking (expressed by can) in the latter. Given this revision, in (28) if the computational system accesses the EPP-like feature of the C, which can only be satisfied by phrasal movement (Chomsky 1995, 2000), the C can ignore the feature of the T and successfully attract the entire category of the wh-phrase.
This option is not open for NO movement, which can never be phrasal movement.

It has been pointed out that wh's-in-situ in certain languages exhibit basically the same distributional properties as NOs with respect to tensedness. For instance, Wahba (1991) mentions that examples like (30) are ruled out in Iraqi Arabic.

(30) *Mona tsawwarat [Ali ishtara sheno]?
    Mona thought Ali bought what
    (*What did Mona think Ali bought?)

In the above example, the wh-phrase sheno ‘what’ appears in the tensed embedded clause, and the result is ungrammatical. This is reminiscent of (27). In fact, the above account extends to (30) without any further modification if Watanabe’s (1992) invisible movement analysis of wh's-in-situ is adopted for Iraqi Arabic. In particular, the intervening tense operator feature blocks the movement of the operator feature generated in the spec of wh-DP.

In Iraqi Arabic, there is an option to move a wh-phrase overtly. If this option is taken, the wh-phrase in question undergoes category movement, as shown below (Wahba 1991).

(31) Sheno i tsawwarit Mona [Ali ishtara t i]?
    what thought Mona Ali bought
    ‘What did Mona think Ali bought?’

Sentence (31) differs minimally from (30) in that the former involves the overt phrasal movement of the wh-phrase. This time the result is grammatical, as expected: the EPP-feature optionally attached to C makes it possible to attract the categorial feature of the wh-phrase.

Note that this account of the tensedness condition predicts that in languages where the subject is properly governed and c-commands T (and thus is closer to C than T), it should be able to undergo NO movement even if the T bears an operator feature. The object, on the other hand, should not be able to do so because the T intervenes between C and the object, as in the case of English (27). We will see below that Palauan represents such languages.

3.2 Palauan

Consider the following example from Palauan:
(32) Te-illebed-ii a bilis a rngalek.
3PL-hit-3SG dog children
‘The kids hit the dog.’

Palauan is a VOS language. Using various sorts of syntactic tests, Georgopoulos (1985, 1991a, 1991b) argues that the structure of (32) at Spell-Out looks like (33):18

In (33) the verb undergoes overt movement to T. The thematic object occupies a VP-internal position. Within the minimalist framework, it would be assumed to undergo some form of movement for Case checking at LF, but the details of this operation are immaterial for present purposes. The subject, on the other hand, undergoes overt raising into the Spec of TP.

There is evidence from extraction that subjects are properly governed in Palauan. Consider the following examples (Georgopoulos 1985, 1991a).

(34) a. Ng-te’a a oltoir er ngii [DP a del-al t].
3SG-who love rp her mother-3SG
‘Whose mother loves her?’

b. A Mary [a kltukl [CP el kmo ng-oltoir er a John t]].
Mary clear rp comp 3SG-ru-love.IMP p John
‘Mary, (it’s) clear that loves John.’

In (34a) the extraction takes place out of the DP subject (unlike in English, it is possible to extract possessors in Palauan) and in (34b) the DP ‘Mary’ has been extracted out of the sentential subject via “topicalization.”19 The grammaticality of these sentences indicates that subject categories are transparent for extraction.

Let us discuss Palauan wh-question formation in some detail. As shown in
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(35), Palauan has two kinds of strategies for forming wh-questions (Georgopoulos 1991a).

(35) a. Ng-omele’a a ngera er a mla a Sabeth?
   3SG.R-put what p car Sabeth
   ‘What did Sabeth put in the car?’

b. Ng-ngera [a l-omele’a t er a mla a Sabeth]?
   3SG-what 3IR-put p car Sabeth
   ‘What did Sabeth put in the car?’

On one strategy, illustrated in (35a), the wh-phrase remains in situ. On the other, illustrated in (35b) (and (34a)), the wh-phrase is used as a predicate, followed by a headless relative clause introduced by the determiner-like element a.20 The third person singular agreement ng- on the wh-predicate is assumed to agree with the entire headless relative clause.

Although the wh-predicate strategy does not obey the Subject Condition, as already seen in (34a), it does obey the Adjunct Condition, a primary case of CED violation. Thus (36) is ruled out (Georgeopoulos 1991a).

(36) *Ng-te’a [a ’omu-rael er a party le u’ul ng-mla er ngii t]?
   3SG-who 2IR-left p party because 3SG-was p there
   ‘Who did you leave the party because was there?’

The ungrammaticality of (36) suggests that some form of syntactic movement is involved in the derivation of a headless relative clause. Since it is invisible, I take this movement to be NO movement, which is a case of F movement, as argued above. Note incidentally that the headless relative clause is also used in the “topicalization” in (34b), indicating that this construction too involves F movement.

Given this and the above considerations on Attract as well as the phrase structure of Palauan, we predict that subjects and objects behave differently within a headless relative clause. In particular, in the simplest cases like (34a) and (35b), T should not block F movement out of subjects, whereas it may block that out of objects. This is because the subject c-commands T, and the latter c-commands the object.

The prediction is fulfilled. Observe the contrast between (37a) and (37b).

(37) a. Ng-te’a [a kileld-ii a sub t]?
   3SG-who heat.R.PERF-3SG soup
   ‘Who heated up the soup?’
b. *Ng-nerga [a silseb-ii t a se’el-il]?
   3SG-what  burn.R.PERF-3SG  friend-3SG
   (’What did his friend burn?’)

The F movement out of the subject in (37a) is legitimate, whereas that out of
the object in (37b) is illegitimate. In order to license the kind of dependency
in (37b), the use of “irrealis” morphology (so-called “wh-agreement”) is
obligatory (the same is true of (35b)).

(38) Ng-nerga [a le-silseb-ii t a se’el-il]?
   3SG-what  3IR-burn.PERF-3SG  friend-3SG
   ’What did his friend burn?’

As Georgopoulos (1985, 1991a) shows convincingly, the alternation in mood
morphology has no semantic import: “wh-agreement” is merely a morpholog-
ical device that registers wh-dependencies.

Data like (37) and (38) can readily be explained by the theory of attraction
if we assume that “realis” T but not “irrealis” T has an operator feature that
enters into a checking relation with C. The claim that what blocks F move-
ment is a purely morphological feature on T in Palauan is in full accord with
the theory incorporating Attract, where movement operations are driven solely
by morphological features.

This account based on Attract also predicts that any realis morphology
that c-commands the launching site of the F-moved element must be changed
to irrealis morphology, no matter whether the element is a subject or an
object. The prediction is borne out by the following examples:

(39) Ng-te’a [a l-oumerang [el do-mdasu [e ng-mo
   3SG-who  3IR-believe COMP 1PL.R-think  PTC 3SG.R-go
   er a siabal t]]]?
   p  Japan
   ’Who do they believe that we think will go to Japan?’

(40) Ng-ngera [a ’om-ulemdasu [el 1-ulengiil er ngak [el bo
   3SG-what  2IR-think.PERF COMP 3IR-wait P me  COMP IR.FUT
   k-uruul  t er ngii]]]?
   1SG.R-do.IMP  P it
   ’What do you think that they are waiting for me to do?’

In (39) the subject of the most deeply embedded clause has undergone
F-movement. As in the case of (37a), it does not trigger a morphological
alternation on the verb within that clause. However, it does trigger alternations on the higher verbs, which c-command the clause. In (40) the object of the most deeply embedded clause has been extracted. As expected, the extraction demands morphological changes on all the c-commanding verbs.

In addition, no alternation in mood morphology should occur if NO movement starts from a position which is not c-commanded by any T. As one can figure out easily, this is precisely what happens in the case of (34b), where the launching site of the F movement is not c-commanded by the T within the sentential subject, which in turn is not c-commanded by the T associated with the predicate ‘clear’.

At this point, let us reconsider (35a), where the wh-phrase remains in situ. Notice that the verb there is in the realis mood. Thus (35a) contrasts markedly with (35b), in which the corresponding verb bears the irrealis morphology. I take this to indicate that the wh-in-situ strategy in Palauan does not involve F movement. More specifically, the in-situ wh-phrase is assumed to be licensed via unselective binding (Tsai 1994; Reinhart 1995). Then the use of the strategy should trigger absolutely no “wh-agreement,” no matter what position a wh-in-situ occupies. That this is correct can be demonstrated by the following example analogous to (39), where the wh-phrase remains in its base-position.

\[(41) \text{T-oumerang [el ked-omdasu [e ng-mo er a siabal a e'ang]]?} \]
\[3\text{pl.r-believe comp 1pl.r-think ptc 3sg.r-go p Japan who} \]
\[\text{‘Who do they believe that we think will go to Japan?’} \]

In (41), unlike in (39), the highest and the intermediate verbs both bear the realis morphology. Data like (41) are also amenable to the present account.

To sum up this section, NO movement, being F movement, is blocked by a c-commanding operator feature in T because of the definition of Attract. The present account successfully deals with the crosslinguistic differences in the blocking effects.

4. Feature Adjunction to Heads

The F movement analysis, where NO movement is taken to be adjunction to heads, makes certain predictions about the interactions between phrasal wh-movement and NO movement. Specifically, the two kinds of movements are expected to be able to cooccur within the same clause, since their landing sites
are different, circumventing the Doubly Filled Comp Filter (or whatever replaces it in the minimalist framework). This expectation is fulfilled.

The ungrammaticality of the following in violation of the wh-island constraint is familiar (Authier 1989: 122):

\[(42)\]  
\[a. \text{*Which car, did she know [what, [PRO to put ti on tj]]?}\]  
\[b. \text{*Who, does she wonder [what, [PRO to show ti to tj]]?}\]  

A variety of explanations have been offered to handle the above examples, but they usually capitalize on the idea that in (42) the Spec of embedded CP cannot be used as an “escape hatch” for the wh-phrase occupying the Spec of matrix CP since it is filled by another wh-phrase.

If the hypothesis that NO movement is F adjunction to C is on the right track, it is expected that NO movement out of an embedded clause whose Spec of CP is filled with a wh-phrase should in principle be permitted. (43) shows that this is the case.

\[(43)\]  
\[a. \text{?John is easy [Opj to know [what present, [PRO to give ti to tj]]].}\]  
\[b. \text{?John is fun [Opj to find out [how [PRO to annoy ti]]].}\]  

It is also expected that wh-movement out of a clause whose C has attracted (the feature of) a NO should be grammatical. Observe the following examples (Authier 1989: 122 citing Kirkpatrick 1982):

\[(44)\]  
\[a. \text{Which car, did she buy those whitewalls, [Opj to put ti on tj]?}\]  
\[b. \text{Who, did she get it out [Opj to show ti to tj]?}\]  

The grammaticality of data like (44) is explicable under the Move-F analysis. Finally, consider the following contrast (Authier 1989: 123):

\[(45)\]  
\[a. \text{?Our military advisors should know [which countries, these missiles, are too dangerous [Opj to send ti to tj]]}.\]  
\[b. \text{*Our military advisors should know [which missiles, these countries, are too unfriendly [Opj to send ti to tj]].}\]  

The grammaticality of (45a) similar to (44a-b) comes as no surprise. The ungrammaticality of (45b), on the other hand, may seem to pose a problem for the present account. As has been noted by Authier (1989), however, (45b) is excluded independently by some crossing constraint of the kind proposed by Pesetsky (1982). Then it does not constitute a counterexample for the analysis put forth here.
In brief, the hypothesis that NO movement is F adjunction provides the important basis for the explanation of why it behaves the way it does in its interactions with phrasal wh-movement.

5. Conclusion

To recapitulate the main results of the preceding discussion, it has been argued that Takahashi (1997) is correct in claiming that null operator (NO) movement is in fact feature (F) movement. Takahashi’s analysis has received empirical support from the relevant data, which have confirmed its predictions regarding locality, minimality, and island phenomena. At the same time, it has been maintained that Takahashi is incorrect in espousing Chomsky’s (1995) economy condition on Attract as the reason for F movement of NOs. Under the proposed analysis, F movement is a direct consequence of the morphological nature of NOs: the operator to be attracted is nothing but a bundle of features.

To the extent that the present account is correct, it implies that the feature-based theory of syntax entertained in the minimalist approach gains further support. It also implies that the distinction between category movement and F movement is not motivated by global economy, as argued by Collins (1997). As for the parametric variation in NO movement, it would not have to be stipulated at all if the CED reduces to the morphological properties of functional categories (Uriagereka 1999a, b) and the blocking effects of the kind we saw above derive from the feature specifications of T-related elements.

Notes

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1. Chomsky (2000) retracts his 1995 proposal and argues for dispensing with F movement altogether. In place of Attract, he introduces the operation Agree, which deletes features under matching. Lasnik (this volume), however, presents some empirical evidence that F
movement is superior to agreement. Following Lasnik, I shall analyze relevant data in terms of Attract here, though they can be equally handled in terms of Agree, as far as I can see.


(i) Closeness:
If $\beta$ c-commands $\alpha$ and $\tau$ is the target of raising, then $\beta$ is closer to $K$ than $\alpha$ unless $\beta$ is in the same minimal domain as (i) $\tau$ or (ii) $\alpha$.

(4) serves the purpose of this paper.

3. Below this rationale for NO movement as F movement will be rejected, though the phonological property of NOs may still prove significant.

4. Huang (1982) originally formulated the CED as a condition on category movement.

5. The accounts presented by Takahashi (1994), Agbayani (1998) and Ochi (1998), where CED effects should obtain only for category movement, are incompatible with the present analysis. Uriagereka’s (1999a, b) theory of Multiple Spell-Out is more promising in that it does not make a distinction between F movement and category movement with regards to barriers. There are of course important details to be worked out though.

6. As an anonymous reviewer notes rightly, English relativization of subjects is permitted without overt relative pronouns. This fact can be handled if we follow Takahashi’s (1997) suggestion that such relativization does not involve NO movement; instead, it involves category movement of relative pronouns, which are deleted phonologically.

7. To be precise, Watanabe postulates $qp$ (Quantifier Phrase) between DP and NP.

8. An anonymous reviewer asks whether anything like the structure in (11) is indeed necessary to guarantee that the F movement at issue will involve extraction from within a DP and suggests that it would suffice for the operator to be just a D, out of which the features are removed. I assume following Chomsky (1995) that Attract-F automatically carries along the set of formal features of a lexical item. Then, the above suggestion would not work, since all the features including the D-feature would be raised as a bundle, inducing no CED violation (cf. Takahashi’s (1997) discussion of how PRO avoids a potential CED violation).


10. The following abbreviations are used in this chapter:
ABS=absolutive; AUX=auxiliary; COMF=complementizer; DU=dual; ERG=ergative; EX=exclusive; FUT=future; IMP=imperfective; IR=irrealis; P=preposition; PAST=past; PERF=perfective; PL=plural; PTC=particle; QP=question particle; R=realis; SG=singular; SUBJ=subjunctive; 1=first person; 2=second person; 3=third person

11. An anonymous reviewer expresses some skepticism about the arguments based on quantifier floating in Niuean, pointing out that quantifier floating from subjects is possible even in English, a language whose subjects in Spec of TP are not properly governed. One crucial difference between Niuean and English is that it is the quantifier that undergoes movement in Niuean, whereas it is the subject DP that does so in English. As argued by
Sportiche (1988) and others, sentences like *The children will all leave* are not derived by the rightward movement of *all* but by the raising of the subject, stranding *all* in its original position. Assuming that the base-generated subject position, unlike the derived subject position in Spec of TP, is properly governed in English, the grammaticality of "quantifier stranding" is accounted for. In the case of Niuean, where "quantifier stranding" is not a factor, quantifier movement serves as a clear diagnostic for determining opaque domains for extraction. Therefore, the text arguments hold.

12. NO movement can take place only within a subjunctive clause in Niuean. In languages like English it is blocked by the presence of tense. It is reasonable to think that subjunctive (as well as irrealis) is a species of infinitive in the relevant sense and thus does not define an opaque domain for NO movement, though it, unlike English infinitive, can check a structural nominative/absolutive Case feature. See the next section.

13. Indirect objects are marked with ke he when they are common nouns and with ki when they are pronouns or proper nouns (Seiter 1980).

14. Of course, this argument based on (26b) goes through only if the resumptive strategy does not involve any form of F movement. There is some evidence for this assumption. Seiter (1980: 233–4) notes a difference between the Move-F strategy and the resumptive one in connection to examples like (ia-b).

(i) a. *Mukamuka a Pulevaka ke piko kua fakavihatia he tau fānau.
   easy ABS Pulevaka subj think PERF hate ABS PL child
   ('It is easy to get the (mistaken) impression that the children hate Pulevaka. ')

b. Mukamuka a Pulevaka ke piko kua ita ki ai e tau fānau.
   easy ABS Pulevaka subj think PERF angry to him ABS PL child
   'It is easy to get the (mistaken) impression that the children are angry at Pulevaka.'

As we will see shortly in the next section, one of the signature properties of F movement is that it is blocked by a finite T. Then the ungrammaticality of (ia) suggests that the F movement out of the absolutive DP is disrupted by the presence of the intervening perfective morpheme (notice that there is no violation of the CED in (ia)). The grammaticality of (ib) with the resumptive pronoun means that no F movement is at work.

See note 24 for a brief illustration of another type of resumptive pronouns which do involve F movement. I shall not attempt to offer a theory of the two types of resumptive pronouns here.

15. Examples like (7a), repeated here as (i), are not excluded for the same reason, since the subject DP in Spec of TP c-commands the finite T.

   (i) *John is easy to believe [t kissed Mary].


17. Observe the following Iraqi Arabic pair with no embedded clauses (Wahba 1991):
(i) a. Meno Mona shaafat?
   who Mona saw
   ‘Who did Mona see?’

b. Mona shaafat meno?
   Mona saw who
   ‘Who did Mona see?’

The grammaticality of (i a) is expected. That of (i b) may seem problematic: if (i b) involves F movement, it should be as ungrammatical as (30), with the F movement out of the object position blocked by the c-commanding T. I suggest that the problem is only apparent. As pointed out aptly by Boškovic (1998), Chomsky’s (1995) system allows the covert insertion of phonologically null C at the top of the root clause but not within the embedded clause. Then it should be possible to insert C with an EPP-feature after Spell-Out in (i b), triggering LF category movement of the \textit{wh}-phrase. This accounts for the well-formedness of (i b). In (30), where the \textit{wh}-phrase belongs in the embedded clause, the insertion of C into the clause is obligatory, which results in the failed attraction of the invisible operator.

The present account correctly predicts that a \textit{wh}-in-situ can appear in a non-tensed embedded clause, as shown below (Wahba 1991).

(ii) Mona itmannat [tishtiri sheno]?  
Mona hoped to-buy what
‘What did Mona hope to buy?’

18. Georgopoulos uses IP, which is replaced by TP here.

19. Below it is suggested that (34a–b) both involve F movement rather than category movement. Given the conclusion reached in Section 2, this does not affect the point made here.

20. Compare (35b) with (i) containing a non-\textit{wh} predicate (Georgopoulos 1985:67, n. 12).

(i) Ng-ngalek [a omes er a bilis].
3sg-child see.r.IMP p dog
‘It is the child who is seeing the dog.’

21. Due to the lack of space, I cannot go into the detailed criticism of Georgopoulos’s (1991a, 1991b) rule for ‘\textit{wh}-agreement.’ Suffice to mention just one problem, noted by Georgopoulos (1991a) herself: her rule, which applies to arguments only, cannot explain the following kind of examples containing adverbial \textit{wh}-phrases:

(i) Ng-ongera [e ke-mo/ a ‘o-bo merek el melu’es er a babileng-em].
3sg-when 2sg.r-aux/2.ir-aux finish comp write.r p paper-2sg
‘When will you finish writing your thesis?’

‘\textit{Wh}-agreement’ is optional in the above case. The optionality ceases to be a puzzle under the proposed account, where the c-command relation between T and the position out of which F movement occurs is crucial (see below). In light of the mobility of adverbial expressions, it is reasonable to suggest that the launching site of F movement in (i) can be either a TP-adjoined position or a VP-adjoined position. If so, the change in the c-command relation can be taken to correlate with the alternation in the verbal morphol-
ogy. I assume along with Huang (1982, ch. 7) that DP operators such as *when* and *where*, as opposed to non-DP operators such as *how* and *why*, are properly governed in the relevant sense and do not constitute a barrier for F movement. Consistent with this assumption is the observation that constructions like (i) seem possible with *when* and *where* but not with *how* and *why* (see Georgopoulos 1991a).

22. Since the use of irrealis morphology is banned in such examples as (34a), (35a), and (37a), we must assume that it is used as a last resort.

23. Unlike (ib) from Iraqi Arabic in note 17, (35a) cannot involve phrasal *wh*-movement in covert syntax, since the option of inserting C with an EPP-feature at the root after Spell-Out is not available: Palauan does not allow category *wh*-movement at all (thus, the Palauan equivalent of Iraqi Arabic (ia) in note 17 is impossible). (35a) then is similar to the following example from Iraqi Arabic, where the presence of the question particle rescues the kind of dependency illustrated in (30) by authorizing unselective binding (Wahba 1991):

(i) Sh-tsawwarit Mona [Ali gabal meno]?
   qp-thought Mona Ali met who
   ‘Who did Mona think Ali met?’

24. As shown in (i) below, questioning the complement of a preposition by the *wh*-predicate strategy requires the use of a resumptive pronoun.

(i) Ng-ngera [a l-urreul er *(ngii) a rubak].
   3sg-what 3sr-do.IMP it old-man
   ‘What did the old man do?’

Interestingly, we find the “*wh*-agreement” morphology on the verb in (i). Under the account defended in the text, this implies that (i), unlike Niuean (ib) in note 14, does involve F movement. It can be proposed that in (i) the null D in (11) is realized as *ngii*. The obligatory morphological spell-out of the D would follow if we assume along with Law (1998) that P-stranding is restricted by the morphological suppletion achieved via D-to-P incorporation.

25. In his discussion of the data cited below, Authier (1989) assumes for the sake of concreteness that NO movement is adjunction to S (or TP). This assumption seems problematic, for adjunction to TP typically creates a barrier (Lasnik and Saito 1992). The text analysis is free from this problem.

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Chapter 12

CP-pied-piping and remnant IP movement in long distance $wh$-movement

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1. Introduction

It has long become the standard assumption that a $wh$-phrase moves out of a CP in successive cyclic fashion through all intermediate specifiers of CP. This hypothesis was first motivated by locality conditions such as subjacency. Since its earliest proposal (Chomsky 1973) it has received independent empirical support coming from a number of different languages, either through morphological alterations on the complementizer, the verb, or through word order changes in each intervening clause. The focus of this chapter is one such language, namely Irish. McCloskey (1979, 1990, etc) has established that Irish displays what has come to be known as agreeing complementizers; the normal embedding complementizer go/gur is replaced by a particle $a$ (inducing lenition on the initial consonant of the verb, henceforth aL) in CPs that contain a $wh$-trace. This particle appears at the left edge of each clause intervening between the trace of the $wh$-phrase and its surface position. This is illustrated in examples (1):

(1) a. Creideann Seán [gur imreodh na páistí anseo].
   believes Seán that-past play-COND the children here
   ‘Seán believes that the children would play here.’

b. Cén páistí $a$ chreideann Seán [a d’imreodh $a$ anseo]?
   which children aL believes Seán aL play-COND here
   ‘Which children does Seán believe would play here?’

c. *Cén páistí $a$ chreideann Seán [gur imreodh $a$ anseo]?
   which children aL believes Seán that play-COND here
   ‘Which children does Seán believe would play here?’
This chapter puts the particle aL into a rather different perspective. Specifically, I propose that the successive cyclically occurring particles aL in wh-extractions are the morphological reflexes of argument shift operations of the CPs the wh-phrase is extracted from. The particle aL, under this view, is not a complementizer, but an agreement particle reflecting object shift.

The proposal has several advantages over the original analysis of McCloskey’s. First, it avoids the problems associated with an analysis that views aL as a complementizer whose distinguishing characteristics it is to occur with a wh-trace and contrasting it to another particle that typically occurs in A-bar constructions with resumptive pronouns, namely aN (=a inducing nasalisation on the initial consonant of the verb). This approach is undermined by the observation that aN also occurs with gaps, which suggests that the distinguishing characteristics must constitute some property other than movement versus resumptive strategy.

Second, the present proposal also attempts to capture a generalisation otherwise missed, namely that there is a homophonous particle aL in infinitives with a similar distribution. Finally, it provides a natural account for several patterns of extraction that are otherwise surprising.

The analysis advocated here entails movement of CPs and subsequent reordering of large constituents in the clause through remnant movements with the effect of reestablishing canonical word order, VSO in the case of Irish.

2. Irish word order

2.1 Word order in tensed and non-tensed clauses and the particle aL

Irish displays VSO word order in tensed clauses, both matrix and embedded, as illustrated in the following example.

(2) Deir sé go bhfuil cathaoir anseo.

say he that is a-chair here

‘He says that there is a chair here.’

Adopting standard assumptions, I take the verb to raise to some inflectional head higher than the subject DP, presumably T, while the subject raises partially to some projection external of VP. Not unexpectedly, verb raising does not occur in non-finite clauses; infinitives thus do not display VSO order but subject initial order. What is somewhat more surprising is that the object
also precedes the verb, yielding OV order. As the examples in (3) illustrate, this word order is accompanied by a leniting preverbal particle \( a \), henceforth \( aL_{inf} \) absent otherwise.

(3) a. Ba mhaith liom [Seán an caora \( a \) mheá ar an bhfeirm].

'I would like Seán to weigh the sheep on the farm.'

b. B’éadoiche [iad cruinniů].

'It would be improbable for them to assemble.'

Since \( aL_{inf} \) occurs in the presence of a preverbal object DP and is otherwise absent, it has been treated as a marker of transitivity in the literature, more specifically as an agreement marker indicating object shift (see Adger 1996; Bobaljik and Carnie 1996; Duffield 1995; McCloskey and Sells 1988; Noonan 1992–94; Sells 1984). There is a somewhat complex dialectal split involved with this word order: the situation described above describes the Northern Irish dialects (NI), while the Southern dialects (SI) present a more complex situation. First, in these dialects \( aL_{inf} \) occurs also with intransitive verbs (both unaccusative and unergative ones), but only if the subject is lexically overt; intransitive verbs lacking an overtly realised subject also lack \( aL_{inf} \). Second, in these dialects, the object shifted order \( O aL_{inf} V \) order is restricted to constructions that contain no overt subject (i.e. with PRO or NP-trace); see (4a). If there is a lexically overt subject, \( aL_{inf} \) occurs and the object remains post-verbal, marked with genitive case (see 4b).

(4) a. Ba mhaith leis [PRO é \( a \) cheistiů].

He would like to question him.' [Ó Siadhail, p. 257]

b. . . . tar éis iad féin \( a \) shábháil na gcéata.

. . . after they-EMPH \( aL_{inf} \) save the hundreds-GEN

. . . after they themselves saved hundreds' [Ó Siadhail, p. 256]

I propose to account for the two respective dialectal patterns as follows: In NI, where \( aL_{inf} \) is restricted to internal arguments, we can assume that the verb raises partially, perhaps to an aspectual position below the base-position of the subject, and thus remains unavailable for external arguments. If this position checks accusative Case, argument shift of the object DP is triggered. In SI, where \( aL_{inf} \) also occurs with overt subjects, we need to assume that the projection where \( aL_{inf} \) occurs is higher than the base-position of the subject DP.
Let us assume that the verb raises higher in SI (perhaps to a VP-external aspect projection), and here the subject raises to check Case in a specifier-head configuration. If there is no lexical subject, the object is attracted to be Case licensed.

The relevant generalisation that emerges from these patterns is that the particle al_{inf} is associated with the licensing of a lexical DP argument. More specifically, al_{inf} occurs if and only if the verb enters a specifier-head licensing configuration with one of its DP-arguments. We may thus view al_{inf} as an agreement element that reflects a specifier-head configuration of the verb and any of its DP arguments. Whether this is an external or an internal DP argument is dependent on how high the verb raises: in NI, it appears to raise to a position that is inaccessible to the external argument, hence al_{inf} never occurs in the context of licensing a (deep) subject. In SI, al_{inf} occurs with subjects, and we therefore conclude that the verb raises to a position outside of the highest VP projection.

2.2 Wh-movement in Irish

Turning to wh-constructions, we observe the following: a particle with the same morphophonological properties as the particle just discussed, namely al, appears obligatorily when either the subject or the object is wh-moved:

(5) a. Cén fear a chonaic tú _?
   which man al saw you
   ‘Which man did you see?’

b. An fear a chonaic sé _.
   the man al saw he
   ‘The man that he saw.’

c. Cén páistí a d’imroedh _ anseo?
   which children al play-COND here
   ‘Which children would play here?’

Traditionally, the particle al occurring in these constructions is analysed as a particle distinct from al_{inf} (see McCloskey 1990). Specifically, al is analysed as a complementizer. This is motivated by the fact that it occurs in complementary distribution with the normal embedding complementizer go/gur. In particular, it appears to replace it in A-bar constructions in finite VSO structures. There is, however, yet another particle in wh-constructions, aN. This particle typically occurs in resumptive pronoun constructions:
McCloskey thus distinguishes between the two particles, aL and aN, in terms of a movement versus resumptive strategy: aL is a C agreeing with an operator in its specifier that binds a non-pronominal variable, while aN agrees with a (base-generated) operator binding a pronominal variable. The problem with this approach is that aN is also found in constructions that look very much like they are the result of movement since they involve an obvious gap. This occurs in cases where something other than a subject or an object DP is wh-moved. Quoting from Ó Siadhail (1989), "questions involving prepositions and phrases expressing 'why?', 'how?', 'where?' 'what time?' are followed by an indirect relative". (Ó Siadhail 1989: 318). This is illustrated by the examples below (example (7b) is a relative clause).

(7) a. Cén fáth a dtáinig tú.
   which reason aN came you
   'Why did you come?' [McCloskey 1979: 169]

b. An áit a raibh muid __.
   the place aN were we
   'The place where we were' [McCloskey 1979: 171]

c. Céard leis a ndearna tú é?
   what with-3sg aN did you it
   'With what did you do it?'

I analyse (7c) as an example of P-pied piping. Note that the wh-word precedes the preposition, which agrees with it. I take the word order to indicate that the wh-element is in Spec PP and that the agreement on P is a result of Spec-head agreement. An alternative to (7c) is P-stranding, in which case the preposition also agrees, and where we also find the particle aN:

(8) Céard a ndearna tú é leis?
   what aN did you it with-3
   'What did you do it with?'

McCloskey (1990) analyses agreement on the preposition consistently as an indication that there is a resumptive pro. If however agreement may also be the result of a Spec-head configuration (as the post-positional pied-piping case suggests), the preposition stranding case may also be the result of movement, rather than resumption.
These problematic cases are at odds with McCloskey’s explanation of the aL-aN distinction in terms of a movement-resumptive dichotomy. The generalisation seems to be that wh-movement of a subject or object DP entails the particle aL, while movement of some other constituent or no movement (resumptive pronouns) entails the particle aN.

The proposal I put forth about aL avoids these problems, while at the same time exploiting the similarity of aL and the particle aL found in infinitives associated with object shift. Specifically, I propose that aL is not an agreeing complementizer, but that aL in wh-constructions is in fact the same element that we find in infinitives, that is aL\textsubscript{inf}=aL. The crucial generalisation seems to be the following: whenever the subject or object DP is positioned to the left of the surface position of the verb, aL occurs. In infinitives and tensed structures alike, aL represents an agreement element that reflects movement of subject/object DPs to, or through, their Case position. My proposal treats aL as the Irish equivalent of French participle agreement, which also occurs when the object is to the left of the verb (passives, clitics, and wh-movement; see Kayne 1989). Below is a derivation for a object and subject wh-extraction, respectively (I remain agnostic as to the precise identity of FP):

\begin{align*}
(9)\ a. \ & \text{Cén fear [FP tO a chonaic tú [VP tS tv tO ]].} \\
& \text{which man aL saw you} \\
& \text{b. Cén páistí [FP tS a d’imroedh [VP tS tv anseo ]].} \\
& \text{which children aL play-cond here}
\end{align*}

At a first glance this proposal appears at odds with the apparent non-clause boundedness of the aL-pattern (see example (1b)). It ceases to be at odds with this pattern if the aL in the higher clause is not triggered by the wh-phrase directly, but by the CP that it is extracted from. Under this scenario, aL does indeed reflect a clause bound process, specifically that of argument shift of the CP. Assuming that this approach can be substantiated, the aL pattern in long distance wh-dependencies thus serves to unveil a very interesting phenomenon, namely that of partial pied piping of CPs from which an element is extracted. Below, I return to a more detailed implementation of the proposal.

The analysis of aL as a Case related agreement marker goes back to earlier work of mine (see e.g. Noonan 1992). It is also reminiscent of Duffield’s (1991) treatment of aL as the head of T(ense)P. Both proposals at the time were challenged by the long distance pattern; the solution I presented in 1992 was that the wh-phrase had to move through the Case position of the CP (basically through the position that an associate expletive otherwise might
The present approach is a development of the earlier one and pushes the original idea to its extreme conclusion by proposing that the CP itself moves, a development that was inspired and made feasible by much recent work on remnant movement, particularly the kind that obscures previous movements by reestablishing the original word order.

2.3 Long distance movement

Let us now address long distance *wh*-movement in detail, where the particle aL obligatorily appears in each intervening clause (immediately preceding each verb).

(10) a. Cén páistí a chreideann Máire a dhéarfadh Seán a
which children aL believes M. aL say-COND S. aL
play-COND here

‘Which children does M, believe S. would say would play here?’

b. Céard a chreideann Máire [a dhéarfadh Seán
what aL believes Máire aL say-COND S. aL
[a dhéanfá __ ]].

aL do-COND-2sg

‘What does Máire believe Sean said you would do?’

Given the claims established in the preceding section, namely that aL is an indicator of argument shift, and given that A-movement is clause bound, the attested pattern suggests that *wh*-movement from a sentential complement involves object shift of the CP. In the most local clause, the particle aL results from movement of the subject, or object, respectively. In each higher clause, it reflects argument shift of the CP from which the *wh*-phrase is extracted. This suggests that CPs check Case in a specifier head configuration with the verb, similar to DPs, a hypothesis that may seem controversial given earlier statements (in particular in view of Stowell’s 1981 Case Resistance Principle). The most obvious potential problem with this claim is the fact, that on the surface, DPs and CPs do not behave on a par: CPs may occur as objects of passivised verbs, and generally do not seem to occupy Case positions. However, interestingly it appears that there is in fact an asymmetry between CPs that do and those that don’t have a *wh*-phrase extracted from them. I will return to this issue shortly.

Note that the theory presented here makes the following predication regarding passive constructions: it should be impossible to extract a *wh*-phrase
from a CP complement of a passivised verb (since the verb lost its Case licensing ability). The data presented in the next section confirm this prediction in an interesting way. Another prediction this theory makes is that if an element other than a subject or object DP is extracted, we should find aN in the lowest clause, and aL in each higher clause. Again this prediction is borne out in the data (as shown presently).

2.4 Supporting evidence

There are a number of constructions that lend support for the approach adopted here. One such construction concerns a pattern that is attested with long distance extraction of some constituent other than the subject or object. What we find here is the particle aN occurring in the local clause, and aL in each higher clause:

(11) a. Cé shíleann Máire a chreideann Seán ar labhair Nic leis.
   [who (aL) think M. aL believes S. aN spoke N. leis.]
   'Who does Mary think that John believes that Nic spoke with?'

b. An galar a chuala mé ar cailleadh muintir an oileáin leis.
   [the disease aL heard I aN was-lost people the island-gen leis.]
   'The disease from which it is thought the people of the island died.'

[McCloskey 1990]

Under an approach that relates the particles in the non-local clauses directly to the type of wh-phrase that is extracted, this pattern is problematic. Under the approach advocated here, this pattern is precisely what is expected: the absence of the particle aL in the local clause is expected, since neither the subject nor object DP is moved, while the particle aL in the matrix clause reflects object shift of the CP from which the wh-phrase is extracted. I analyse the particle aN in the local clause as an agreeing complementizer. The fact that the particle aN appears instead of the normal embedding complementizer in the local clause indicates that the wh-phrase moves to an A-bar position in its local clause. Note that until now I have remained agnostic as to whether wh-movement from CPs proceeds in successive cyclic fashion through intermediate specifiers of CP. I have merely suggested that
the apparent successive cyclic pattern of Irish wh-constructions may be better explained by postulating an iterated clause bound process of argument shift of the CP, and that the paradigm analysed in this way has served to reveal a process underlying wh-extraction from CPs that might otherwise have gone unnoticed. The evidence for the initial partial step provided by (11) does not a priori entail that the wh-phrase continues to move successive cyclically. I will return to this point in Section 3.1.

The second piece of supporting evidence involves CPs occurring after predicates that are lacking an external theta role, either certain types of adjectives or passivised verbs. These, in Irish, appear optionally with a nominative expletive subject. Interestingly, when wh-movement out of such a CP is attempted, the result is only well-formed if the expletive is absent. In the presence of an expletive, only the resumptive pronoun strategy is possible.

(12) a. Tá (sé) ráite acu go gceannóidh siad teach. 
   is it said at-them that buy-fut they a-house
   'It was said by them that they will buy a house.'

   b. Cén teach atá (*sé) ráite acu a cheannóidh siad?
      which house aL-is it said at-3p aL buy-fut they it

(13) a. Tá (sé) soiléir go gceannóidh Seán teach.
   is it clear that buy-fut Seán a-house
   'It is clear that Seán will buy a house.'

   b. Cén rud atá (*sé) soiléir a cheannóidh Seán _.
      what thing aL-is it clear aL buy-fut

I propose to interpret the obligatory absence of the nominative expletive sé as an indication that raising of CP has occurred, specifically that the CP has raised to the nominative Case position. In the examples (12a)–(13a) with an expletive, the CP has remained in situ, or at least has not raised to the nominative Case position. Crucially, only in the former case, that is when the CP has raised, is wh-extraction from CP possible. If this interpretation of the observed facts is on the right track, then they support my proposal, according to which CPs must undergo argument shift in order to be transparent for wh-movement.

2.5 CPs and Case

Let me recapitulate: the main proposal presented in the preceding sections is
that a CP containing a gap of a wh-phrase undergoes an argument shift operation. This conclusion was reached on the premise that aL is a particle indicating argument shift (as opposed to being a complementizer). In the foregoing section I presented some evidence suggesting that the argument shift operation involves movement to a Case position, since the CP seems to compete with the nominative expletive in constructions with passivised verbs and adjectival predicates. The proposal that CPs undergo movement to Case positions is not uncontroversial, since Case is generally thought to be a property of DPs and not of CPs, and furthermore, CPs have been claimed to be barred from Case position (Stowell 1981; Koster 1978). On the other hand, cross-linguistically, the claim that CPs are Case marked is not a novelty and has been proposed for a number of languages, including certain Austronesian languages.19 Note also that [+wh]-CPs are permitted to occur in Case position (e.g. as the object of a preposition). One possibility is thus that a CP can become [+wh] by virtue of spec-head agreement with a wh-phrase moving through its specifier (evidenced in the case of non subjects or objects through the agreeing complementizer aN). The claim that CPs undergo argument shift would thus no longer be problematic.

Note however a possible alternative: Koster’s (1978) arguments point to the fact that so-called sentential subject CPs must be topics; they do not necessarily preclude that the CP has passed through SpecIP, if I am not mistaken. It is thus possible that a CP may raise through the nominative position, but may not remain there, and needs to move to a higher projection (possibly topic or focus). The same may well be true for the accusative position.20,21 See Section 3.1, where I address the question of why movement of the CP should be necessary in order for a wh-phrase to be extracted with some speculative suggestions.

2.6 Deriving the correct word order

Let me now address the most disturbing aspect of my proposal, namely that apart from the particle aL we do not seem to have any ‘surface indication’ that the CP has indeed moved anywhere. Assuming that the proposal is nevertheless correct, there are essentially three possibilities: (i) the movement of CP is covert movement, (ii) there is subsequent extraposition of the CP, or (iii) a type of remnant movement reestablishes VSO order and thus obscures the fronting operation, a proposal that is in the spirit of what is argued for in
a series of recent work, such as Kayne (1998, 1999), Hinterhölzl (1996), Koopman and Szabolcsi (2000). The first option may be problematic for the following reason: if we assume that aL can indicate a covert fronting of CP, then we are confronted with the problem why the particle aL does not always occur in VSO constructions: Subject and object DPs, if they do not raise overtly, must by hypothesis raise to their Case position covertly in a framework that postulates covert (or feature) movement. We would thus expect the verb to consistently appear with the preverbal particle aL. This is clearly not the case. What seems to be the case is the following situation: although subjects (and perhaps also objects, see note 22) always move overtly in normal VSO structures, normal VSO structures do not exhibit the particle aL. The particle seems to occur exclusively when the subject or object DP precedes the verb, both in infinitive and in finite structures. With CPs, on the other hand, aL occurs in specific environments even if the CP does not linearly precede the verb. The environments where CPs trigger aL are the same as those where DPs trigger aL, namely when wh-movement occurs. Let us assume that CPs do raise to the left of the verb in these cases, but that this order is obscured through subsequent reordering. We are therefore left with option (ii) or (iii). Regarding the former, we might assume that the CP extraposes for prosodic reasons (this is proposed in McCloskey 1999a). On empirical grounds it may be hard to distinguish between these two options. The extraposition approach would presumably account for the patterns on the surface successfully. It is, however, the theoretically less attractive option, since it represents the less restrictive theory in that it permits rightward movement (contra Kayne 1998 and much subsequent work). Furthermore, CP-extraposition is generally associated with expletive it (subject or object), and this is precisely a construction that blocks wh-movement (see above in Section 2.4 and in Section 3.4 below). For these reasons I adopt the more restrictive option, namely that movement can only be leftward. I thus consider possibility (iii) here and propose the following: the constituent whose head is occupied by the verb, presumably TP, undergoes fronting and thus reestablishes the canonical VSO order of the language. In the local CP the wh-DP fronts triggering aL. In the next cycle the CP fronts, triggering aL on the matrix verb. Then the remnant TP is moved around the fronted CP, reestablishing the original order. Finally, the wh-phrase moves to Spec of CP, its ultimate position. Below I give a step by step derivation (notationally adapted from Kayne 1998):
The obvious question, which arises, concerns the motivation for this remnant movement rule. Stipulating that it occurs for the end of feature checking would be what the minimalist assumption would impose on us (since all movement must be driven by strong features). However, this would simply be restating the question. One possibility is that this type of movement is really not motivated by the checking of a feature. We might speculate that the reason for remnant movement is precisely what it does, namely reestablish canonical word order. It is not implausible to assume that word orders that radically depart from canonical word order are harder to process (and need special prosody, emphasis, in short, information structure related issues).\(^{24}\) For this reason, heavy constituents (such as CPs) may be completely barred from appearing in a non-canonical position, unless they constitute the main topic or focus of the sentence. In the cases under consideration, the CP itself is not topicalised or focussed, but a *wh*-phrase is. We might thus state the following condition on word order:

(15) Condition on word order

Heavy constituents such as CPs are barred from appearing in a non-canonical position unless they constitute the main topic or focus of the sentence.

It follows that remnant movement is forced to reestablish VSO order in the cases of *wh*-extraction, since the only constituent that is permitted to appear in a non-canonical position is the *wh*-phrase itself. Interestingly, Müller (1999, and this volume) argues for a motivation of remnant movement precisely along these lines. He distinguishes between two types of remnant movement, one of which satisfies conditions on feature checking, and a second type whose
sole purpose appears to be to reestablish canonical word order, in his terms to satisfy the constraint *Shape Conversation*. The latter type is the kind that is operative in obscuring various overt movement operations argued for in sentences containing negative quantifiers etc (see Kayne 1998). It is also this latter type that is operative in the Irish cases under discussion.

2.7 Counterexamples: aL occurring with elements other than S or O

In this section I will briefly address a number of constructions that constitute potential counterexamples to the proposal advocated here. We can mainly group these into cleft constructions and comparatives, certain adverbial clauses, and questions and relatives involving certain time, place and manner adverbials. Let me address the latter in some detail.25 These are certain adverbial interrogatives and relatives that can optionally appear with aL, involving time, place, and manner adverbials; some examples a given in (16a/b). This is potentially problematic for the theory advocated here, namely that aL is a particle signaling argument shift.

(16) a. Cá h-uair a thiocfas tú ’na bhaile?
    what time   aL come[fut-wh] you home
    ’When will you come home?’ [McCloskey 1999b: 7]
   
b. Caidé mar a rinne tú é?
    how   aL did you it
    ’How did you do it?’ [McCloskey 1999b: 29]

In these cases, aL and aN are usually interchangeable, subject to some dialectal variation. I would like to suggest two possible scenarios to account for these. One capitalises on the fact that the adverbial elements are nominals; it is thus not inconceivable that aL is indeed a reflex of these elements being licensed in a Case position. We know from some other languages, such as German, that nominal adverbial expressions can be marked with Case.26 Thus, the fact that these types of constituents can occur with aL in Irish may reduce to the fact that they are in fact licensed by the verb with Case. However, there is a potential problem here. Note that my account makes a link between aL found in A-bar constructions and aL found in infinitives. Adverbial NPs to my knowledge do not undergo object shift, triggering aL, in infinitives.27

(17) a. Ba mhaith liom [Seán an caora a mheá ar an bhfeirm].
    I-would-like Seán the sheep aL weigh on the farm
    ’I would like Seán to weigh the sheep on the farm.’
Another interesting possibility worth pursuing is that wh-movement of certain adverbials licenses topicalisation of subject and object DPs, meaning allows them to move higher, thus triggering aL. This idea is inspired by a fairly recent analysis of French stylistic inversion by Kayne and Pollock (1999). The authors argue that stylistic inversion involves the topicalisation of the subject to a position higher than IP, which is then followed by remnant IP movement. This process is licensed in CPs that involve wh-movement. In a similar vein, we might speculate that the instance of wh-movement from the CP in Irish licenses subject topicalisation, which would then trigger aL in familiar fashion.28 A piece of data in favour of this line of investigation is that reason adverbials never occur with aL, just as they do not license stylistic inversion in French, which has been explained by assuming that they are merged directly into SpecCP. A number of questions remain with this latter approach, particularly the question of why certain types of wh-phrases, such as PPs would not license subject topicalisation and thus the occurrence of aL.29

Let us recapitulate. The central generalization this chapter attempts to account for is that wh-extraction of subjects and objects entails the particle aL in the local clause and in each higher clause, and that other elements, which trigger aN in the local clause can also occur with aL in the higher clause. Since extraction may be either out of complement (i.e. object) clauses, or subject clauses, the proposed explanation for the observed pattern is that the particle aL is a by-product of argument shift of subjects or objects, be they of the category DP or CP. As this generalisation is robust across dialects, the central claim that CPs are pied-piped with wh-movement is not actually undermined by the data presented in this section.

3. Extending the analysis

3.1 Partial movement

The mechanism that I have argued is involved in wh-extraction, namely CP-shift, is in my opinion, closely related to a construction that has received much attention in recent years, namely that of partial wh-movement. Partial movement (henceforth PM) can be characterised by the following properties: the
wh-phrase fronts partially to a clause initial position in the local clause. The higher clause(s) contain(s) a scope marker, often the language specific equivalent of English 'what' (henceforth WHAT). The following sentences are examples from German, Hungarian, and Hindi, respectively.

(18) Was glaubt Marie mit wem Karl gesprochen hat?
    what believes M. with whom K. talked has
    ‘With whom does Mary believe that Karl talked?’

(19) Mit gondolsz, hogy kit láttott János?
    what-acc think-2sg that who-acc saw-3sg John-nom
    ‘Who do you think that John saw?’

(20) Siitaa-ne kyaa socaa ki ravii-ne kis-ko dekhaa
    Sita-erg what thought that Ravi-erg who saw
    ‘Who did Sita think that Ravi saw?’

There are several types of analyses that have been proposed to account for this construction, and a thorough discussion would be beyond the scope of this chapter. I will summarise the three major types of approaches, which essentially differ with respect to the way in which the scope marker WHAT is analysed. We can roughly distinguish between the direct dependency approaches, which postulates a direct link between WHAT and the contentive wh-phrase (e.g. McDaniel 1989), and an indirect dependency approach, denying such a direct link. The former approach treats WHAT as an A-bar expletive and the wh-phrase as its associate. The latter approach can be subdivided: Dayal (1994), a semantic based approach, argues that WHAT is not an expletive but a wh-operator that ranges over propositions. The other indirect dependency approach resembles the direct dependency approach in that it treats WHAT as an expletive (Mahajan 1996; Fanselow and Mahajan 1996; Horvath 1997). However, it treats it not as an A-bar expletive but as an A-expletive with the CP that contains the contentive wh-phrase as its associate.

This latter analysis of PM bears a remarkable resemblance to what I argue underlies the Irish pattern, the difference being that, whereas in Irish the CP itself is argued to move, in the partial movement construction an expletive associate, agreeing with the CP in wh-features, undergoes movement instead of the CP. The movement of the expletive instead of the CP results in the contentive wh-phrase remaining internal to its originating clause. What both approaches share is the assumption that the CP containing the A-bar bound site is directly or indirectly involved in the process of long distance wh-
extraction. The reminiscence of my proposal to Mahajan and Fanselow’s analysis of PM is all the more striking as they share something else. Note that in PM the wh-phrase does not in fact remain in situ but is fronted in its local clause. This is the case in German, and in Hungarian (in the latter language wh-phrases move to Focus position).33 Returning to Irish, the fact that the particle aN appears instead of the normal embedding complementizer in the local clause in examples like (11), as well as the partial fronting of the wh-phrase in PM constructions, suggests that wh-movement does not proceed directly to its ultimate landing site, but moves at least through one intermediate A-bar position in its local clause. As I already pointed out in Section 2.4, the evidence for the initial partial step does not a priori entail that it continues to move successive cyclically. In fact, what the conclusions of this chapter suggest is that instead of the wh-phrase moving on successive cyclically, the whole CP is pied-piped after the initial step. If this is correct, then the often cited morphological evidence from the Irish aL . . . aL-pattern in favour of successive cyclic wh-movement is spurious evidence. There is evidence, albeit coming from a fairly rare pattern, in which the particle aN occurs in each intermediate CP.34 If aN is indeed correctly analysed as an agreeing complementizer, this pattern does indeed constitute evidence for successive cyclic wh-movement — the particle aN here does in fact seem to be triggered directly by the wh-phrase. Let us assume for the sake of the argument that this conclusion is correct, and that we can generalise from this that wh-movement always occurs in successive cyclic fashion through intermediate A-bar positions. The two patterns can thus be distinguished along the terms of what undergoes successive cyclic A-bar movement. In the one case, the aN . . . aN-pattern, it is the wh-phrase itself, and in the other it is the wh-phrase in the local clause, while each subsequent step pied-pipes the CP, producing the argument shift particle aL in each intervening clause. The final step extracts the wh-phrase out of the CP most deeply embedded CP.35 Interestingly, the particle aN in the higher clause is only found when A-bar binding involves the object of a preposition, a PP, or an adjunct. It is never possible with subject or object extraction. This asymmetry between DP-arguments of the verb and other elements may be related to the fact that CPs can undergo argument shift. If DP and CP share a nominal feature, then the fact that CP is obligatorily pied-piped in wh-extraction could be an A-over-A effect: if the attractor attracts a wh-element with a Case-feature, and the CP has turned [+wh] through spec/head agreement, then it can be only CP that is attracted, the closest category with the relevant features, not the DP inside CP.36, 37
The question remains of what motivates successive cyclic movement, and whether its landing site is the specifier of the local CP. In a theory where movement must be triggered by feature checking, such as the minimalist program, we need to consider what feature is checked. The intermediate CP projection is not interrogative, so it is unclear how it can be a \textit{wh}-feature. A possibility might be that it is a Focus feature that attracts the \textit{wh}-phrase. This is supported by the fact that in Hungarian \textit{wh}-phrases move to focus position. Let us assume that both the initial movement of the \textit{wh}-phrase and the subsequent CP-pied piping movements are instances of focus movement. The argument shift operation, evidenced through the particle \textit{aL}, is thus a byproduct of focus movement. There are some considerations which suggest that this line of reasoning might be on the right track. Erteschik-Shir (1973) provided evidence and argued for a non-structural, semantic based account of the bridge phenomenon. The generalisation she put forth is that those predicates classify as bridge predicates, which permit a focused interpretation of their complement. Thus, perhaps focus is a relevant condition for a domain to be transparent for extraction. If Focus involves movement to a Focus projection, then the CP-shifting operation is accounted for. I will leave the issue with these speculations for further research.

### 3.2 English and other languages

The analysis of \textit{wh}-extraction proposed in this chapter, as unorthodox as it may be, may also be warranted for languages such as English and German. It is well known that certain verbs can occur with an accusative expletive and an "extraposed" CP. Crucially, \textit{wh}-extraction from a CP complement is impossible in the presence of such an expletive.\footnote{21} (21) a. What do you regret that John threw away?  
b. *What do you regret it that John threw away?  
(22) a. Who do you believe that John will kiss?  
b. *Who do you believe it that John will kiss?  

The traditional assumption of these constructions is that they constitute CP-extraposition. In that case, the ungrammaticality of these and the Irish examples (12b) and (13b) would result from a CED violation. However, an approach more compatible with current assumptions would take the CP to be in its base position in (21b) and (22b), while the expletive occupies the Case position. Under the latter assumption, the ungrammaticality follows directly, if the same
4. Conclusion

This chapter has argued that a particular pattern of preverbal particles appearing in successive subjacent clauses should be analysed as an iteration of the clause bound process of argument shift applying in each clause, rather than be taken as an indicator of successive cyclic wh-movement. The chapter does not provide arguments against successive cyclic wh-movement, but simply argues that what has been hitherto cited as visible evidence for the phenomenon in question may have been spurious evidence. This raises the question of what the status of successive cyclic wh-movement is in current theory. The two types of issues to consider are the theoretical motivation for postulating it, and morphological or word order phenomena that appear to render it visible. Let me first address the former issue. In a theory of locality such as the subjacency condition, successive cyclic wh-movement is indispensable. However, some of the phenomena it explained (such as the wh-island constraint) are subsumed under 'Shortest Attract' (Chomsky 1995). Thus, long wh-movement (i.e. 1-step movement out of embedded clauses) might be legitimate. Successive cyclic wh-movement is furthermore dubious within a theory that assumes movement to occur for the sole purpose of feature checking: what feature is being checked in the intermediate CPs? It is my hunch that answers to questions of transparency for wh-movement are going to lie within the realm of the interface of syntax and information structure. As for the second issue above, namely other purported markers of successive cyclicity, such as French stylistic inversion (Kayne and Pollock 1978), Spanish inversion (Torrego 1984), wh-agreement in Chamorro and Palauan: it is interesting to note that these constructions usually do not implicate evidence of the complementizer system directly. The challenge for future work is to show that each of these phenomena can be reduced to similar processes as those I have argued for Irish.

Notes

* This chapter has been presented at various earlier stages in Los Angeles, at University of Toronto, and at WCCFL 18. I thank the respective audiences for their helpful comments,
and also the audience at the Workshop on Remnant Movement, feature Movement and their implications for the T-model in Potsdam. Particular thanks to Dominique Sportiche and Anoop Mahajan for more extensive discussion of some of the issues involved, and to Richie Kayne and an anonymous reviewer for helpful comments and questions on an earlier draft. Thanks to Máire Ni Chiosáin for providing some of the judgments. Needless to say, all errors are mine.

1. For the purpose of this chapter I remain agnostic as to the precise position of the finite verb in Irish; it is largely tangential to the issues discussed here, though ultimately relevant. See Bobaljik and Carnie 1996; Carnie and Harley 1998; Duffield 1995; McCloskey 1996; and others for some discussion.

2. Except in dialects where post-verbal genitive objects are disallowed, and where therefore transitive infinitival constructions are altogether avoided and expressed as tensed complements.

3. In minimalist terminology: aL is a strong feature.

4. The motivation for the assumption that the verb moves higher in SI is entirely based on the fact that aL occurs with external arguments in that dialect, but not in the other. To my own knowledge there is no independent evidence for this claim, coming for example from adverbs placement. Adverbs in Irish generally occur on the right edge.

5. See Noonan 1994 for a proposal along these lines. Note that Irish has a mechanism of licensing subjects in infinitives and small clauses in ungoverned positions (see Chung and McCloskey 1987). I assume that it is this mechanism that is responsible for the subject in constructions such as (3a) in NI (unless they are in an ECM context).

6. We analyse aL as an agreement particle, in spite of its failure to inflect for person and number features. Irish displays strict complementary distribution of person-number marking and overt DPs: we only find person-number inflection with pro, overt DPs occur with 3ps default agreement. It is therefore not surprising that aL does not inflect. In Scottish Gaelic, it inflects with pro objects. (See Adger 1996 for discussion of these issues, and also Noonan 1995, where I propose to treat person-number marking in Celtic as 'clitic-morphology', rather than as agreement in the usual sense.)

7. Traditional grammars refers to the aL pattern as the direct, and the aN pattern as the indirect relativisation strategy.

8. I briefly return to aN in Sections 2.4. and 3.1.

9. There is some cross-linguistic support for this coming from Literary Welsh (IW), which also exhibits direct versus indirect strategies in wh-constructions. IW differs from Irish in that it permits echo pronouns doubling agreement:

(i) Mae Wyn yn sôn amdano (ef)
   is-3s Wyn pro speak about-3sm (him)
   ‘Wyn is speaking about him.’

   Interestingly, the echo pronouns are not possible in A-bar constructions where the object of the preposition is questioned or relativised, unless they occur in a syntactic island, such as a coordinate structure or a complex NP:
(ii) a. Y dyn y soniais (i) amdano (*ef).
   the man comp talked-1s I about-3sm (him)
   'The man who I talked about.'

   b. Y dyn y soniais [amdano (ef) ac Ann].
   the man C spoke-1s about-3sm him and Ann

This asymmetry suggests that non-islands involve gaps, whereas islands involve RPs. It follows that P-stranding in LW does not involve necessarily resumptive pronouns, a conclusion that is drawn in De Freitas and Noonan 1991. The agreement on the preposition is therefore not indicative of the presence or absence of an RP. As much as one may generalise from LW to Irish, this might suggest that P-stranding constructions may actually contain gaps in Irish too.

10. There is an interesting exception in headless relatives such as the examples below (thanks to Ken Hale, p.c.) for bringing these examples to my attention):

   (i) Is leat a bhfuil __ agam.
      cop at-2s aN be __ at-1m
      'All I have is yours.'

   (ii) D’ól sé a bhfuair sé.
      past-drink he aN got __
      'He drank all he got.'

Here we find the particle aN although in each clause there is a gap of a subject and object DP. Neither McCloskey’s nor my analysis predict aN in these cases. I don’t understand this pattern, but perhaps the reason we do not find aL here is related to the absence of a lexical noun that needs to be licensed by Case.

11. Duffield 1995 has argued that morphosyntactically aL does not behave on a par with other complementizers, thus further undermining the assumption that aL is a complementizer element. (See however the reply to this in McCloskey 1999b). For a more detailed discussion and critique of McCloskey’s proposal in terms of resumptive vs movement strategy, see Duffield 1995; Noonan 1998. De Freitas and Noonan 1991 and De Freitas 1993 illustrate a similar point for the two strategies found in Literary Welsh.

12. The precise statement of the generalization should be: Whenever the subject or object DP has raised to or through a licensing position and is positioned to the left of the surface position of the verb, aL occurs. The way it is stated in the text is does not cover NI intransitive infinitives such as (3b) above, where the subject preceded the verb but no aL occurs. (Thanks to R. Kayne for pointing my attention to this fact.) The assumption about (3b) is thus that the subject has truly remained in situ, (recall from note 5 that Irish has a mechanism of licensing subject in small clauses in ungoverned positions (see Chung and McCloskey 1987)).

13. There appears to be a significant difference between aL, and aL in wh-constructions: aL, in some dialects (including Scottish Gaelic), shows rich agreement with (null) pronominal objects, which we never find with aL in wh-movement constructions (thanks to Andrew Carnie (p.c.) for raising this point). I propose to relate this to the anti-agreement
effect found in Irish and Welsh subjects and Literary Welsh (LW) objects is VSO structures. 

LW differs from Irish in that it can have object agreement with pronominal objects in finite 

VSO structures (traditionally referred to as infixed pronouns). This object agreement 

marker is excluded with wh-moved objects. In Noonan 1995, I propose to account for this 

anti-agreement by assuming that person number marking in Celtic is on a par with clitic 

projections in the sense of Sportiche 1998. The anti-agreement effect then reduces to a 

general incompatibility of wh-DPs with these specificity licensing projections. This is the 

case for verbal agreement, but not for agreement on prepositions or inside nominal phrases, 

where person-number marking does not have the same interpretive effect. (See Noonan 

1995 for a more detailed discussion.) I tentatively suggest that the same is the case with al. 

in infinitives in the dialects concerned. Note also that there is a distributional difference 

between al in wh-constructions and al in infinitives, namely that the former has a broader 

distribution than al_inf: While it is true that movement of subject and object DPs invariably 

triggers al, so does movement of certain other elements. I will address this issue in Section 

2.7.

14. In Noonan 1992 I related the al-pattern to the phenomenon of wh-agreement found 

in some Austronesian languages. I still believe strongly that what takes place in Irish is 

essentially the same phenomenon as we observe in those languages. See Nakamura 1996 for 

an analysis of CP movement in Tagalog (see note 37).

15. See among others Hinterhölzl 1996; Kayne 1998; Koopman and Szabolcsi 2000 for 

remnant VP movement, and in particular Kayne for assuming overt movements that are 

obscured by subsequent remnant movements reestablishing canonical word order.

16. Kayne (p.c.) points out that argument shift does not necessarily entail Case-marking. 

See Kayne 1999, who proposes a leftward movement of IP to a licensing position that is not 

equated to a Case licensing projection. However, the arguments presented below do 

decourage me to maintain that Case checking is implicated in the displacement operation 

of CPs in wh-constructions.

17. Thanks to Michel DeGraff (p.c.) for first drawing my attention to this implication.

18. Following McCloskey 1990. I differ from his analysis in assuming that it is an agreeing 

complementizer, no matter whether it binds a trace or a resumptive pronoun.

19. Interestingly in a similar context, namely that of wh-extraction. See Georgopoulos 

1990; Chung 1982, and others.

20. This also concerns Stowell’s 1981 arguments and the Case Resistance Principle.

21. In (i) is some evidence from Irish infinitives supporting the claim that CPs undergo 

argument shift. Recall from the discussion in Section 2.1 that infinitives exhibit OV order, 

accompanied by the particle al. Interestingly, in northern dialects the verb can appear with 

al with clausal complements. Since al normally only occurs with preposed objects in this 

dialect and has thus been analysed is as a marker indicating argument shift, the occurrence 

of al suggests that the examples in (i) involve argument shift of the CP. The CP has raised 

and at some point in the derivation precedes the verb, accounting for al. VO order then is 

established along the lines of remnant movement proposed in the following section. Note 

however that the CP in (ia) is not [+wh]. The exact conditions on this construction are
unknown to me; I leave them pending further research. See Ó Siadhail (1989: 258).

(i) a. Ní hionann é sin is a thuisceint [nach fiú é].
   neg same it-dem. cop aL understand NEG-COP worth it
   ‘That is not the same as understanding that it isn’t worth it.’

b. Ba mhaith leis a dhéanamh amach [cé a bhí ann aréir].
   he-would-like aL do-inf out who aL v. was there last night
   ‘He would like to discover who was there last night.’

22. It is also problematic to tie aL to phrasal movement only (rather than feature movement): McCloskey 1996 argues that subjects raise partially in the overt syntax (evidence involves certain adverbials that can occur following the subject DP). Another issue is the right-ward placement of pronouns, especially within an approach such as Duffield’s 1995, under whose analysis we would expect aL to occur with pronouns. See however Adger 1998 for critique and an alternative. See also McCloskey 1999 concerning this issue.

23. A point to note is that under my analysis wh-constructions with aL lack an overt complementizer. As noted above, part of the motivation for analysing aL as a complementizer under McCloskey’s system was that it replaces the normal embedding complementizer go. I will leave the question of why there cannot be an overt complementizer open. See Noonan 1998 for some ideas on null complementizers.

24. There are some intriguing judgements from German that Uli Sauerland (p.c.) presented me with that might point in that direction. For him any extraction out of dass-clauses is generally not well-formed. However, there appears to be a contrast for him if the dass-clause is preposed into the middlefield. Although this creates a cumbersome construction, the wh-extraction for the dass-clause seems to become less ungrammatical.

   (i) *Welchen Artikel glaubt jeder Student, dass er lesen sollte?
      which article thinks every student that he read should

   (ii) ?*Welchen Artikel glaubt, dass er lesen sollte, jeder Student?
      which article thinks that he read should every student

Although I have not been able to get confirmation for this intuition from other German speakers, I myself share Uli’s intuition that the extraction is less bad, although the construction is very cumbersome and needs special prosody and emphasis. It is a very subtle judgement (the preposed CP is quite cumbersome to process, aside from creating a presuppositional interpretation of it, which should make wh-extraction more difficult), but if a contrast truly exists, it might be interesting supporting evidence for my proposal. The German facts are left to further investigation.

25. As for cleft constructions, here we consistently find aL, regardless of what type of category has been clefted; cleft constructions always involve a gap of some phrase, and they always occur with aL. See the examples below; (ia) illustrates an example of a PP and (ib) a predicate cleft, and (ii) of a comparative clause.

(i) a. Is le Ciarán a imíonn Deirdre.
   cop with Ciarán aL leaves Deirdre
   ‘It is with Ciarán that Deirdre leaves.’ [McCloskey 1979: 113]
b. Is ág píntéail cathaoir a bhi an fear inné.

Lit. 'It’s painting a chair that the man was yesterday.' [Ó Siadhail 1989: 312]

At first sight this pattern appears to be predicted by McCloskey’s theory, namely that aL occurs with gaps and aN with resumptive pronouns. However, the challenge for his approach is to explain why various types of constituents, such as adjuncts, PPs, etc, can undergo movement in clefts, but not in interrogatives and relative clauses. While clefts are problematic for my proposal, clefts are somewhat of a mystery for any approach, simply because they behave differently; they do not exhibit the asymmetry that exists between wh-moved subject/object DPs and other types of wh-phrases that we find in relative clauses and interrogatives. Whatever theory captures the latter paradigm will have a problem with the former. I leave the issue open. The same holds for comparative clauses — here too we find aL regardless of the constituent targeted. As McCloskey (1999b) points out, aL can be found in all constructions that involve an operator variable binding (see Chomsky 1977). Certain adverbial conjunctions, such as nuair ‘when’, also occur with aL. In anticipation of what follows presently in the text, these constructions possibly involve subject and object topicalisation. However, note that stylistic inversion in French wh-constructions is always optional, and it would not be clear what would make subject (and object) topicalisation obligatory in clefts, comparatives, and certain types of adverbial clauses.

26. For example

(i) Sie hat den ganzen Tag geschlafen.
   she has the-acc whole-acc day slept
   ‘She slept the whole day.’

(ii) Sie hat den ganzen Tag dieses Lied gesungen.
   she has the-acc whole-acc day this song sung
   ‘She sang the song the whole day.’

27. It is conceivable that there is an asymmetry between DP-movement triggered by Case and A-bar movement in tensed clauses: adverbial NPs with Case may have a kind of Case that does not force Case shift movement (similar to inherent Case). However, by virtue of having a morphological Case feature, perhaps they trigger aL on the verb when in a specifier-head configuration with the finite verb for independent reasons (wh-movement). Note that German accusative temporal NPs do not participate in Case driven movement such as passivisation:

(i) *Der ganze Tag wurde gesungen.
   the-nom whole-nom day got sung
   ‘It was sung the whole day.’
   cf. Den ganz Tag wurde gesungen.
   the-acc whole-acc day got sung

28. Note however that the subject in Irish does not appear sentence finally. We would thus need to assume that both subject and object and any other constituents topicalise, followed by remnant IP movement.

29. There appears to be a substantial amount of dialectal and sociolectal variation. For
example, Ó Siadhail 1989 remarks in Munster one finds speakers who produce an al particle concurrent with PP movement.

(i) An bhfuil fhios agat . . . cad air a bhios ag cuimhneamh?
   Q is knowledge at-2s what on-3s al was prog thinking
   'Do you know . . . what I was thinking about?' [Ó Siadhail 1989: 319, gloss MN]

Ó Siadhail observes that there is a "definite tendency amongst younger speakers to generalise the al pattern" (Ó Siadhail 1989: 313). This generalised pattern could be accounted for as a result of a reanalysis of the particle al to an A-bar particle. The situation regarding al in A-bar constructions is prone to being unstable. Due to the co-existing particle aN frequently occurring with resumptive pronouns, al in A-bar constructions may very well bias the PLD to be reanalysed in precisely the direction that McCloskey argues for, namely that al is associated with gaps and aN with resumptive pronouns. These speakers would thus generalise al to all constructions that involve wh-movement, regardless of the category that is moved.

Note that this dialectal difference does not in itself challenge the central proposal of this chapter, namely that wh-movement from a CP involves argument shift of the CP. In fact, it is fully compatible with my proposal, since these dialects consistently employ al with object (or subject) movement (the entailment relation S/O wh-movement → al is to my knowledge robust across dialects). (With the exception of headless relatives mentioned in note 10.)

30. The claim is that a question like (20) should be analysed roughly as: What does Sita think? Who did Ravi see. See Dayal 1994 for this thesis, and Müller 1996 for a discussion of the problems of this approach poses for German.

31. Thanks to Anoop Mahajan for discussion and helpful input on this particular issue.

32. The movement of CP, on the other hand, does not seem to necessarily result in the contentive wh-phrase moving out of it, since we witness CP pied-piping constructions (e.g. the case of Basque, see Ortiz de Urbina 1990). Perhaps the following example is a case of CP pied-piping to SpecCP: What does he like do you think? (D. Sportiche p.c.)

33. This may also be possible in Hindi (Mahajan p.c.). Although Hindi is commonly viewed as a wh-in situ language, the typical position of wh-phrases is to the left of the verb, which could be interpreted as a sign that they move to the specifier of a Focus projection.

34. One of the few examples is given below:

   (i) Leag mé thart é san áit ar shíl mé a bhfuighinn aríst é.
   place aN thought I aN get-cond-1s again it
   'I put it where I thought I would find it.'

35. This last step is apparently language specific; see Bhattacharya and Simpson (2000) for a CP-pied piping analysis of wh-movement in Bangla where the wh-phrase is not extracted from the CP. There is an alternative to the present proposal, which is that wh-movement precedes CP-shift. Instead of CP-pied piping, the derivation would thus involve remnant CP movement (in addition to remnant TP movement). Within the framework recently developed by Koopman and Szabolcsi (2000) this would be necessary, since their system does not permit sub-extraction from a specifier. I leave this possibility open. The question of why remnant movement of the CP occurs, specifically what forces it in the case of subject or object wh-
movement would need to be approached in quite a different way than what is proposed here.

36. Interestingly, some Northern German dialects share this asymmetry between subject and object DPs on the one hand, and other elements (PPs, adjuncts) on the other: while the latter may be extracted from overt dass-clauses, the former may not. (In the latter case we find either the PM strategy, or embedded V2 in each intervening CP. See also note 24.) See Noonan 1998 for a discussion of the similarities between Irish and German.

37. See Nakamura 1996 for an interesting analysis of wh-extraction patterns in Tagalog, which is in a similar vein to the present proposal, namely in terms of an A-movement of CP. Nakamura’s account is set within an economy theoretic framework: the CP from which a wh-phrase is extracted must raise in order to minimize the number of nodes the wh-phrase must cross when it moves to its final landing site. Within his framework, CP-raising applies at LF, which forces him to assume a representational rather than a derivational account.

38. Or perhaps topicalisation. This would be the more appropriate operation in the case of relative clauses.

39. Richie Kayne (p.c.) points out that contrasting with examples (21/22) are constructions of the type ‘What do you consider it impossible to do?’. The difference here is that extraction is from an infinitival. This suggests that infinitival clauses do not have to undergo shift in order to be extractable out of. This would be accounted for, if we assume that infinitives are IP, whereas finite clauses are CPs. See Kayne 1999, where he shows that although Romance infinitives are nominal, they do not occur in Case positions.

40. The same can be shown for German.

41. Note that successive cyclic wh-movement does not necessarily bear on conditions such as the CNPC or the CED.

42. One would need to assume that C of bridge verbs have a strong D-feature only when a wh-phrase is extracted from them (besides, wh-phrases are not always DPs). (Cf Fanselow and Mahajan 1996 for this approach.)

43. Another important issue to consider are the Binding facts, where wh-phrases containing anaphors can pick up the antecedence in the intermediate SpecCP:

(i) [Which pictures of each other] do the children, think that Tim said [that Mary likes t ].

For lack of space I cannot address this issue here. However, if movement of the CP occurs to a position that is outside the scope of the subject in each respective clause, these facts may be accounted for without assuming that the wh-phrase moves through intermediate CP specifiers.

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CP-pied-piping and remnant IP movement in long distance wh-movement


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Chapter 13

Phrasal movement in Hebrew adjectives and possessives*

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1. Introduction

The Linear Correspondence Axiom (Kayne 1994), and in particular its reduction of the head parameter to movement, claims that constructions previously analyzed as right headed are in fact derived by leftward movement of the preceding constituent. If, for example, heads universally precede their complements at the base, Do-final structures must be derived by raising a nominal constituent past Do to its specifier, as in Nchufie, in (1), (from Moritz 1994):

(1) a. Míɲ pińcu wì/í.
   child Pincu this
   ‘This child of Pincu.’

b. Mεlɔɔ/ɔl作为一种 the
   child happy the
   ‘The (specific) happy child.’

c. Fòtò kεε/eng12ɔ yì/í.
   picture Kengo this
   ‘This picture of Kengo.’

d. [DP [NumP N... adj/poss ] the/this tNumP ].

Languages such as Nchufie with an overt determiner following the head noun and its modifiers provide strong evidence for a nominal raising operation which fronts a phrasal constituent. In this chapter I argue that phrasal movement within DP is in fact more pervasive than the surface position of Do-related morphemes would lead one to expect. In particular, it is proposed that XP raising to spec DP derives some noun initial orders in Hebrew DPs, a language in which the definite marker occurs in DP initial position. This implies that ha- in (2) is directly generated on the noun it is prefixed to:  

```plaintext
[DP [NumP N... adj/poss ] the/this tNumP ].
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The goal of the chapter is to show that N-initial orders in Hebrew are derived by various types of movement and to examine the properties of the different movement operations involved. In particular, it is proposed that while construct state nominals (in 3) are derived by head movement (as previously argued in Ritter (1988), (1991), Siloni (1997), and Fassi Fehri (1989), (1993)), attributive adjectival constructions (in 4) are derived by pied-piping an NP/DP constituent across an adjectival head, and free state genitive constructions (in 5) are derived by raising a remnant NP/DP from which the genitive argument has been extracted.3
The remnant movement derivation proposed for (5) does not pattern neatly with neither remnant VP-topicalization of the German/Dutch type, nor with the sort of remnant movement argued in Kayne (1998) to be associated with overt quantifier raising in English. Similar to Kaynian remnant movement it is not attested independently of prior extraction from within, yet it appears to target an A-bar position on a par with VP topicalization. And in contrast to both remnant movement types, nominal raising in (5) is obligatory and seems to be triggered by the very features that attract head movement in (3).

Furthermore, phrasal movement within Hebrew DPs is itself heterogeneous. While both the adjectival DP in (4) and the genitive DP in (5) attest to obligatory NP movement to spec DP, the details of these movement operations are substantially different. Most significantly, pied piping of NP across an adjectival head cannot proceed successive cyclically; further raising of NP past higher adjectives requires pied piping of the containing constituent. In contrast, a remnant NP in spec DP may continue successive cyclically to higher specifier positions. The observed differences between these movement types poses the question of how best to distinguish between them. Comparison of the various fronting operations shows phrasal movement to be available as a last resort, suggesting a general preference for moving as little material as possible. Section 2 motivates an analysis of NP pied-piping across attributive adjective heads, Section 3 presents evidence for remnant movement in multiple genitive constructions, and Section 4 integrates these proposals into an analysis of multiple-adjective multiple-genitive DPs.

2. Attributive adjectives

2.1 Phrasal movement and mirror image ordering

In the course of developing an antisymmetric argument for generating nominal modifiers as left-hand specifiers universally, Cinque (1996) notes that cross-linguistically, mirror image modifier order is attested only in postnominal position. In other words, to the right of N° both Dem–Num–Adj and Adj–Num–Dem are attested, but to the left of N° only Dem–Num–Adj is attested. In order to capture the relation between reverse sequential ordering and postnominal position, Cinque (1996) proposes a derivation in which modifier placement is directly implicated in the operation which fronts the head noun. Starting out with the structure in (6) in which the relevant
modifiers are base-generated in specifier positions of functional heads,

\[(X \ldots [Y \ldots [W \ldots [Z \ldots N]])]]\]

the NP constituent raises to a position between W and ZP, crossing the
adjective; the lower WP then raises to a position between Y and WP, crossing
Num; and finally, the lower YP raises to a position between X and YP, result-
ing in N–Adj–Num–Dem. This section discusses reverse sequential ordering
within the class of adjectives, and an extension of the phrasal movement
analysis is proposed to account for the relationship between postnominal
order and relative order among adjectives in Hebrew.\(^4\)

Attributive adjectives occur in Hebrew in post-nominal position and agree
with the head they modify in gender, number and definiteness. In addition,
their relative ordering is reversed compared to that of English and other Ger-
manic languages, as in the following sample of examples from Shlonsky (2000):

(7) a. A brown Swiss cow.
   Para Svecarit xuma.
   cow swiss brown 'A brown Swiss cow.'
   c. *Para xuma Svecarit.

(8) a. My long black table.
   Ha-Sulxan ha-Saxor ha-arox Seli.
   the-table the-black the-long my
   c. *Ha-Sulxan ha-arox ha-Saxor Seli.

(9) a. A possible massive Israeli bombardment.
   Hafgaza isa’elit masivit efSarit.
   bombardment israeli massive possible 'A possible massive Israeli bombardment.'
   c. *Hafgaza efSarit isa’elit masivit.
   bombardment possible israeli massive
   d. *Hafgaza isa’elit efSarit masivit.

(10) a. Severe personal problems.
    Be’ayot iSiyot xamurot.
    problems personal severe 'Severe personal problems.'
c. *Be’ayot xamurot iSiyo.
problems severe personal

Demonstratives show similar gender/number/definiteness agreement and occur final in the adjective sequence:

(11) a. Ha-para ha-Svecarit ha-xuma ha-zot.
the-cow the-swiss the-brown the-this
‘This brown Swiss cow.’
b. Ha-Sulxan ha-Saxor ha-arox ha-hu.
the-table the-black the-long the-that
‘That long black table.’

The fact that Hebrew adjectives do observe ordering restrictions, albeit the reverse of the English pattern, supports proposals put forth in favor of a universal ordering of modifiers, and more specifically that adjectival modifiers of the type in (6)–(11) occur in designated, rather than adjoined, positions within DP (Cinque (1994), (1999), Crisma (1995), among others).5 Accepting a universal hierarchy of adjectives, mirror image ordering in postnominal position could still be derived from a semantic or cognitive preference for having certain adjectives closer to the head noun than others. The fact that cross-linguistically, postnominal adjectives are not necessarily reversed, shows, however, that the preference is not universal, strongly suggesting that these placement phenomena are syntactic in nature. In Welsh, for example, nouns precede adjectives and possessives, yet the unmarked order of adjectives is as in English (from Rouveret 1991):

(12) a. Llyfr newydd Dafydd.
book new david
‘David’s new book.’
b. Cwpan mawr gwyrrd Sieineaidd.
cup large green Chinese
‘A large green Chinese cup.’

While postnominal positioning does not entail reverse ordering, reverse order seems to be restricted to postnominal position. This is seen most clearly in Standard Arabic (henceforth SA). Adjectives predominantly follow the head noun, in which case they show the same reverse ordering as in Hebrew (SA examples from Fassi Fehri (1999)):
   tea-nom Chinese-nom green-nom excellent-nom
   'An excellent green Chinese tea.'

b. ʔal’ab-u bi-l-kurat-i 1-kabiirat-i 1-jamiilat-i.
   I.play with-the-ball-gen the-big-gen the-beautiful-gen
   'I play with the beautiful big ball.'

This situation contrasts with the order of prenominal elements. Numerals, for example, may occur in either pre- or post-nominal position. In prenominal position the ordinal precedes the cardinal as in English, but in postnominal position, the cardinal precedes the ordinal:

(14) a. The first five lectures.
   b. ʔawwal-u xams-i muhaadaraat-in.
      first-nom five-gen lectures-gen
   c. L-muhaadaraat-u l-xams-u l-ʔuulaa.
      the-lectures-nom the-five-nom the-first
   d. ??l-muhaadaraat-u l-ʔuulaa l-xams-u.
      the-lectures-nom the-first the-five-nom

The contrasts in (14) show a language-internal correlation between reverse ordering and N fronting, supporting a phrasal movement approach in which APs raise as part of a constituent containing the head noun. Assuming for now that Hebrew attributive adjectives are heads on the main projection line between Do and No, the derivation of a DP with a single attributive adjective is as in (15c):6

(15) a. Ha-mexonit ha-xadaSa.
    the-car.f,s the-new.f,s
    'The new car.'

b. Mexonit xadaSa.
   car.f,s new.f,s
   'A new car.'

c. \[ DP \[NP \[N the-car\]\] \[D¹ the- \[AP new tNP \].

A Dⁿ head hosting the definiteness agreement prefix associated with adjectives is sister to AP, and the adjectival head takes as its complement NP containing the head No. Following Borer (1989), Siloni (1997) and Sichel (2001), the definiteness marker is prefixed to Nⁿ and does not signal a full DP sister to Aⁿ. Sisterhood of Aⁿ and NP represents intersection of sets; on the standard assumption that only full DPs are assigned theta-roles, a predication or selec-
tion relation between $A^o$ and NP is correctly excluded. Raising of NP to spec DP is triggered by [−INT] definiteness features in $D^o$ and ensures feature matching between [+]INT [def] on $N^o$ and the head of DP. Assuming [gender]/[number] features in $D^o$, the configuration is on a par with English clauses in which the verb is lower than $I^o$ and agrees with the subject in spec IP. Evidence for the positioning of the adjectival definiteness marker in $D^o$, rather than generated directly on the adjective, is provided by the possible intervention of negation and some modifiers between prefix and adjectival head, in (16).

(16) a. [ha-mis’ada ha-lo kSerah ha-yexida be-bnei brak] nizgera
the-restaurant the-neg kosher the-sole in-bnei brak closed
ha-Savua.’
this-week
‘The only non-kosher restaurant in Bnei Brak closed this week.’

b. [ha-yladah ha-bilti memuSmat ha-SliSit] yac’a me-ha-kita.
the-girl the-neg disciplined the-third left from-the-classroom
‘The third non-disciplined girl left the classroom.’

c. Zot [ha-xulca ha-yoter miday yekara ha-axrona] Se-ani kona
this the-shirt the-too much expensive the-last that-I buy
ha-xoref.
this-winter
‘This is the last too expensive shirt that I’m buying this winter.’

d. Ze kvar [ha-pakid ha-legamrey mebulbal ha-revi’i]
this already the-clerk the-completely confused the-forth
Se-dibarti ito hayom.
that-talked.I with-him today
‘This is already the forth completely confused clerk I’ve talked to
today.’

On the minimalist-lexicalist assumption that inflectional material is base-generated on its stem, the possibility of intervening material between ha- and adjective suggests that adjectival ha- is not an inflectional component of the adjective in the same way that nominal ha- is. Instead, it is base generated as head of [−INT] $D^o$, and phonologically attaches to whatever follows, much like the clausal complementizer Se. In contrast, the head of a definite DP containing no adjectives will be phonologically empty, nominal ha- being part of the inflectional complex associated with and directly generated on $N^o$. Though the morpheme ha- is ambiguous, nominal and adjectival DPs are morphosyntactically identical, both headed by $D^o$}{−INT} [def].
Turning to the structure of multiple adjective sequences, $A^o$ must be allowed to occur as sister to DP which immediately dominates AP:

(17) a.  
\[
\begin{array}{c}
\text{DP}_1 \\
\text{spec} D' \\
\text{the-} A_P^1 \\
\text{this} D_P^2 \\
\text{spec} D' \\
\text{the-} A_P^2 \\
\text{big} D_P^3 \\
\text{spec} D' \\
\text{the-} A_P^3 \\
\text{red} \hspace{1cm} \text{[NP the car]}
\end{array}
\]

b.  
\[
\begin{array}{c}
\text{DP}_1 \\
\text{DP}_2 \\
\text{[NP the car]} D_P^2 \\
\text{D'} \\
\text{the-} A_P^1 \\
\text{this} \hspace{1cm} t_{DP_2} \\
\text{the-} A_P^2 \\
\text{big} \hspace{1cm} t_{DP_3} \\
\text{red} \hspace{1cm} t_{NP}
\end{array}
\]

The lowest adjective in (17a) has NP as complement and is dominated by $D^0$ containing $ha$-, as in (15c). This DP is in turn sister to $A^o$, dominated by an additional DP, and so on, such that the relative order of DPs containing adjectives is identical to Romance/Germanic. While for Cinque the order is regulated by selection of functional heads whose specifiers host adjectives, here selection is of an iterating DP. Such iterating $D$’s might be made sense of in
light of the type of evidence presented in Cinque (1999) for clausal functional
categories hosting adverbial specifiers, which correspond to various tense,
aspectual, and modality dimensions encoded in the clausal system. As it seems
rather unlikely that nominal projections contain as many functional distinc-
tions, and are therefore less forthcoming in providing independently attested
positions, the recursive structure in (17a) is independently motivated by the
overt form of iterating complementizer-like *ha*-10. The derivation proceeds as
in (17b): NP raises to spec DP3, DP3 raises to spec DP2, DP2 raises to spec DP1.
Each step in the derivation is triggered by a [−INT] [def] feature on the Dn
to whose specifier progressively larger DP constituents raise.11 Once checked, the
Dn feature is eliminated; hence NP embedded within DP_n in spec DP_{n+1} is
always the category against which D_{n+1}’s feature is checked. Multiple checking
by NP is possible due to the [+INT] status of its [def] feature.

The phrasal pied-piping derivation in (17) derives the correlation
between postnominal adjectives and their reverse order by having APs raise
as part of a larger constituent that contains N° as well. Still, it could be
claimed that AP fronting and N° raising are separate processes and attempt to
capture the dependence of the former on the latter in a different way. Fassi
Fehri (1999) denies a phrasal movement analysis on the typological grounds
that SA is not postpositional or ‘truly’ N-A, and argues, along the lines of
Chomsky (1993), that N° raising as ‘domain extension’ is necessary for
circumventing a potential Minimality violation incurred by raising of AP2
over AP1. For AP2 to cross AP1, on that analysis, N° must raise even higher,
resulting in N-AP2-AP1. While both approaches account for the dependence
of adjetival fronting on nominal fronting, the claim that N° raises indepen-
dently for domain extension adds the ingredient that N° ends up preceding
all adjectives. The empirical difference between the approaches boils down,
then, to the relative position of N°. Phrasal movement predicts that if AP2
precedes AP1, so will N° precede AP1; separate N° movement requires, in
principle, that N° also precede AP2.

The latter requirement appears to be too strong. The broader range of
word order permutations allowed in Definiteness Spreading (henceforth DS)
contexts in Greek strengthens the conclusion that independent AP raising
without nominal raising is unavailable, further supporting the phrasal move-
ment analysis which takes APs to raise as part of a containing nominal
constituent. It also shows that separate N° movement relative to adjectives is
not an absolute requirement. Crucially, the raising operation does not require
movement of noun past adjective generally.
Greek DS involves the optional addition of definite marking morphemes from left to right in front of adjectives and noun. It also licenses word order permutations not possible in non-DS DPs (examples from Androutsopoulou 1994):

(18) Ta tria kala vivlia
    the three good books
    ‘The three good books.’

(19) a. Ta tria ta kala ta vivlia.
    the three the good the books
b. Ta tria ta vivlia ta kala.
    the three the books the good
c. Ta vivlia ta tria ta kala.
    the books the three the good
d. Ta vivlia ta kala ta tria.
    the books the good the three
e. *Ta kala ta tria ta vivlia.
    the good the three the books
f. Ta kala ta vivlia ta tria.
    the good the books the three
    ‘The three good books.’

(18) shows a non-DS DP with one determiner and fixed order. (19a) is an example with full DS, allowing the order permutations seen in (19). Following Androutsopoulou (1994 1995), the nominal in (19b) has raised to a specifier higher than the low adjective, and in (19c) it continues to raise to a specifier position preceding the high adjective. (19d) shows raising of the constituent formed in (19b) past the highest adjective, on a par with the mirror image orders of Hebrew and Standard Arabic. The contrast with (19e) shows that raising of the good past the three must include raising of the books, accounted for if APs can only move parasitically, as part of a containing nominal constituent. Note, however, that N° need not be initial for AP₁ to precede AP₂, as seen in (19f); reverse adjectival order requires only that the nominal precede the crossed AP, as seen by the acceptability of both (19d) and (19f). (19f) provides therefore crucial evidence against an ‘extension domain’ analysis of Semitic N° movement. In the absence of a principled requirement for N° raising in the context of adjective reversals, the motivation for separate yet dependent N° and AP raisings disappears. It follows then that the Semitic
requirement for the noun to precede all adjectives must be due to factors independent of AP reversals per se, easily stated with phrasal movement since noun-initial order requires only a single step of movement across the lowest adjective, obligatory in Semitic and optional in Greek. Similarly, the phrasal movement approach provides a simple and straightforward account of the difference between Greek and Semitic, optionality of N-initial placement in Greek correlating with optionality of adjective placement generally. Given the proposal for an iterating Do introducing APs, raising to spec DP is obligatory in Semitic and optional in Greek, in general. An analysis with separate N0 and AP raisings, on the other hand, will have little to say about the relationship between Semitic and Greek, let alone the paradigm in (19).

Summarizing this section, consideration of DPs with multiple adjectives argues in favor of a phrasal movement analysis in which N0 raises as part of a DP constituent containing adjectives as well. The proposal for AP being introduced by an iterating functional category, overt in Semitic, receives independent motivation through comparison with Greek. The observation that crosslinguistically, optional/obligatory noun placement correlates with optional/obligatory adjective reversal is easily understood if the same category is involved, reducing to a single property of Do what may appear as a substantial crosslinguistic difference at first glance.

2.2 The head status of attributive adjectives

2.2.1 The landing site
The primary issue concerning adjective placement in Crisma (1995) and Duffield (1999) is whether they are adjoined or occur in designated positions, the latter including specifier and head position. The present proposal seeks to establish some criteria for determining the X-bar status of attributive adjectives and claims that at least in some languages adjectives are heads on the main projection line from Do to NP as previously argued in Abney (1987), Bernstein (1993) for Romance prenominal adjectives, Delsing (1993), and Androstoupoulo (1994). Evidence for the head status of Hebrew attributive adjectives is provided by differences, beyond word order contrasts, observed between adjectives with and without complements, and is further supported by the interaction of adjectives and possessives in Sections 3 and 4. The evidence to be presented depends, to some extent, on theory internal assumptions and considerations, so it is worth reviewing some of the arguments raised in favor of modifiers as XP specifiers, and to consider the
details of a phrasal movement derivation with adjectives in specifier position. A common argument in favor of various modifiers as XPs in spec is that they do not block instances of movement independently assumed to be $X^o$ movement, or that they do block movements assumed to be XP movement. In Rumanian, for example, N-initial order arises as a result of N-to-D raising, and demonstratives precede adjectives, as in (20a). Adjectives may also raise to a DP-initial position, as in (20b), though not across a demonstrative (examples from Guisti 1997):

(20) a. Baiatul acesta/acela frumos.
    boy-the this/that nice
    ‘This/that nice boy.’

    b. Frumosul (*acesta) baiat.
    nice-the this boy

    c. Baiatul frumos (*acesta).
    boy-the nice this

    d. Frumosul baiat (*acesta).
    nice-the boy this

Evidence for adjectives undergoing AP movement to spec DP in (20b) and (20d) is provided by the fact that the adjective may itself be modified, as in (21) (from Giusti 1992):

(21) Extraordinar de frumos portret
    very of nice-the picture
    ‘The very nice picture.’

So based on the motivated claim that adjectives front as XPs plus the observation that demonstratives block adjective raising but not noun raising it can be concluded that demonstratives are XPs. Similarly, Cinque (1999) argues for the specifier status of adverbs based on the fact that there must exist empty head positions between adverbs to host the past participle in its various positions, and to allow verb raising to cross them:

(22) a. Da allora, non hanno rimesso di solito mica piu sempre completamente tutto bene in ordine.

    b. Da allora, non hanno di solito rimesso mica piu sempre completamente tutto bene in ordine.

    c. Da allora, non hanno di solito mica rimesso piu sempre completamente tutto bene in ordine.
d. Da allora, non hanno di solito mica più rimesso sempre completamente tutto bene in ordine.

e. Da allora, non hanno di solito mica più sempre completamente rimesso tutto bene in ordine.

f. Da allora, non hanno di solito mica più sempre completamente rimesso tutto bene in ordine.

'since then neg have.they usually neg any longer always completely put all well in order'

Given a theory of locality relativized to X/XP movement, (22) on its own clearly shows that adverbs and verbs are distinct. Combined with the independent assumption that participle fronting is an instance of Xo movement, the conclusion that adverbs are in specifier position can be drawn. Adapting this type of argument to Hebrew DPs yields the opposite conclusion, that adjectives must be heads. On the well motivated assumption that N0 starts out low, it must have raised. Given mirror-image order, such raising must pied-pipe XPs. Thus the non-blocking effect of adjectives must be due to their head status.

The idea that adjectives are heads when NP movement is involved has two additional general advantages. First, it gives a straightforward account of adjectival agreement, by fully assimilating it to the better understood clausal agreement. As in subject/object verb agreement, the relation is asymmetric, the head element bearing [−INT] phi-features and the NP/DP in spec providing [+INT] features that check against head features. On the adjectives as specifiers analysis, AP and NP are both specifiers. Nothing else said, the mechanism triggering agreement remains obscure.

Consider now a derivation with adjectives in spec of a functional head and phrasal movement crossing the adjective. Assuming that multiple specifiers are excluded, the raising constituent cannot land in a specifier position of the same functional head the adjective is attached to. One possibility is to introduce another functional head above the head whose specifier hosts the adjective:

(23) a. \([FP_4 \ {\text{spec}} \ F_4 \ [FP_3 \ [AP_3] \ F_3 \ [FP_2 \ [NP_1] \ F_2 \ [FP_1 \ [AP_1] \ F_1 \ t_{NP_1} ]]]]]\\n
b. \([FP_4 \ [FP_2 \ [NP_1] \ F_2 \ [FP_3 \ [AP_3] \ F_3 \ t_{NP_1} ]]]\)

NP raises to spec of FP2 crossing the AP in spec FP1, as in (23a). Further raising of FP2 to spec FPa, again crossing the adjective, yields the desired order
N–Adj2–Adj3. On the analysis of adjectives as heads, no additional functional head beyond one dominating AP is required, and in that sense it is a simpler derivation. One could assume, on the other hand, that $F_1$ hosts definite adjectival ha-. Then raising of ha- to $F_2$ allows XP to cross the adjectival specifier and correctly produces ha- prefixation. Still, independent evidence for the existence of $F_2$ is missing. Everything else being equal, it would be preferable to do without $F_2$ if an alternative is forthcoming, as in the head analysis.

An alternative to (23) raises NP to spec of AP located in spec/adjoined to NP, in the spirit of the VP raising analysis of PP extraposition given in Barbiers (1995):

(24) a. $[VP_1 [PP_1 [VP_2 [PP_2 P DP] t_{VP_2} ]]]$

b. $[NP_1 [AP_1 [NP_2 [AP_2 A d j] t_{NP_2} ]]]$

Subsequent raising of NP1 to spec of an AP adjoined to a higher projection of NP gives reverse post-nominal ordering, as is the case for the ‘extraposed’ PPs for which the analysis in (24a) was originally designed. In order to provide for a c-command relation between the raised VP2 in spec of PP1 adjoined to VP1 and its trace, a connectedness approach is taken in which a constituent on a left branch — VP within PP within VP — forms an extended path with the minimal node — VP — dominating c-commander and c-commandee. This definition in effect eliminates the intervention potential of the embedding VP and PP, and in this sense (24a) is syntactically identical to a derivation in which VP raises to spec of a P merged higher than VP, in the spirit of Kayne (1999). Similarly, merging of A as sister to NP, with NP raising to spec of DP immediately above AP, requires no special c-command modifications.

A more substantial difference between (24b) and (23), and the head analysis proposed here, is the status assigned to adjectival complements. The present proposal excludes complements of attributive adjectives by generating NP as sister to A and claims therefore that adjectives which do take complements must be structurally distinct. I now turn to evidence supporting this view.

2.2.2 The distribution of simple and complex adjectives

In a number of languages it is possible to distinguish the position of adjectives which do take complements from those which do not. For example, prenominal adjectives in English do not take complements, postnominal ones do; adjectives preceding nominal complements in Italian do not take complements, adjectives following nominal complements do; adjectives obeying ordering restrictions in Standard Arabic may not take complements, adjectives...
violating sequential ordering may take complements (Italian examples from Cinque (1994); SA examples from Fassi Fehri (1999)):

b. A man proud of his daughter/a man responsible for his actions.

(26) a. I suoi fedeli (*alla causa) sostenitori.
   the his faithful to.the cause supporters
   'His faithful supporters.'
b. *I sostenitori fedeli alla causa di Gianni sono pochi.
   the supporters faithful to.the cause of Gianni are few
   'Gianni’s supporters faithful to the cause are few.'
c. I sostenitori di Gianni fedeli alla causa sono pochi.
   the supporters of Gianni faithful to.the cause are few
   'Gianni’s supporters faithful to the cause are few.'
d. *Quell’amico più simpatico di te di Mario.
   that friend nicer than you of Mario's

(27) a. S-suhufiyy-u  l-faransiyy-u t-tawiil-u.
   the-journalist-nom the-french-nom the-tall-nom
   'The tall French journalist.'
   the-journalist-nom the-french-nom the-original-gen the-tall-nom
   'The tall journalist of French origin.'
c. S-suhufiyy-u t-tawiil-u l-faransiyy-u l-?asl-i.
   the-journalist-nom the-tall-nom the-french-nom the-original-gen
   'The tall journalist of French origin.'

A similar pattern is found in Hebrew. While all adjectives are postnominal, an adjective with a complement is impossible between N and its complements, and grammatical in final position:

(28) a. Ha-tmuna ha-tluya (*al ha-kir) Sel van gox Sel
   the-picture the-hanging (on the wall) of van Gogh of
   the-sunflowers
   'The hanging picture by Van Gogh of the sunflowers.'
b. Ha-tmuna Sel van gox Sel ha-xamaniot ha-tluya al
   the-picture of Van Gogh of the-sunflowers the-hanging on
   the-wall
   'Van Gogh's picture of the sunflowers hanging on the wall.'
Ivy Sichel

(29)  a. Ha-tipul ha-mitxaSev (*ba-nesibot)
      the-treatment the-considerate (in.the-circumstances)
       ba-be’aya.
       in.the-problem
       ‘The considerate treatment of the problem.’

      b. Ha-tipul ba-be’aya ha-mitxaSev ba-nesibot.
      the-treatment in.the-problem the-considerate in.the-circumstances
      ‘The treatment of the problem considerate of the circumstances.’

(30)  a. Ha-haxlata ha-axra’it (*la-toca’ot) Sel ha-mordim.
      the-decision the-responsible (to.the-outcome) of the-rebels
      ‘The responsible decision of the rebels.’

      b. Ha-haxlata Sel ha-mordim ha-axra’it la-toca’ot.
      the-decision of the-rebels the-responsible to.the-outcome
      ‘The decision of the rebels responsible for the outcome.’

One question posed by the existence of distinct adjective positions is whether they are derivationally related or not. Kayne (1994), for example, argues that prenominal adjectives are relative clauses in which a ‘light’ predicative AP raises to spec CP:

(31)  a. [DP [D¹ the [CP [NP man] [C¹ [IP tNP [AP proud of his daughter ]]]]]]
      b. [DP [D¹ the [CP [AP proud] [C¹ [IP man tAP ]]]]]

Adjectives with complements are excluded from prenominal position by a general restriction against complex spec CP when C₀ is null, as in the following contrast:

(32)  a. I just read the book about your ancestors ?(that) your son pub-
       lished last year.

      b. I just read the book that’s about your ancestors *(that) your son
       published last year.

Alexiadou and Wilder (1998) extend this approach to indirect adjectival modification in Greek (in the sense of Sproat and Shih (1988)). Similar to Hebrew, Greek shows definiteness spreading. Recall that Greek definiteness spreading is optional and correlates with word order permutations:

(33)  a. To megalo kokkino vivlio.
      the big red book
      ‘The big red book.’
b. *To vivlio kokkino megalo.
the book red big

(34) a. To vivlio to kokkino to megalo.
the book the red the big
b. To megalo to kokkino to vivlio.
the big the red the book
'The big red book.'

The restriction of definiteness spreading to predicative adjectives supports the analysis of (34) as a type of reduced relative clause. On the Kaynian D-CP approach, each AP necessarily introduces a D₀ head:

(35) a. \[ [DP D₀[clause alpha AP ]] \]
b. \[ [DP D₀[ [clause [DP D₀[clause alpha AP ]] AP ]] \]

alpha stands for a simple DP subject or a DP containing a predicative adjective as in (35b). Raising of AP to spec of CP complement to D₀ yields (34b).

While Hebrew, like Greek, clearly distinguishes direct from indirect adjectival modifiers, the properties associated with each align differently. In particular, Hebrew definiteness spreading is not restricted to predicative or intersective adjectives (in (38)–(39)), unlike Greek (36)–(37):

(36) a. I italiki (*i) isvoli.
the italian the invasion
'The Italian invasion.'
b. *Is isvoli stin Alvania itan italiki.
the invasion of Albania was Italian

(37) a. O ipotithemenos (*o) dolofonos.
the alleged the murderer
'The alleged murderer.'
b. *O dolofonos itan ipotithemenos.
the murderer was alleged

(38) a. Ha-pliSa ha-italkit le-albania.
the-invasion the-italian to-albania
'The Italian invasion of Albania.'
b. Ha-pliSa hayta me-italia/*italkit.
the-invasion was from-italy/italian
'The invasion was from Italy.'
(39) a. Ha-xaver ha-kodem/ha-yaxid Sel rina.
the-friend the-former/the-single of rina
'The former/only friend of Rina.'
b. *Ha-xaver Sel rina haya kodem/yaxid.
the-friend of rina was former/single

Therefore, the Hebrew definite adjectival prefix should not be treated as $D^0$ which introduces CP. On the other hand, neither should the definite prefix associated with complex adjectives in (41), (43), and (45) be treated as agreement, on a par with the agreement associated with simple adjectives in (40), (42), (44):

(40) a. Ha-tmuna ha-tluya.
the-picture the-hanging
'The hanging picture.'
b. Tmuna tluya.
picture hanging
'A hanging picture.'
c. ??tmuna ha-tluya.
picture the-hanging

(41) a. Ha-tmuna ha-tluya al ha-kir.
the-picture the-hanging on the-wall
'The picture hanging on the wall.'
b. Tmuna *(Se-)tluya al ha-kir.
picture that-hanging on the-wall
'A picture that's hanging on the wall.'
c. Tmuna ha-tluya al ha-kir.
picture the-hanging on the-wall
'A picture that's hanging on the wall.'

(42) a. Ha-tipul ha-mitxaSev.
the-treatment the-considerate
'The considerate treatment.'
b. Tipul mitxaSev.
treatment considerate
'Considerate treatment.'
c. ??tipul ha-mitxaSev.
treatment the-considerate
The contrasts between (40) and (41), (42) and (43), and (44) and (45), show a difference in status between the *ha- associated with simple adjectives and that associated with complex adjectives. In the former it depends on the definiteness of the modified noun, but in the latter it is obligatory, regardless of the definiteness value of the noun. In fact, it does not have a definite meaning at all as can be seen in the (c) examples which all denote indefinite nominals. Extending the analysis of participial reduced relatives (henceforth semi-relatives) in Siloni (1995) to complex adjectives, the *ha- of complex adjectives instantiates a D* with an A-bar specifier, the nominal counterpart of C0. The subject DP raises to specifier of matrix DP as depicted in (46): 14
Siloni argues at length that the complement of *ha-* in participial semi relatives is a bare VP, excluding elements such as tense, negation, and adverbs which require functional structure beyond VP. The same holds for complex adjectives, seen in (47c), (48b), and (49b), in contrast to full relatives signaled by a *that* (=Se) complementizer:

(47) a. AnaSim ha-xoSvim rak al kesef.
    people the-think only about money
    ‘People that think only about money.’

   b. AnaSim Se/*ha-xaSvu rak al kesef.
    people that/the-thought only about money
    ‘People that thought only about money.’

   c. AnaSim Se/*ha-hayu axra’im la-toca’ot.
    people that/the-were responsible for.the-outcome
    ‘People that were responsible for the outcome.’

(48) a. AnaSim Se-/*ha- lo xoSvim rak al kesef.
    people that-/the- neg think only about money
    ‘People that don’t think only about money.’

   b. AnaSim Se-/*ha- lo axra’im la-toca’ot.
    people that-/the- neg responsible for.the-outcome
    ‘People that are not responsible for the outcome.’

(49) a. AnaSim Se-/*ha- tamid xoSvim rak al kesef.
    people that-/the- always think only about money
    ‘People that always think only about money.’

   b. AnaSim Se-/*ha- tamid axra’im la-toca’ot.
    people that-/the- always responsible for.the-outcome
    ‘People that are always responsible for the outcome.’

These facts together with the obligatory nature of complex adjective *ha-* in (41), (43), and (45) suggest that Hebrew complex adjectives have a clausal, predicative source, along the lines argued for Chinese indirect modifiers with *de* (Sproat and Shih 1988) and Italian (Cinque 1994). The word order differences between simplex and complex adjectives follow from the semi-relative analysis of the latter: complex adjectives will follow other DP-internal modifiers because they are external to the subject DP within which other modifiers are contained.15,16
Having distinguished simple from complex adjectives, I turn to simple attributive adjectives. Analyses which take attributive adjectives to project as APs in specifier position must explain why prenominal English adjectives along with N-adjacent postnominal adjectives in Italian, Standard Arabic and Hebrew, cannot take complements. A central argument for Cinque’s claim that Italian postnominal attributive adjectives are in fact left-adjoined (as opposed to right) is that they obey Emonds’ left branch restriction. That restriction states that constituents on a left branch (excluding a genitive in NP, and spec IP and CP generally) must be head final, as in the following examples (from Emonds (1985)):

(50) a. *The man without money’s request was denied.
    b. The house was three miles (*further than Sue’s) away.
    c. The play was especially (*for children) boring.

So if attributive adjectives are in a left-hand specifier, right branching complements are excluded on a par with (50). These facts do not directly distinguish between the specifier analysis and the head analysis as both predict lack of complementation. The prediction made by the specifier analysis, however, is less clear, being based on an empirical generalization for which an explanation is still pending. As such, it is entirely possible that the facts falling under the left branch restriction do not have a uniform source, as I now demonstrate for adjectival complementation and modification.

Besides complementation, the restriction covers adverbial modifiers for adjectives on a left branch, at least in English:

(51) a. Your letter arrived recently.
    b. *An arrived recently letter.
    c. A recently arrived letter.

Assuming (51b) to follow from the left branch restriction, the prediction is that if attributive adjectives in Hebrew are in specifier position, postadjectival modifiers should be ungrammatical as in English. But in fact adjectives may be modified by adverbials on either side:

(52) a. Ha-talmida ha-Sketa "miday ha-axrona.
     the-student the-quiet too the-last
     The last too quiet student.
    b. Ha-talmida ha-"miday Sketa ha-axrona.
     the-student the-too quiet the-last
     'The last too quiet student.'
The contrast between (28)–(30) (no right branching complementation) and (52)–(54) (right-hand modifiers) may be interpreted in one of two ways. It could indicate that the status of complementation and modification of adjectives with respect to the left branch condition is distinct, though obscured in English, right-hand modification not being subject to the same restrictions as complementation. On the assumption that all left-branch recursion phenomena are on a par, the possibility of a modifier following an adjective directly suggests that attributive adjectives in Hebrew are not on a left branch. Therefore, the complementation restriction has a distinct source, represented by adjectives having NP as complement. So if lack of complementation is taken to indicate a specifier analysis, the occurrence of adverbials to the right requires independent explanation. Otherwise, lack of complementation suggests head position from which the distribution of adverbials should follow. I briefly pursue the latter approach.

Supposing that modifiers of adjectives are in spec AP or DegP no principled ban on righthand modifiers is expected. The ban on complements follows from phrase structure, and positional adverbial permutations follow from optional A' raising crossing its modifier in specifier position, in (55):

(55) \[\text{DP D [AP adverb A NP]}\]

If the Hebrew analysis is on the right track it may shed some light on the ban on right-hand modification of adjectives, as in the English (51). Assuming the specifier analysis to be essentially correct for some languages, and the head analysis to be equally correct for others, it is highly unlikely that UG provides for both of the following at the base:
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(56) a. \([DP \ [AP \ A \ NP]]\)
b. \([DP \ [FP \ [AP \ \text{adjective}] \ F \ NP]]\)

Suppose then that AP specifiers arrive in this position via movement from their complement position in (56a), with or without prior N-extraction. As in Hebrew, adjectival complements are immediately excluded. Right-hand adverbials in languages with AP movement to spec F\(^o\) may now also be excluded: if these are uniformly derived by Adj\(^o\) raising past its specifier, AP raising to spec F\(^o\)/D\(^o\) (in (57)) will block Adj\(^o\) crossing of the modifier on its way to F\(^o\)/D\(^o\), because placement of AP in spec FP eliminates the potential of Adj\(^o\) to raise past its modifier to a higher head.

(57) \([DP \ [FP \ [AP \ \text{adverb} \ A \ (NP)] \ F \ t_{AP}]]\)

2.3 Demonstrative Placement and ‘Typological conflict’

The claim that Hebrew (and plausibly Standard Arabic too) N-A sequences are derived by phrasal movement may raise a typological eyebrow. Cinque (1996) relates the availability of NP raising across adjectives to its availability across prepositions, i.e. postpositionality. Hebrew however is not postpositional (neither is SA):

(58) a. Dibarti im/al ha-yeladim.
   spoke.I with/about the-children
   'I spoke with/about the children.'
b. *Dibarti ha-yeladim im/al.
   spoke.I the-children with/about

A phrasal movement approach to adjectival DPs suggests therefore that the typological correlation between postpositionality and N-A with reverse adjective order is not air tight, perhaps because the category of the phrase fronting in postpositions is not identical to the category fronted in N-reverse Adj structures (DP vs. NP); or because prepositional structures may derive from a ‘postpositional’ phase by head raising P\(^o\) across a previously fronted DP.

In any case, the Hebrew DP appears not to be an isolated example of ‘typological conflict’. The implication that NP movement does not strictly correlate with postpositionality suggests, furthermore, a phrasal movement approach to demonstrative placement alternations according to which demonstratives are generated highest in the adjectival sequence. Cinque (1996) notes that given underlying Dem(onstrative)-Num(ber)-N order, preposi-
tional languages (those with head movement but no phrasal movement) are expected to observe the orders in (59a–c), but not the order in (59d):

\[(59)\]
- a. N–Dem and N–Num  
- b. Dem–N and N–Num  
- c. Dem–N and Num–N  
- d. *N–Dem and Num–N

If N raises as a head past Dem, it necessarily precedes Num, in (59a), though it may raise less, either past Num alone, as in (59b), or to a position lower than Num, in (59c). It may not, on the head movement analysis, cross Dem without crossing Num. Hebrew and Welsh, among other languages, present counterexamples, since (59d) is attested:

\[(60)\]
- a. SloSet ha-yeladim ha-ktanim ha-elu. (Hebrew)  
  three the-children the-little the-these  
  'These three little children.'  
- b. Y pump llyfr newydd hyn gan John are wleidyddiaeth. (Welsh)  
  the five books new these of John on politics  
  'These five new books by John about politics.'

To account for this pattern, Cinque proposes that demonstratives are generated lowest in the sequence of adjectives. In some languages (French, Spanish) demonstratives raise overtly, and in Hebrew and Welsh they remain in-situ, following other adjectives.\(^\text{21}\)

A demonstrative-movement analysis is unavailable within the present approach, which denies independent AP raising.\(^\text{22}\) In other words, demonstrative-initial/demonstrative-final alternations cannot be derived by raising the demonstrative itself from a low position. The denial of independent adjective/demonstrative raising implies instead that an XP constituent containing noun and adjectives raises past a demonstrative head generated highest in the adjectival sequence. An advantage of XP pied-piping over independent demonstrative movement is its straightforward explanation of the fact that the alternation is precisely between initial and final positions in the adjectival sequence, assimilating it to the full reverse orderings of Hebrew and Standard Arabic. On an independent movement analysis, on the other hand, it remains accidental why the demonstrative ends up in initial position when it is not final, i.e. when it raises.

More concretely, the Welsh demonstrative in (60b) follows other post-nominal adjectives due to phrasal movement of the noun and its adjectives to
spec of the demonstrative, a high head. Welsh adjectival ordering besides demonstrative placement follows the English pattern, in contrast to the fully inverted Hebrew pattern (from Rouveret 1994):

(61) a. Cwpan mawr gwyrrd Sieineaidd.
    cup large green Chinese
    'A large green Chinese cup.'
 b. Buwch ddu gorniog.
    cow black horned
    'A black horned cow.'
 c. Y ferche fach dawel hon.
    the girl little smart this
    'This little smart girl.'
 d. Y llyfrau rhagorol hyn.
    the books excellent these
    'These excellent books.'
 e. Y fford gyl hon.
    the road narrow this
    'This narrow road.'

So suppose that in Welsh N°-movement raises the noun across XP adjectives in specifier positions, but that demonstrative placement is on a par with Hebrew, phrasal movement applying in the final step across a demonstrative head. Intervention contrasts in Welsh construct DPs (DPs with genitive complements and no determiner) support a demonstrative/adjective distinction along these lines. An adjective may be placed between the head noun and genitive but a demonstrative may not (from Rouveret 1994):

(62) a. Llyfr newydd Dafydd.
    book new David
    'David’s new book.'
 b. Merch bert brenhines ddoeth.
    daughter pretty king smart
    'The pretty daughter of a smart king.'

(63) a. *Mab hwn y brenin.
    son this the king
 b. Mab y brenin hwn.
    son the king this
    'The son of this king.'
Assuming an N° raising analysis of construct nominals (see below), an XP adjective in (61) would not block raising, correlating with the 'English' adjective pattern being derived by N° raising across adjectives rather than NP pied-piping of adjectival material. Assuming the Welsh demonstrative to be a head, the ungrammaticality of (63a) follows from an HMC violation, due to the blocking effect produced by the demonstrative head.23, 24

The phrasal movement analysis of adjective-final demonstratives predicts that these should be found only in postnominal position. If that turns out to be correct, reverse demonstrative placement shows that the 'typological conflict' found in Hebrew and Standard Arabic is in fact pervasive: phrasal movement may occur in prepositional languages as one step of derivation. Accordingly, the phrasal movement option should probably not be parametrized to distinguish full grammars, and not even construction types in the broad sense implied by typologies such as V–DP/DP–V, P–DP/DP–P, N–A/A–N, etc.

3. Genitive DPs

Consideration of multiple adjective constructions in the previous section has suggested that more than the noun alone raises to a position preceding adjectives. Interactions between genitives in multiple genitive DPs point to a similar conclusion, that a constituent larger than N° must sometimes be targeted by the operation which raises nominals across genitives.25 In contrast to the pied-piping approach to adjectival syntax, the syntax of multiple genitives attests to raising of NP to spec DP with prior Theme extraction from NP, i.e. a version of remnant movement.26

As is well known, Hebrew, like other Semitic and Celtic languages, has two genitive constructions, the free state (henceforth FS) and the construct state (henceforth CS):

(64) a. Ha-tmuna Sel ha-xamaniot. (free state)
  the-picture of the-sunflowers
b. Tmunat ha-xamaniot (construct state)
  picture.CS the-sunflowers
  ‘The picture of the sunflowers.’

In both the genitive DP follows the head noun. Among the many differences between the two, FS includes the genitive Case-related morpheme Sel, and its
head noun is marked for definiteness. In CS there is no Case morpheme or definite marker on the head noun; DP definiteness correlates with definiteness of the complement:27

(65) [man’ul [delet [beit ha-mora]]] 
   lock door house the-teacher
   ‘The lock on the door of the teacher’s house.’

Descriptively, overt definiteness of the most embedded complement, ha-mora, correlates with definiteness of the most embedded CS, the teacher’s house, which correlates with definiteness of the containing CS the door of the teacher’s house, and so on.

The approach to Hebrew genitive formation developed in Ritter (1991) and Siloni (1994) derives both CS and FS by No raising past the genitive (or Sel + genitive in FS) in specifier position. In CS No is in Dº and the genitive in spec of a functional head immediately below it; in FS No is lower than Dº and Sel+genitive remains in base position. Here I will argue that some of the differences between CS and FS are better understood if the head movement analysis of CS is maintained and a remnant movement approach is adopted for FS. For CS DPs I adopt the head-raising analysis given in Siloni (1994):

(66) [DP [D¹ picture-CS1 [AgrgenP the-sunflowers2 t1 [NP t1 t2 ]]]]

The Theme in (66) raises to spec Agrgen where it is assigned structural genitive Case under spec-head agreement with N in Agrgen, a configuration which also gives rise to definiteness agreement between Theme and N°. Further raising of N° to Dº is triggered by strong features in Dº. Consequently, the definiteness feature on N° is in a position from which it scopes over the entire DP. The following contrast in adjective placement has been taken as evidence, on the uniform head raising approach, for CS genitives being located higher than the genitive in FS, because only the latter may be preceded by adjectives:

(67) a. Tmunat ha-xamaniot ha-yafa.  
    picture-CS the-sunflowers the-beautiful
    ‘The beautiful picture of the sunflowers.’

b. *Tmunat yafa ha-xamaniot.  
    picture-CS beautiful the-sunflowers

c. Ha-tmuna ha-yafa Sel ha-xamaniot.  
    the-picture the-beautiful of the-sunflowers
    ‘The beautiful picture of the sunflowers.’
Borer (1999), however, analyzes a number of asymmetries in multiple genitive constructions as pointing to the conclusion that the structural difference between CS and FS must be more significant than a uniform head raising analysis would suggest. It is argued that while CS are indeed derived by head movement, N-initial order in FS is due to generation of the possessor/agent as a right-hand specifier of NP, removing the empirical motivation for noun fronting. Assuming the LCA of Kayne (1994) and its ban on right adjunction and movement to be correct, the facts reported in Borer are shown below to be compatible with an antisymmetric approach to FS. It is proposed that FS non-derived nominals are formed by leftward movement of a phrasal constituent containing the noun across a left-hand possessor in specifier position, supporting the analysis of English possessives given in Kayne (1999), and of Dutch nominalized infinitives in Hoekstra (1999).

First, in possessive DPs headed by a non-derived nominal and including an Agent and Theme, both follow the noun and are marked with Sel. The relative ordering between the two is free (in 68), in contrast with rigid Ag–Th order observed in derived nominals (in 69) (examples (68)–(72) from Borer (1999)):

(68)  
a. Ha-tmuna Sel ha-xamaniot Sel van gox.  
the-picture of the-sunflowers of van Gogh  
b. Ha-tmuna Sel van gox Sel ha-xamaniot.  
the-picture of van Gogh of the-sunflowers  
‘Van gogh’s picture of the sunflowers.’

(69)  
a. Ha-harisa Sel ha-cava et ha-ir.  
the-destruction of the-army ET the-city  
b. *Ha-harisa et ha-ir Sel ha-cava.  
the-destruction et the-city of the-army  
‘The army’s destruction of the city.’

To account for (68) within a head movement approach, it could be claimed that in addition to N° raising, Theme optionally raises past Agent as in, for example, German scrambling. Given the derivation of CS formation in (66) combined with some version of Minimality/Shortest Move, such an approach leads to the expectation that CS formation should be possible both with Theme, given (68a), and Agent given (68b). But CS formation in non-derived nominals with multiple arguments is possible only with Theme (in 70). This contrasts with the situation in derived nominals, where it is possible only with Agent (in 71):
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(70) a. Tmunat ha-xamaniot Sel van gox.
   picture.CS the-sunflowers of van Gogh
   'Van Gogh’s picture of the sunflowers.'

b. *Tmunat van gox Sel ha-xamaniot.
   picture.CS van gogh of the-S.Fs

(71) a. Harisat ha-cava et ha-ir.
   destruction.CS the-army ET the-city
   'The army’s destruction of the city.'

b. *Harisat ha-ir Sel ha-cava.
   destruction.CS the-city of the-army

On the assumption that CS involves head movement to D°, N-movement will be blocked in (70b) by Seλ located in a low Agr gen head associated with Theme. More specifically, the structure of a simple FS DP includes an Agr gen projection, the head of which hosts Seλ:

(72) [DP [NP the-picture t₁] [DP1 Sel₂ [Agr-genP [DP the-SF]₁ t₂ t_NP ]]

As in CS formation, Theme raises to spec Agr gen for Case checking. Notice now that if Seλ is in head position, nominal fronting may only occur as an instance of NP movement, in other words a remnant NP which, following Theme extraction, is exhausted by the noun. Since N° in (72) is not in Agr gen, definiteness agreement between genitive DP and noun fails to arise, as expected. Assuming that NP raising to spec DP is triggered by the very D° features which trigger head movement in CS, the question arises as to why the lower NP and not the closer Theme raises to check these features. As a full DP, however, whatever [-INT] features are associated with the head noun of Theme are checked within that DP, and its Case features in spec Agr gen. The noun within the remnant NP, on the other hand, hosts features which must be checked within its extended projection. Thus raising of NP across Theme is triggered by D° and sanctioned by Shortest Move.

Consider now the derivation of a multiple Seλ construction. The base structure projects two D°-Agr gen° sequences, the higher associated with Agent, and the lower with Theme:

(73) [DP₁ [DP₂ [Agr_P van goh₃ Sel [DP₂ [DP₃ [Agr_P spec Seλ [NP picture s.f.]]]]]]]
First, Theme raises to spec Agr₁ for case checking, followed by raising Sel₁ to D₁ and [NP picture t₁ₐ] to spec DP₂, as in (72). DP₂ then further raises to spec DP₁, triggering Sel₁ to D₁ and producing the order Theme-Agent:

At the point in the derivation in which the remnant NP is in spec of the lower DP₂, it may, alternatively, raise successive cyclically directly to spec DP₁ without pied-piping DP₂. Successive cyclic raising of NP to spec DP₁ derives (68b), in which Agent precedes Theme. In other words, pied piping of DP in whose spec NP is positioned must be optional, as opposed to its obligatory nature in adjectival derivations. The pattern suggests that obligatory pied piping in adjectives cannot be directly reduced to a locality principle which favors raising of the closer, containing DP, over raising of its spec; the optionality seen in multiple genitives implies, on the contrary, that DP₂ and the remnant NP in its specifier must be equidistant from D₁. If locality is not an issue, the difference between adjectival and genitive DPs must be related to the status of specifiers, such that the constituent in spec DP₆ is further attractable, and the constituent in spec DP₆ is not.

Returning to CS formation and the asymmetry in (70), CS formation with Theme will occur within the lower DP₂. DP₁ then raises to spec DP₁, exactly as in (74):
To exclude CS formation with Agent, nothing further need be said. If Agr₂ hosts Sel it blocks N^{\#} raising to Agr⁻gen and CS in DP₁ is impossible:

(76) \[ \text{DP}_1^{\text{spec}} \text{picture-CS}_1 \text{AgrP}_1 \text{van Go}x \text{t}_1 \text{DP}_2 \text{[Agr/\text{gen}_2 \text{the-sunflowers}_2 \text{Sel}_3 \text{[NP t}_1 \text{t}_2]}} \]

If the remnant movement approach to FS non-derived nominals is on the right track, it suggests that spec DP, the landing site, is an A-bar position. The A-bar status of spec DP^{\text{gen}} is confirmed by reconstruction effects in multiple Sel constructions. Regardless of order, a reflexive or bound variable are interpreted as Theme (from Shlonsky 1988):³⁵

(77) a. Ha-tmuna Sel dan Sel acmo.
    the-picture of Dan of himself

b. Ha-tmuna Sel acmo Sel dan.
    the-picture of himself of Dan
    'Dan’s picture of himself.'

(78) a. Ha-tmuna Sel kol xayal Sel imo.
    the-picture of every soldier of mother-his

b. Ha-tmuna Sel imo Sel kol xayal.
    the-picture of mother-his of every soldier
    'Every soldier’s picture of his mother.'

Recall that the order N–Th–Ag in (77b) and (78b) is derived by raising [N-Th] to spec of a higher DP above the possessor/agent. The fact that reflexives and bound variables are possible suggests movement to an A-bar position, allowing
reconstruction to base position, in which Theme is c-commanded by possessor/agent. Following Huang (1993) among others, I assume reconstruction is possible with A-bar moved predicative XPs in addition to argument DPs. Absence of weak crossover effects further suggests that (77) and (78) cannot be due to independent raising of Theme:

(79) Ha-tmuna Selo₁ Sel ima Selo₁,
    the-picture of-his of mother of-his
  ‘The picture of him that belongs to his mother.’
  ‘The picture of his mother that belongs to him.’

(79) is grammatical and ambiguous, reflecting the genitive permutations discussed above. Relevant here is the first interpretation, in which depicted precedes possessor — had the pronoun raised to an A-bar position independently of NP fronting, a weak crossover violation would be expected contrary to fact. But if the pronoun raises as part of XP, no pronoun movement per se takes place, removing the potential for a WCO violation. The combination of reconstruction effects and lack of WCO violation supports phrasal raising to spec DP, a position allowing reconstruction.

Though a full typology of NP/XP movement within DP is premature, it may be possible to relate a number of the properties attested in this section to better understood movement distinctions. On the one hand, movement seems to be triggered by features otherwise associated with heads rather than arguments. Yet the successive cyclic option, reconstruction effects, and the DP peripheral landing site suggest a version of A-bar movement. A relationship to clausal topicalization is likely, especially in view of the fact that remnants in German may be topicalized though not scrambled (Müller 1998). This conclusion, if correct, may shed more light on the nature of Sel raising from Agr_{gen} to D^* as related to the syntax of residual V2 contexts (Rizzi (1995)).

4. Adjectives and possessives combined

A major challenge to the phrasal pied-piping approach to adjective placement proposed in Section 2 is that genitives in FS nominals follow adjectives rather than precede them (in 80). And a challenge to the analysis of FS and CS as both involving genitive raising to spec Agr_{gen} is that in CS, adjectives follow the nominal complement. Compare (80a) with (81a):
(80)  a. Ha-tmunot (ha-gdolot) ha-axronot Sel ha-xamaniot. the-pictures (the-great) the-last of the-sunflowers
‘The last (great) pictures of the sunflowers.’
b. *Ha-tmunot Sel ha-xamaniot (ha-gdolot) ha-axronot. the-pictures of the-sunflowers (the-great) the-last

(81)  a. Tmunot ha-xamaniot ha-axronot. pictures.CS the-sunflowers the-last
‘The last pictures of the sunflowers.’
b. *Tmunot ha-axronot ha-xamaniot. pictures.CS the-last the-sunflowers

Recall that the derivation of adjective placement is by phrasal pied-piping, and the derivation of FS involves remnant movement. While both movements target spec DP, it has been shown that remnant raising can occur either successive cyclically, from spec DP to a higher spec DP, or by pied-piping the containing DP. NP raising to spec of an adjectival DP, on the other hand, may not feed further NP raising; the containing DP must be pied-piped along. The analysis of (80) and (81) demonstrates that the only compatible phrase structure features the very movement restrictions found in adjectival and possessive DPs considered in isolation, hence supports the derivations proposed in Sections 2 and 3.

In order to accommodate DPs containing adjectival and possessive constituents, and on the assumption that both are headed on the main projection line between Do and NP, the first question concerns the hierarchical organization of adjectival projections and Sel projections. Consideration of DPs with multiple adjectives and multiple genitives suggests that adjectival DPs must be generated lower than genitive DPs:

(82)  [DP spec D [AgrP spec Sel [DP/adj spec ha- [AP last ([DP/adj . . .])] [NP ha-picture [DP ha-sunflowers ]]]]]

To see this, consider how a derivation of an FS nominal modified by adjectives would proceed from (82). NP containing the head noun and its complement raises to spec of adjectival DP, and from this point pied-pipes containing DPs to spec of highest DP_{adj}. Theme extracts to spec Agr, followed by Sel raising from Agr to D^o and raising of highest DP_{adj} to spec of matrix DP.36
If an additional DP-Agr layer is present above DP₆ a freely ordered multiple Sel construction will be derived: either DP₄ raises to higher spec, producing N–Adj*–Agent–Theme, or else the containing DP₆ raises (essentially as in (74)) giving N–Adj*–Th–Ag. As in derivations with genitives only, the specifier of a genitive–related DP is extractable. And extraction of DP₂ from spec of adjectival DP₄, deriving the ungrammatical N–Adj–Ag–Adj–Th, is blocked just as in adjectival DP derivations. In other words, the phrase structure according to which DP₆ is higher than DP₄ derives the grammatical orders and excludes the impossible ones consistent with the syntax of these DPs considered in isolation. No new movements are required to derive a multiply modified FS DP from (82).

Consider, as an alternative, a structure in which adjectival DPs are generated higher than genitive DPs:

(84) [DP₁ the- [AP last [DP₂ the- [AP great [DP₃ D [Agr gen P [Sel₃ the- [NP the-picture the-sunflowers]]]]]])

(84) has no grammatical output. Theme extracts to a low spec Agr, and NP raises to spec DP₃ and from there to spec DP₂. Pied-piping of DP₂ to spec DP₁ is necessary for reverse adjectival order, but pied piping of DP₂ across higher adjectives will now necessarily include the Theme. If DP₂ raises to spec DP₁ reverse adjectival order is derivable, but adjectives are incorrectly interspersed, as in the ungrammatical N–Adj–Th–Adj*. If, on the other hand, the remnant NP strands Theme in DP₃ and crosses the higher adjectives successively cyclically, reverse order of adjectives is not derived. To accommodate adjectives preceding the genitive together with reverse adjectival order Theme must raise beyond adjectival DPs, straightforwardly represented by the phrase structure in (82) in which DP₆ is higher than DP₄.³⁸

A number of conclusions can be drawn on the basis of (82) and (83). First,
the impossibility of extraction from spec of an adjectival DP does not appear to be related to its external syntax (a form of barrierhood): in (83) DP_{adj} occupies the same position as the Theme related DP occupies in (74); yet extraction of the latter specifier is possible. This strengthens the conclusion that the internal configuration of DP determines extractability of its specifier. At the same time, extraction of a constituent from within spec DP_{adj} must be possible. The only option for Theme extraction consistent with the Strict Cycle Condition is that shown in (84), from within an NP embedded within spec DP_{adj}.

Consider now a derivation of a CS nominal modified by adjectives proceeding from (82). The derivation is identical to (83) up to the point at which NP containing noun and complement reach spec of highest DP_{adj} and Theme extracts to spec Agr_{gen}P. From here N^o raises from within NP embedded in highest DP_{adj} to Agr_{gen}^o, where definiteness agreement and genitive case checking occur, and from there to D^o. The order N–Th–Adj–Adj is derived, giving the modified CS DP shown in (81a):

\[
(85)
\]

\[
\begin{array}{c}
\text{picture-CS}_3 \quad \text{AgrP} \\
\text{the-sunflowers}_1 \quad \text{Agr}' \\
\text{DP}_4 \\
\text{NP} \quad \text{DP}_2 \\
\text{D}' \quad \text{the-} \quad \text{AP} \\
\text{t}_3 \quad \text{t}_1 \quad \text{AP} \\
\text{t}_{DP_2} \\
\text{great} \quad \text{t}_{NP}
\end{array}
\]

A welcome result of the head analysis of adjectives is that it allows a unified approach to genitive case checking (in spec Agr_{gen}P in both CS and FS) by independently blocking ungrammatical N–Adj–Th order. Direct N^o raising to D^o is blocked by Adj^o just as it is blocked by Sel in example (76). The lowest position from which N^o movement may be launched is spec DP_{adj}, a point at which APs have already been crossed by noun and Theme.

Comparing the derivation of FS in (83) with the CS derivation in (85)
Ivy Sichel shows that DP₄ raising to spec of DP₆ fails to occur when head raising is an option, as it is when Sel is not generated. Neither is it attested independently of feature checking in D₆; when these features are checked by head movement no additional phrasal movement takes place, confirming the idea pursued throughout that the type of phrasal movement seen in Hebrew is triggered by features usually associated with head movement. The general impossibility of pied-piping XP when X° movement is possible follows from the same economy principle which prefers feature movement to full category movement (Chomsky 1995). From this perspective the kind of phrasal movement seen in Hebrew (pied piping and remnant movement) is a last resort operation, activated by the presence of a higher head.⁵⁹

Word order in DPs in which the head noun and its complement are each modified by adjectives falls out naturally from (85). As discussed in Borer (1999) among others, the only possible order is a nested one. Both adjectives follow head noun and genitive. The first adjective modifies the genitive, and the second noun modifies the head noun (examples from Borer):

(86) a. Kis’ot ha-kita ha-xadaSa ha-civonim.
   chairs.m,p the-class.f,s the-new.f,s the-colorful.m,p
   ‘The new class’s colorful chairs.’

   b. *Kis’ot ha-kita ha-civonim ha-xadaSa.
      chairs.m,p the-class.f,s the-colorful.m,p the-new.f,s

(87) a. Madaf ha-sfarim ha-avim ha-lavan.
   shelf.m,s the-books.m,p the-thick.m,p the-white.m,p
   ‘The white shelf with thick books.’

   b. *Madaf ha-sfarim ha-lavan ha-avim.
      shelf.m,s the-books.m,p the-white.m,s the-thick.m,p

When Theme is modified, the Theme and its adjective are generated within DP₆ adj sister to the head noun. Raising of DP to spec Agr gen raises an N–Adj sequence, with subsequent N° to D° giving N₁–N₂–Adj₂–Adj₁. As in (85), DP₄ may not raise and the ungrammatical N₁–Adj₁–N₂–Adj₂ and Adj₁–N₁–N₂–Adj₂ are not derived.

5. Conclusions

The primary goal of the analysis has been to provide a descriptively adequate account of various noun initial constructions in Hebrew. Consideration of
multiple adjective and multiple genitive DPs leads to the conclusion that not all Hebrew N-initial orders are created equal. In particular, while construct state nominals are, by assumption, derived by N\textsuperscript{o} raising, adjectival placement is derived by phrasal pied-piping, and free state genitives by raising a remnant NP from which Theme extracts for Case checking. All fronting operations seem to be triggered by strong features in D\textsuperscript{o}, yet the latter two exhibit significantly different properties. An NP raised to spec DP\textsubscript{adj} is itself frozen in place, yet extraction of N\textsuperscript{o} or its complement is possible from NP. A remnant NP in spec DP\textsubscript{gen} on the other hand, may either raise or pied pipe the containing DP, but extraction from within its specifier seems to be excluded.

A principle favoring head movement over phrasal movement has been proposed, suggesting that phrasal movement is possible as a last resort. But since potential HMC violations cannot generally be circumvented by XP movement, it still remains to be determined what in the grammar makes this option available. These questions are not unrelated: if N–(non-reversed)–Adj structures (as in Celtic and many Romance languages) currently analyzed as involving head raising can be shown to involve XP movement, such movement would necessarily proceed from spec to spec without pied piping. From this perspective, the X/XP distinction should be recast as +/− pied piping, plausibly related to specifier properties, with implications for the differences between adjectival and possessive DPs studied here.

Notes

* For helpful comments and discussion I thank Marcel Den Dikken, Julia Horvath, Hagit Borer, Richard Kayne, Ur Shlonsky, Tali Siloni, Alain Rouveret and audiences at the Potsdam Workshop on Remnant Movement, NELS 30, and CAL 5. All errors are my own.


3. See Shlonsky (2000) and Cinque (2000) for related proposals regarding the derivation of Semitic/Celtic DPs. A central difference between these and the present approach is that the former deny the existence of N\textsuperscript{o} movement while here it is argued that N\textsuperscript{o} and NP movement coexist.

4. See Shlonsky (2000) for similar conclusions and extensive discussion of the cardinal/ordinal number system across Semitic.

5. See Ritter (1991) and Siloni (1994) for adjectives adjoined to NP, across which N
movement applies. See Duffield (1999) for discussion of the specifier/adjunction distinction and its relation to adjective ordering.

6. See Androutsopoulou (1994), (1996) for a closely related analysis. The structure of (15b) is assumed to be identical, with phonologically null indefinite morphemes. See Section 2.2 for arguments for the head status of attributive adjectives and a semi-relative analysis of complement taking adjectives.

7. By LF raising of Adj to D° or [FF] movement of adjectival phi-features in overt syntax.

8. Examples in (16) contrast with other modifiers which may not intervene between the prefix and adjectival head, including some degree modifiers and adverbials:

   i. ha-xulca ha-yekara beyoter/*ha-xulca ha-beyoter yekara.
      the-shirt the-expensive most the-shirt the-most expensive

   ii. ha-pakid ha-mebulbal tamid/*ha-pakid ha-tamid mebulbal.
      the-clerk the-confused always the-clerk the-always confused

The problem with (i) and (ii) must be related to syntactic or lexical properties of particular modifiers, not to a general adjacency or raising requirement. I set aside the question whether these modifiers are syntactically identical to the ones in the text, as well as the precise location of negation and modifiers in (16).

9. See also Androutsopoulou (1994, 1995, 2000) for the proposal that an adjectival, rather than nominal, determiner heads Greek/Albanian DPs with adjectival modification.

10. The possibility of Do iteration supports attribution of a primarily embedding function to D°, along the lines of Scabolszi (1994), compatible with the idea that [definiteness] is not interpretable in D°. The idea that adjectives are all dominated by the same functional structure may imply that ordering of adjectives at the base is semantic, syntactic differentiation and selection being excluded, as suggested by E. Doron (p.c.).

11. Crucially, however, NP itself may not raise successive cyclically from spec DP_n to spec DP_n+1 — such a derivation would produce N-initial order with straight adjective sequencing, contrary to fact. Such orders do exist — in Irish and Welsh for the most part (though see discussion of demonstrative placement below) and in the post-nominal portion of Romance DPs, and have been analyzed as instances of N° raising. The question is whether it is empirically possible to distinguish N° raising from successive cyclic NP raising (from spec to spec), and what the relevant facts might be. I return to this issue below.


13. Without altering adjectival scope.

14. Unlike the Kaynian D–CP structure, however, the clausal portion of semi-relatives does not include CP. Instead, raising is to the left of D°, and spec DP must be an active landing site.

15. As seen above for simple adjectives, and demonstrated below for possessive structures.

16. A remaining issue is why simple adjectives may not easily occur in predicative
positions, as indicated by ?? for (40c), (42c), and (44c). The marginality of these examples is not a peculiarity of semi-relatives. As discussed in Doron (1983) it is attested also in full relative clauses introduced by the clausal complementizer Se:

i. ISa Se- *(hi) yafa/xaxama.
   woman who (cop) pretty/intelligent

I assume that whatever in the grammar requires an overt clausal copula in (i) excludes simple adjectives in the less than clausal constituent embedded under ha-.

17. Noted in Hoekstra (1999) who distinguishes right branching sisters to lexical heads (complementation) from sisters to functional heads (modification, including a DegP projection) to allow (51c).

18. If adjectival modifiers are related to a DegP projection, DegP raises to spec F°, and again A° raising past a modifier in its spec is blocked.

19. A reviewer points out that the account of left-hand modification leaves open left-hand complementation facts as in the German example below. An NP complement to Adj° will block all adjectival complementation, left or right.

i. a. Der zu seiner Frau treue Mann.
   the to his wife faithful man
   'The man faithful to his wife.'

b. *Der treue zu seiner Frau Mann.
   the faithful to his wife man

On the present analysis, the only source for adjectival complementation is a predicative relative clause, implying that the type of XP predicate raising proposed by Kayne (1994) and Alexiadou and Wilder (1998) should be dependent on an operation fronting the complement past predicative adjective.

20. Kayne (1999), for example, proposes a derivation of English infinitives such as John tried to sing which includes a stage in which to is preceded by the VP sing (corresponding abstractly to a ‘postpositional’ phase), followed by raising of to.

21. Similarly, Bruge (1996) argues that the prenominal demonstrative in este hombre (‘this man’) raises from its low position in el hombre este (‘the man this’) based on the fact that in post-nominal position the demonstrative follows other adjectives.

22. On the relatively standard assumption that at least in the relevant cases, demonstratives are syntactically like adjectives (agreement properties, structural position, etc.).

23. See sections immediately below for further discussion of construct genitives and genitive/adjective interactions.

24. For the proposal that demonstratives may be heads or XPs in spec see also the analysis in Bernstein (1997) of French and Germanic demonstrative reinforcement structures of the sort in (i):

   (i) a. Ce livre jaune ci.
       this book yellow here
       'This yellow book.'
where it is argued that phrasal movement places the noun and other modifiers to the left of the demonstrative head -ci, as in (ii):

(ii) \[ [\text{DP cei} \ [\text{FP t livre jaune}] \ [\text{FP t ci t XY}] \ [\text{XY}]]] \]

The existence of two demonstrative elements in some languages (see Bernstein (1997) for further examples in Swedish and non-standard English and for a structure in which ce and ci start out in spec-head configuration) directly supports the claim that demonstrative elements may be heads, i.e. the Welsh demonstrative is the counterpart of French ci ‘reinforcer’ and plausibly Spanish esta (see Roca (1996) for a head analysis of Spanish demonstratives).

25. ‘Genitive’ is intended as a cover term for DP-internal DPs — agents, themes, possessors, etc., whether complements or modifiers.


28. Of the complement head on Borer’s analysis.

29. See Sichel (to appear) for relative scope in multiple genitives as empirical motivation for favoring leftward-phrasal movement over right-hand merge and movement.

30. The derivation to be proposed is limited to FS non-derived nominals, derived nominals are presented for comparative purposes only. For analysis, see Siloni (1997), Borer (1999), Shlonsky (2000), and references cited there.

31. I assume, for simplicity, that Agent is generated external to NP, in spec of higher Agr gen P. See Sichel (2001b) for further discussion.

32. See Den Dikken (1998) for an alternative approach to single genitives generated as small clause predicates. An extension of that structure to multiple genitive constructions would yield, if Agents and Themes are both to be thought of as small clause predicates, a structure in which the Agent predicate takes as its subject another small clause with Theme as predicate. I set this option aside as it is unclear how it derives CS genitives, as well as binding facts, since Agent would not c-command Theme at the base.

33. See Pesetsky and Torrego (2000) for a similar configuration in which TP and spec TP are attractable by C, and a definition of distance in terms of c-command: “Y is closer to K than X if K c-commands Y and Y c-commands X”. Since there is no c-command between DP, and the remnant in its specifier they are equidistant from D, and both are candidates for attraction.

34. Perhaps because features of NP in spec DP are immediately eliminated upon checking, but features of the remnant in spec DP remain active and attractable due to Sel
raising from Agr* to D* with the consequence that \( \text{DP}_{\text{gen}} \) ceases to be a phase in the sense of Chomsky (1999). I leave this as an open question as more facts should be considered in order to determine a fuller typology of successive cyclicity vs. pied-piping. Especially relevant is the status of Welsh; if obligatory successive cyclic NP movement is involved in the derivation of adjectival constructions, the interaction between locality and the content of specifiers might be more complex than Hebrew alone suggests.

35. See Hoekstra (1999) for similar facts in Dutch nominalized infinitives.

36. Theme extraction from deeply embedded NP in (83) is potentially problematic. The alternative is to allow Theme to raise directly from its base position to spec Agr\( \text{gen}_{\text{a}} \), a countercyclic derivation if NP/XP then targets lower adjectival specifiers. I will assume that ‘late extraction’ is in principle available, as in extractions from specifiers of CP:

   i. Who, do you wonder \( [\text{CP} \quad [\text{which pictures of t}_1] \] \) are on the table\]

37. Cinque (2000) argues for the order in (84) for Celtic and Semitic construct state genitives, with the projection hosting free state prepositional genitives higher, above matrix DP (roughly the position assigned to both types of genitive DP in (82)). That structure produces the Semitic difference in adjective placement ((80) vs. (81)) as well as Celtic placement facts, at the cost of having distinct genitive-related projections for CS and FS.

38. Note that the choice between (82) and (84) leads to different conclusions regarding successive cyclic movement vs. pied piping: with AgrP low, Semitic shows full pied-piping across the board, and Celtic has successive cyclic raising up to the point of high PP, suggesting that the choice between movement options is determined parametrically, per grammar. With a single AgrP high, as in (82), both language types are mixed, the choice between movement options depending on the particular specifiers involved.

39. See Shlonsky (2000) for an almost opposite conclusion, that a higher head ‘freezes’ phrasal movement. More generally, the two approaches differ in conclusions regarding the interaction between the X′/XP status of modifiers and availability of phrasal movement. While here it is assumed that a higher head will block head movement, leaving phrasal raising as the only option, Shlonsky (2000) argues that a modifying head freezes phrasal movement from below and an XP modifier forces it. A point by point comparison is beyond the scope of the chapter, as the different conclusions reached correlate with differences in the particular structures assigned to various modifiers.

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