

**MORPHOSYNTAX:
THE SYNTAX OF VERBAL INFLECTION**

by

Jonathan David Bobaljik

B.A., Russian and Slavic Studies
McGill University
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Signature of Author

Department of Linguistics and Philosophy
May 26, 1995

Certified by _____

Noam Chomsky
Institute Professor
Thesis Advisor

Certified by _____

David Pesetsky
Professor of Linguistics
Thesis Advisor

Accepted by _____

Wayne O'Neil
Head, Department of Linguistics and Philosophy

MASSACHUSETTS INSTITUTE
OF TECHNOLOGY

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ABSTRACT

This thesis investigates the interaction of the morphological process of verbal inflection with the syntactic process of verb movement and the distribution of the principal arguments.

In Part I it is proposed that two apparently syntactic phenomena in the Germanic languages are accounted for by allowing the morphological component to filter syntactic derivations. First (Chapter I), it is proposed that the parametric variation in the licensing of the specifier of TP (an intermediate functional projection) can be derived from the verbal inflectional paradigms; certain morphological patterns require fusion, a requirement which in turn places restrictions on possible syntactic derivations. In Chapter II it is proposed that verbal inflection may take place via *morphological merger*, which requires *adjacency*. Syntactic operations which would disrupt the adjacency relation in the morphology are therefore blocked.

In Part II the assumptions, common in the literature, which underlie the syntactic analyses in Part I are reconsidered. In particular it is argued in Chapter III that the base and derived positions of the principal arguments are stacked; that is, objects do not cross over subjects in moving to their derived position. In Chapter IV the view that floating quantifiers mark the positions of traces of their antecedents is challenged.

Part III attempts to salvage and extend the accounts of Part I in light of the revised assumptions proposed in Part II. In Chapter V I introduce the *Free Agr Parameter*, which states that languages vary with regard to the presence or absence of Agr-Phrases. The specifiers of Agr-Phrases are the derived positions for arguments as evidenced by object shift and other phenomena. It is also proposed that the presence or absence of an Agr head dominating Infl determines whether or not the verb raises out of the VP in non verb-second environments, correctly predicting a further point of parametric variation in the Germanic languages. Chapter VI investigates the possibility of pursuing these analyses while maintaining that the syntactic derivation cannot be filtered by the morphophonological component(s). It is argued that this is possible, if the grammar admits of a process determining which copy of a moved element is pronounced. The morphological procedure determining which copy is pronounced is constrained by other morphological considerations, especially the adjacency condition on morphological merger investigated in Chapter II.

Thesis Supervisors: Professor Noam Chomsky, Institute Professor
and Professor David Pesetsky, Professor of Linguistics

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“The time has come,” the Walrus said,
“To talk of many things:
Of shoes—and ships—and sealing wax—
Of cabbages—and kings—
And why the sea is boiling hot—
And whether pigs have wings.”

Through the Looking Glass, L. Carroll.

Acknowledgements*

The time has come...

Whether or not pigs have wings, time most apparently does; it has flown by at an amazing pace, especially through the final weeks of writing this dissertation, but also in the five years that I have been at MIT. I feel exceptionally fortunate to have had the opportunity to meet a great many incredible people – linguists and “real people” – throughout the course of these years. So many have contributed to this thesis, to my stay at MIT, to my linguistics career, and just to my (in?)sanity in general that it would take a chapter just to list them all. Instead then, I would like to take a few words to thank just a few of them – albeit quite insufficiently – for their various contributions. Before even beginning, though, I must apologize to those who have been overlooked anywhere in what follows. I sincerely hope noone has been truly forgotten, though during the eleventh hour enterprise of putting this thesis together I have undoubtedly missed some who deserve more credit than indicated here.

* Caveats and disclaimers:

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The characters occurring in the example sentences are purely fictitious. Any resemblance to real persons – living, dead, or otherwise – is unintended and coincidental.

Except Sam.

As for so many of us, I stumbled into linguistics quite by accident – it is more a factor of the McGill timetable than anything else that I ended up in Eithne Guilfoyle's introductory course in the spring of 1988. Eithne's enthusiasm and wonderful teaching piqued my curiosity and set me off in an entirely unexpected direction, leading in an often haphazard way to the document now before you. Over the three semesters in which I took linguistics courses, I was fortunate to have had a string of superb teachers (in reverse alphabetical order, for no particular reason): Elly van Gelderen, Lisa deMena Travis, Michel Paradis, Alan Libert, Doug Ellis, Jean duPlessis, Nicole Domingue, Irene Bellert and Mark Baker. It was they who taught me to look at the patterns and systems of human language in the peculiar way of generative linguists, each from a different perspective. From them, I learned the difference between language and languages, and more importantly that in this difference there is a topic of seemingly boundless inquiry. Lisa Travis deserves special mention for having suggested to me the idea of graduate school as I wondered what one does with a bachelor's degree in Russian and Slavic Studies. How many of life's major decisions come from chance encounters and random conversations? As fate would have it, I am soon returning to McGill; my undergraduate mentors are to become my professional colleagues. I am thrilled and honoured that life has gone in this particular circle.

Upstairs from the linguistics department, my teachers in the Russian Department – Dora Sakayan, Tanya Patera, Alexander Fodor and Paul Austin – instilled me with a sense of wonder about the intricacies of a language other than my own. They taught me to see the poetic systematicity of language which sparked my curiosity about linguistics in the first place. Though Russian has somehow not made its way into this thesis in any substantial way, it has been a solid presence throughout the last five years, providing the background for much of what I have done outside of theoretical linguistics.

In what is becoming a cliché in my life, I was among the last to find out what graduate schools I had been accepted to. David Pesetsky thoughtfully sent a telegramme to me in Leningrad in early March; letters from other schools saying "respond by April 15th" arrived in early May, if at all. By that time of course, my mother had gone through my checklist and accepted or otherwise on my behalf. In any event, one bleary August afternoon in 1990 I found myself at the Boston airport. My luggage was somewhere in the airline baggage handling system between Dubrovnik and Brussels, and as I stepped off the plane this new city I was decidedly not quite sure what I was getting myself into...

We were six, our class, meeting on the first day: Wei-tien (Dylan) Tsai, Seth Minkoff, Diana Cresti, Tony Bures and Pilar Barbosa. To my first classmates belongs the first debt of gratitude at MIT. It was they who shaped life in and out of the department, academic and social as we all began to settle in to lives here. For the first year especially, our office was as much home to me as anywhere else in Boston and my classmates were my new family, friends, and colleagues – all rolled into the mysterious persona of Jody di Piseto. For five years, we have shared our experiences of Building 20 and the life associated with it, though it does not seem like so long ago at all that we sat in the E-wing lounge and Jim Harris attempted to explain the department to us. My great thanks to each of you.

I am grateful also to my "second classmates": Hubert Truckenbrodt, Colin Phillips, Orin Percus, Renate Musan, Masa Koizumi, Heidi Harley, Andrew Carnie and Masha Babyonyshev. After my year away, these friends became my new classmates in many ways, and it was with a mixture of these classmates, old and new that I shared the dread of the job market and the final throes of thesis writing. It was a hellish time, and I am thankful for the support of the friends from both classes who were going through the same hell at the same time. Andrew, Heidi and I shared many a comforting 3 a.m. scream before deadline after deadline. *Go raibh maith agat.* To Heidi an extra thanks for managing my life during my absence in 1993-1994.

Over the course of five years in the department, I have been fortunate to have made many friends in other years. There is nowhere near ample space to thank all of them fully here. Everyone has contributed to my life here, and thus the writing of this thesis, in different

ways. It is easy to think of episodes from this past year (our season-winning 1995 department softball team, the MITWPL crew, late, late nights in the RTG room), but it was in the first years that the groundwork was laid for writing this thesis, in the settling-in and feeling comfortable in the department as much as in the linguistic foundations.

The most agonizing part of writing acknowledgements, though, is in deciding how to thank who without writing a book-length acknowledgements. I hope then, that the following friends and colleagues will forgive me for thanking them *en masse*, for discussions of linguistics, and more importantly for everything except discussions of linguistics (dinners, parties, late night jaunts to the coffee house, road trips to conferences, and general friendship). I hope also that those who I've omitted will forgive me their omission as well.

Beyond my two sets of classmates, I would like to thank the students in the department with whom I have overlapped. Everyone has influenced my life here to some degree, but special mention goes to a few for friendship above and beyond the call: Akira Watanabe, Jason Stanley, Rob Stainton, Uli Sauerland, Norvin Richards, Rob Pensalfini, Martha McGinnis, Kumiko Murasugi, Ingvar Löfstedt, Utpal Lahiri, Kathrin Koslicki, Tom Green, Delia Graff, Danny Fox, Hamida Demirdache, Chris Collins, David Braun, Sergey Avrutin and especially "Ling-94": Susi Wurmbrand, Fleur Veraart, Luciana Storto, Hooi-Ling Soh, Taylor Roberts, David McKay, Gaurav Mathur, Marie-Claude Boivin and Chris Bader. I could, and probably should, mention each in turn as each one has shaped my time here in a different way. Alas, the deadline approaches faster than I would like...

I would also like to thank my teachers over the course of the five years I was here, for inspiration and guidance, for support and prodding (not always gentle), and most of all for teaching me how to think about linguistics from many different angles. For all they have done, great thanks to David Pesetsky, Alec Marantz, Wayne O'Neil, Michael Kenstowicz, Jim Higginbotham, Irene Heim, Morris Halle, Ken Hale, and Noam Chomsky. At Harvard also: Höskuldur Thráinsson and Mark Hale. And not least to those faculty members from whom I learned outside of regular courses, in appointments, talks or chance discussions in coffee shops: Ken Wexler, Kai von Stechow, Roger Schwarzschild, Tanya Reinhart, Shigeru Miyagawa, Jay Keyser, Jim Harris (who shepherded us through the labyrinth of MIT registration) and Sylvain Bromberger – for whom I TA'd the introductory course, and from whom I learned to strip away the complexities and get to the core of ideas in order to teach effectively.

Again, each deserves special mention for the various things they have taught me: Michael and Morris taught me that the first syllable of Phonology really is /fʌn/, Alec taught that there was more to Morphology than one might have thought, Jim H. and Irene showed me that Semantics was more than just some antics, ... I could go on, but will refrain from doing so as there are more people to thank.

Within the MIT department, getting through a dissertation would not be possible without the support of those who really run the department. I wish to thank Jamie Young, Wendy Weber, Linda Thomas, Marilyn Silva, Rachel Pearl, Blossom Hoag, Marilyn Goodrich, Nancy Peters, and especially Bev Stohl – who took care of us finishing folk – and Jen Purdy – who put up with the brunt of thesis panic at the very end.

Many beyond the immediate confines of the department have nonetheless been a presence in Building 20, and have played a significant role in making the five years livable. For this, my thanks extend to Andrea Zukowski, Türközü Kööki, Maya Honda, Bridgit Cosgrove, Carlos Coráis, and above all Father Angg.

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And thanks also to the many visitors here and to those who I have met at conferences and at other departments who have led me to believe that our discipline is full of friends past, present and future. The joy of linguistics conferences for me is the gatherings of interesting

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That I was able to get to the thesis stage at all is due to my friends outside of linguistics who allowed me to keep my version of sanity and to maintain a perspective – albeit rather a bizarre one – on the place of Linguistics in my life. Foremost among these friends is Lori Howe, one-time climbing partner and a very special friend in many ways. Other climbing partners and friends at the Boston Rock Gym have kept me from drowning in my work (and from falling off cliffs). I would especially like to mention my ice-climbing mentor/partners Nicolas Valence and Dave Harris, also Jonah Flower and the Tuesday/Thursday regulars at the old gym in Somerville. Uli Sauerland, Kathrin Koslicki, and Heidi Harley played multiple roles as climbing partners, department colleagues, and all-round friends.

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The person who has perhaps played the most significant role in keeping me sane and focused throughout the past five years is Frith Maier of REI Adventures. Frith took a risk in the summer of 1991 hiring me sight unseen to lead trips for her in Russia and Central Asia, which I have now done for the past five years. I am not sure that I would have made it through the programme without the intense breaks provided by the summer guiding season and the chance to see so many new things and interact with so many fascinating people, all about as far away from building 20 as one can get. My thanks extend to all those who have made these trips possible for me, in particular: Paul Schicke, Linda Pearson, Cynthia Dunbar and Michelle Baker. And to a close friend and sometimes colleague in places unheard of, my fond thanks to Suzi Grant.

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From my alter-ego as non-linguist, one friend in particular has lent me support, advice and encouragement from distant corners of the globe. To Tess Thompson (Tang Dilan) – thank-you.

This brings me (and about time) to the thesis itself. The final version is quite different from what I envisioned when I began writing in earnest some time last fall. I certainly never intended to write primarily about Germanic; it just seems to have come out that way. Yet again, this seems to be the full-circle effect. As I remember, object-shift – deducing Holmberg’s Generalization in Swedish – was the problem on Lisa Travis’s Intro Syntax final way back at the start of it all...

One of the hardest parts of the spring semester was to cut analyses and ideas for which there was neither the time nor the space in the present work. In the piles of notes and random scraps of paper – under the coffee cups and climbing gear – which cover my desk are the kernels of perhaps another dozen chapters, should any of the ideas pan out. That catch-all of “future research” has swallowed up most of the work I have done outside of Germanic and I can but hope that the future will allow me to return to it.

This thesis would not have taken the shape and direction it has taken without the advice and guidance of a number of linguists. Most have been thanked above for their roles as friends and colleagues, but I would like to mention some here for contributions specifically to the context of the thesis.

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only begin to describe with our formal tools. Ken has taught me to look for that deep poetry and to appreciate it – to find the generalizations before making the theory. To the entire committee, my deepest thanks.

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It is long past time to wrap up these acknowledgements, though there are so many others who I could, and should, thank for all they have contributed. I would like to reserve this last space for the three people who deserve the most mention of all. Beyond all expression is my gratitude to my family: my parents John and Nancy and my sister Chris. They have supported me through all of it and provided nothing but unquestioning encouragement. I dedicate this thesis to them.

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Abbreviations

The following abbreviations are used in the examples in this dissertation:

1,2,3	first, second, third (i.e. grammatical person)	NEG	negation
3A, 3E	third person absolutive / ergative agreement	NPI	negative polarity item
3s/3p, ...	third person singular acting on third person plural (of portmanteau agreement)	obj	object
α []	item in brackets is an affix	PAR	partitive (case) - Finnish
ABS	absolutive (case)	Part	participle
adv	adverb	pc	personal communication
C, COMP	complementizer, the head of CP	[\pm perf]	\pm perfective (of participles)
ERG	ergative (case)	PERF	perfective aspect (Bambara)
[\pm fin]	\pm finite	pl	plural
FOC	focus	PROG	progressive
[impers]	impersonal form of verb (Irish)	psn	person
I, Infl	the head of IP	REL	relative particle (Bambara)
		sg	singular
		Spec	specifier
		subj	subject
		[\pm tr], [\pm trans]	transitive / intransitive (of agreement paradigms)

For consistency, I have used the following conventions:

When the internal structure of a word is not immediately relevant, but requires more than one word in the English gloss, I have separated the English words by a dot with no space, e.g. Icelandic: *Jólasveinarnir* is glossed in the word-by-word glosses as: "Christmas.Trolls.the",

When proper names are used in foreign language examples, I use only the initial in the word-by-word gloss,

The source and language of every non-English example is given after the example. All examples for which no source is given are taken from native speaker informants. The informants are listed in the acknowledgements.

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If you wonder about the erection,
Of trees, word by word or by section,
If you're looking to T's,
What's certain to please,
Is *The Syntax of Verbal Inflection*.

Anonymous Linguist / Poet. 1995.

Introduction

The syntax of verbal inflection

The interaction of verbal inflection and syntactic operation is the focus of Chapters I, II, V and VI of this thesis. The first two of these approach the problem in a quite different manner from the later chapters, though. Overall, the thesis is divided into three parts, each consisting of a pair of chapters.

Part I: Morphosyntax I

In Chapters I and II, I argue that the syntax must be filtered by a morphological component. That is, syntactic operations can be forced (Chapter I) or blocked (Chapter II)

if the derivation would otherwise lead to a structure which, though syntactically well-formed, is uninterpretable in the subsequent morphophonological component.

Chapter I presents in this vein a morphological grounding for a syntactic parameter motivated for the Germanic languages: the Spec,TP Parameter of Bures 1993, Bobaljik & Jonas 1994. The Germanic languages split in two groups, identified by a cluster of syntactic properties. This clustering has been explained by the (non-)availability of an intermediate functional specifier in a complex of inflectional projections, the specifier of T(ense)P. This parameterization plays out in the syntax as the difference between two different syntactic derivations which concatenate the verb and the heads of the inflectional projections. In this Chapter, I argue that the different concatenations of heads each admit different possibilities for the insertion of vocabulary items (morphemes) in the subsequent morphological component. The inventory of inflectional elements in a language, and the possible competition among them for insertion at a given node, determines which syntactic derivation that language must make use of. Since the different derivations have different syntactic consequences in terms of the available argument positions, the verbal inflection in an interesting way determines the syntactic distribution of arguments in these languages.

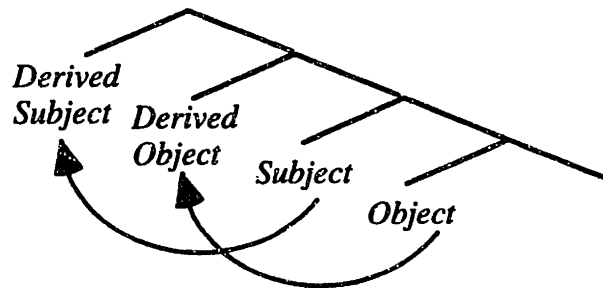
In Chapter II, I examine a further restriction on argument positions in the Germanic languages. In a subset of the languages, local, leftwards movement of the object (Object Shift) is constrained by verb raising. The object may not shift unless the verb has also moved (Holmberg 1986). However, this restriction does not hold in all of the Germanic languages. The deciding factor seems to be headedness. The generalization is a valid characterization of the SVO languages, but not of the SOV languages. The analysis I offer is again ultimately dependent upon verbal inflection. I argue that the appearance of inflectional morphology on verb stems may be derived by either of two processes: concatenation in the syntax (head-to-head movement) or a later morphological process,

merger (Marantz 1989). This account derives the properties of the English verbal system on few assumptions. Returning to the analysis of *do*-support offered by Chomsky 1955[1975], the distribution of *do* is correctly predicted in a wide range of environments: if the verb has not raised overtly to the inflectional affix, then the affix may *merge* with the verb under *adjacency*. If the relation of adjacency is disrupted, for instance by *not*, then the pleonastic verb *do* is inserted to support the stranded affix. Extending this to the phenomenon of object shift in the SVO languages, I propose that when the verb has not raised, leftwards movement of the object to a position intermediate between the inflectional affix and the verb stem will disrupt the adjacency required for affixation. Thus, the syntactic operation is blocked by morphological considerations. In the verb-final languages, the verb and affix are both on the right periphery of the clause, and leftwards movement of the object will never disrupt the required adjacency relation. Two phenomena from other languages (Irish and Bambara) are also considered in this light.

Part II: Syntax

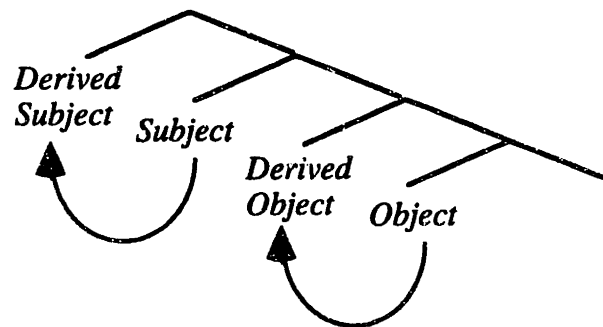
The analysis of Chapter I rests crucially on a very specific family of syntactic analyses which we may call the Spec,TP analyses. These analyses in turn rely on the architecture of the clause introduced by Chomsky 1991 – not only the “Split IP Hypothesis,” but more importantly the hypothesis that the specifier position to which object must move is to the left of the base position of the subject. The hierarchical structure of a transitive clause is at least (1):

(1) Argument positions I: (after Chomsky 1991).



The structure in (1) competes for currency in the relevant literature with (2), in which there is no crossing of the paths of movement. While there are base and derived positions for each argument, the hierarchical relations between the arguments remain constant.

(2) Argument positions II: (after Koizumi 1995, Travis 1992)



In Chapter III, I will compare and contrast the two proposals, drawing on data from the Germanic languages as these display very clear evidence of derived and non-derived positions for DP arguments. The arguments in favour of (1) are, we shall see, inconclusive in a number of respects, especially – though not exclusively – when the domain of inquiry is expanded to include double object constructions. There are likewise few arguments to be made from the Germanic data in favour of (2). As I will show, the

two views of clausal architecture have the same empirical coverage, but to capture this data the structure in (2) requires only a subset of the assumptions necessary under the view in (1). Applying Occam's Razor, we are led to prefer the structure without crossing paths (2) over that in (1). With this, however, we pull the rug out from under the Spec,TP analysis of the clustering of syntactic properties within Germanic. As this is one of the assumptions underlying the account of Chapter I, that analysis must be abandoned. A reconsideration of the facts of that analysis is the first part of Chapter V.

One of the arguments offered in favour of the structure in (1) in the literature comes from the distribution of floating quantifiers in Icelandic. A commonly held view, since Sportiche 1988, is that floating quantifiers mark the positions of traces of the DP arguments they are associated with. In Chapter IV, I claim that this analysis is untenable and offer in its place the proposal that floating quantifiers are adverbs adjoined to the left edge of various types of predicates. The argument takes the following form. The positions in which traces are standardly posited are in large part coextensive with the positions in which adverbs may appear. For instance, the left periphery of the VP is a well known adjunction site for adverbs (VP or V'), just as it is the commonly-posed position of the subject trace (Spec,VP or [NP, V^{max}]). Therefore, I investigate the positions where the two views do not coincide in their predictions. Without exception, floating quantifiers are illicit in positions where a subject trace is motivated but which do not coincide with the left edge of a predicate (e.g. in passive and unaccusative constructions). Conversely, they are licit in positions where no trace of the antecedent DP is plausible, but which are the left periphery of predicates modifying that DP.

I also consider, and reject, the possibility that the trace theory be expanded to allow floating quantifiers as part of PRO as well as traces. Such a view makes the wrong predictions in a variety of cases, and requires a radical altering of the standard assumptions

about the distribution of PRO. Further, in languages which show agreement on the floating quantifier, in the case of a feature mismatch (typically Case) between PRO and the controlling argument, the determination of agreement on the quantifier is determined locally. A floated quantifier demonstrably “floated off” PRO agrees with PRO (Sigurðsson 1991), but a floating quantifier occupying the position where the expanded trace theory would have to posit [*all* PRO] cannot agree with PRO. On the adverbial theory, this floating quantifier is higher than PRO and its agreement as expected is controlled by the matrix argument.

Part III: Morphosyntax Revisited.

As noted above, if the conclusions of Chapter III are correct, then the analysis of the relation between verbal morphology and argument positions developed in Chapter I is undermined. I therefore revise the approach significantly in Chapter V. However, this revised approach does not have the character that morphology need filter the syntactic derivation, questioning the underlying theme of Part I. Since the question has been raised, I devote Chapter VI to an exploration of the possibility that the syntactic derivation is entirely blind to morphophonological considerations, focussing in particular on the analysis of Chapter II. The logic of presenting the thesis in this way is the following. Chapter I is built on assumptions which are reasonably standard in the literature. I show how these assumptions may lead to a specific account of certain phenomena. Chapter V is built on much less standard assumptions. I present both analyses leaving a decision between them to independent motivation of the respective sets of assumptions. This applies all the more to Chapter VI. Whereas Chapter V was forced since I rejected some of the key assumptions of Chapter I in Chapters III and IV, there are no such considerations regarding Chapter II. Rather, the rejection of the possibility that the morphosyntax may filter syntactic derivations is offered as a research programme. If we reject that possibility, then

we must reconsider the analysis of Chapter II, and I believe the discussion in Chapter VI is an interesting direction in which one could proceed.

In Chapter V, I will motivate the Free Agr Parameter, extending a proposal of Thráinsson 1994. On this view, some languages have Agr-phrases, the specifiers of which are derived positions for subjects, objects and indirect objects. Other languages, such as English, lack these functional projections, having for instance an unsplit (pre-Pollock 1989) IP. Thus, they lack a derived versus non-derived asymmetry for arguments which have not undergone grammatical function changing operations (such as passive). I will show that the heads of these functional projections play an important role in the syntax of these languages as well, determining the varying patterns of verb raising in the Germanic languages without appeal to arbitrary valence of abstract features. The fact that the verb apparently raises to Infl independent of the verb-second (V2) phenomena in some languages but remains *in situ* in the VP in the same environments in others is shown to follow from the Free Agr Parameter on the assumption that all local relations are (potentially) checking relations.

Unlike the analysis of Chapter I, the analysis of Chapter V does not entail or assume that the syntax is filtered by the morphophonology. Given the striking lack of syntactic operations sensitive to phonological environment, it is, in my view, worth considering the possibility that the syntactic computation is uniformly blind to the ramifications of its output in the morphophonological component. To this end, Chapter V reevaluates the analysis of Chapter II in these terms. I show that, maintaining the bulk of the analysis of Chapter II, we are led to what I will call *Single Output Syntax*. The morphology is fed by the final output of the syntax, i.e. there are no syntactic operations after Spell-Out. The overt versus covert distinction is recast as variable pronunciation of copies. Overt movement is pronunciation of the highest copy of a single element, while

covert movement is pronunciation of a lower copy. The syntactic computation is thus not filtered by the morphology. The effect of a covert versus overt distinction is the product of a purely morphological phenomenon – pronunciation – interacting with the morpho-phonological restriction of adjacency governing morphological merger.

Part one

Morphosyntax

**blank
verso**

And as in uffish thought he stood,
The Jabberwock, with eyes of flame,
Came whiffling through the tulgey wood,
And burbled as it came!
One, two! One, two! And through and through
The vorpal blade went snicker-snack!
He left it dead, and with its head
He went galumphing back.

Through the Looking Glass, L. Carroll.

Chapter one

Fitting fused functional heads

In this chapter, I present the first of two analyses which suggest that the solutions to some apparently syntactic problems lie in the morphological component.¹ The analyses of this chapter, and of Chapter II, rely on the idea that the morphology (or morphophonology) may act as a filter on syntactic derivations. That is, a derivation which obeys all syntactic constraints may nevertheless be illicit if it concatenates the terminal

¹ I have been fortunate to have had the opportunity to present the ideas in this chapter to a number of audiences, first in Höskuldur Thráinsson's Comparative Scandinavian Linguistics seminar at Harvard (Fall 1994), and later to audiences at MIT (Fall 1994), the 10th Comparative Germanic Syntax Workshop and the University of Durham, UK (Jan 1995) and McGill University (Feb 1995). In addition to colleagues who commented on these ideas within the larger framework of the thesis who I have mentioned in the general acknowledgements, I would like to thank Mark Baker, Kyle Johnson and Rolf Noyer for written comments on an earlier draft of this chapter.

elements in such a way that the morphology is unable to insert appropriate vocabulary items.

The narrow aim of this chapter is to show that the Spec,TP Parameter (Bures 1993, Bobaljik & Jonas 1994, see below) can for the most part be derived from properties of the overt inflectional morphology of the languages in question. The analysis will begin with a consideration of the inflectional paradigms of Icelandic and English:

(1)	Icelandic: <i>kasta</i> 'to throw'	English: <i>tremble</i>
	<u>Present</u> <u>Past</u>	<u>Present</u> <u>Past</u>
	1 psn sg <i>kasta</i> <i>kasta -ði</i>	<i>tremble</i> <i>tremble -d</i>
	2 psn sg <i>kasta -r</i> <i>kasta -ði-r</i>	<i>tremble</i> <i>tremble -d</i>
	3 psn sg <i>kasta -r</i> <i>kasta -ði</i>	<i>tremble -s</i> <i>tremble -d</i>
	1 psn pl <i>köst -um</i> <i>köstu-ðu-m</i>	<i>tremble</i> <i>tremble -d</i>
	2 psn pl <i>kast -ið</i> <i>köstu-ðu-ð</i>	<i>tremble</i> <i>tremble -d</i>
	3 psn pl <i>kasta</i> <i>köstu-ðu</i>	<i>tremble</i> <i>tremble -a</i>

In English, the past tense marker (*-ed*) and the overt agreement marker (3rd sg. *-s*) are in complementary distribution, as can be seen from the table in (1). In Icelandic, there is no such complementarity. Past tense markers (*-ði*, *-ðu*) cooccur freely with agreement markers. Adopting what is essentially an Item-and-Arrangement view of morphology such as Distributed Morphology (DM) articulated by Halle & Marantz (1993) and Noyer (1992), the complementarity seen in English is taken as evidence that the vocabulary items *-ed* and *-s* are competing for insertion at the same node. Specifically, it appears that the presence of a marker of the past tense blocks insertion of an agreement marker. The lack of such competition in Icelandic suggests that there are at least two distinct nodes which may serve as the locus of vocabulary insertion.

I will show that, given two syntactic derivations which concatenate the various inflectional heads of a "split" IP, only one of these concatenates them in a way that is

compatible with the morphological competition evidenced in English. English must therefore make use of that syntactic derivation. For independent reasons, this derivation has a syntactic consequence: the exclusion of exactly that cluster of properties which define one setting of the Spec,TP parameter (see below). In this way, the morphology of English determines (a part of) its syntactic behaviour.

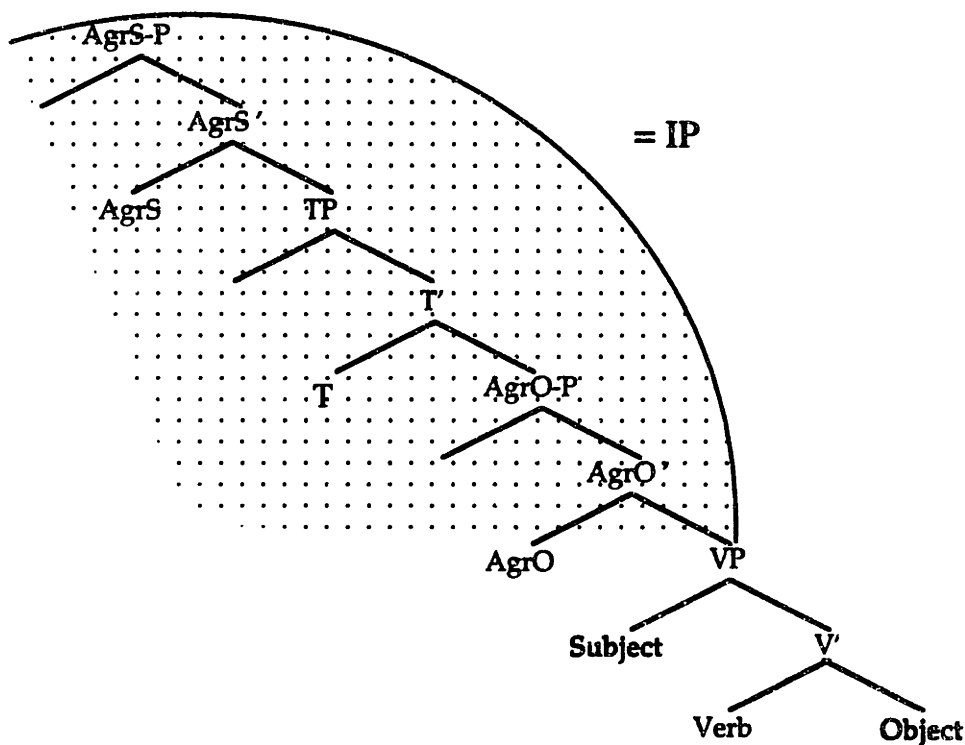
The chapter is organised as follows. In section 1, I examine the aspects of Germanic syntax which are relevant for subsequent discussion. In particular, I note the cluster of properties which co-vary in the Germanic languages as observed by Bures 1993, and sketch the accounts provided by him and by Bobaljik & Jonas 1994. These accounts invoke parametric variation in the licensing of the specifier of TP (i.e. in addition to the specifier of Agr-P) as a position to or through which the subject may move. In section 2, I outline the theory of morphology which I am adopting, in particular, the relevant assumptions from Halle & Marantz's 1993 Distributed Morphology (DM), the framework in which this discussion is couched. Section 3 is the application of the theory to the full range of variation in the Germanic languages. In addition to Icelandic and English, I discuss the various apparent problems raised by the lack of variation for agreement in the present tense conjugations of the Mainland Scandinavian languages (§3.2.2), by the lack of a simple past tense in Afrikaans and Yiddish (§3.2.3), and by a syntactic dialect split with no morphological correlate in Modern Faroese (§3.2.4). Section 4 expands the theoretical discussion, in particular focusing on the issue of learnability, and the tension between differing requirements in the morphology and the syntax.

1. Syntax: The Spec,TP Parameter.

Before proceeding to a discussion of the grounding of the Spec,TP Parameter in morphology, I will outline the syntactic motivation for this parameter in the analyses of

Bures 1993 and Bobaljik & Jonas 1994. For reasons of space, I will not discuss the assumed syntactic derivations in any great detail here, nor will I attempt to motivate any of the assumptions. For discussion and motivation, see Bobaljik & Jonas 1994, Jonas 1995a and references therein (especially Bures 1993, Chomsky 1993). In this section, I will simply state the syntactic account I am assuming throughout. The architecture of the clause is assumed to be that given in (2), as in Chomsky 1991 et seq. The labels (“AgrO” versus “Asp(ect),” “F,” etc.) are not important for the present discussion.

(2) Clausal Architecture:



Bures 1992, 1993 has observed that the Germanic languages co-vary with respect to a cluster of syntactic properties. These include the possibility of Object Shift (“A-Scrambling”) of full NPs, exemplified in (3), and the acceptability of Transitive Expletive Constructions, illustrated in (5). I assume without comment that object shift is movement of the object NP to the specifier of **AgrO-P** in (2).² Bobaljik & Jonas 1994 and

² The syntax of object shift is discussed in much greater detail in other chapters of this dissertation; see especially Chapters III and VI. In particular, I assume that pronoun shift, which has a much wider

Jonas 1994a extend Bures's observations, showing that there are other syntactic properties which split the languages along the same lines, including effects of adverb placement and semantic type, of the sort investigated by Diesing 1990 et seq. Diesing has shown that German has two distinct positions in which subjects may surface, the one to the left of a sentential adverb or particle, the other to the right of the adverb or particle. Jonas & Bobaljik 1993 showed that similar effects obtain in Icelandic, as illustrated in (4) below. Each position has predictable interpretive consequences. For example, the left position (higher) is associated with generic readings of bare plural NPs and with definite, specific arguments, while the right position (lower) is associated with existentials, and non-specific indefinites. According to Holmberg 1993 and Jonas 1994a, there are no such position / interpretation correlations in the Mainland Scandinavian languages and Faroese II.³ As far as this has been investigated, the distribution of "Diesing effects" within Germanic is the same as the distribution of Object Shift of NPs and Transitive Expletive Constructions (5).

(3) *Object Shift of NP*

Grammatical in Icelandic:

- a. Jólasveinarnir borðuðu bjúgun ekki.
 Christmas.Trolls.the ate sausages.the_i [vp not t_i]
 'The Christmas Trolls didn't eat the sausages.'
 (Icelandic: Bobaljik & Jonas 1994:1)

Ungrammatical in Swedish:

- b. * Tomtarna åt korvarna inte.
 Christmas.trolls.the ate sausages.the_i [vp not t_i]
 (The Christmas Trolls didn't eat the sausages.)
 (Swedish)

distribution within the Germanic languages, is a distinct process – not movement to Spec,AgrO-P. See Déprez 1989, Mahajan 1990, Bures 1993, Bobaljik & Jonas 1994, Jonas 1995a and especially Josefsson 1992 for this view and arguments in favour of it.

³ Intriguingly, it is not the case in the languages which do not show Diesing effects (except in Danish) that the sentential adverbs are in a fixed position following the subject, as one might expect. Constraints on adverb placement in these languages have not been investigated in the generative literature in any great detail to my knowledge. However, Jonas 1994a provides minimal pairs from the two Faroese dialects, showing clearly that Diesing's correlations with interpretation are systematically present in Faroese I and just as systematically absent in Faroese II.

(6) *The Spec,TP Parameter* (cf. Bures 1993, Bobaljik & Jonas 1994)

Some languages license Spec,TP as a potential landing site for the subject NP, other languages do not license this position.

Languages which permit object shift of full NPs or transitive expletive constructions must be [+Spec,TP] languages. Such languages include Afrikaans, Dutch, one dialect of Faroese (Faroese I)⁶, German, Icelandic, and Yiddish. The languages which allow neither object shift of NPs nor transitive expletive constructions are Danish, English, (the other dialect of) Faroese II, Norwegian, and Swedish. These are thus [-Spec,TP] languages. The distribution of the relevant properties summed up in the table in (7). For data supporting this table, see Bobaljik & Jonas 1993, 1994.

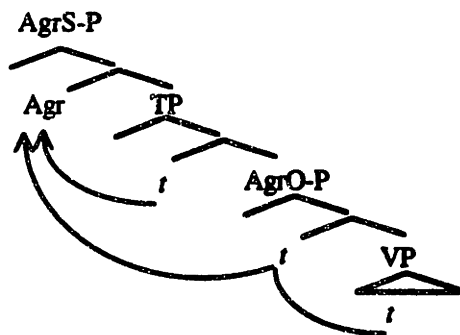
(7) *The Spec,TP Parameter in Germanic*

Language	Object Shift of NP	Trans. Expl. Constr.	Diesing Effects	Parameter Setting
Afrikaans	yes	no	??	[+ Spec,TP]
Dutch	yes	yes	yes	
Faroese I	no	yes	yes	
Frisian	yes	yes	??	
German	yes	yes	yes	
Icelandic	yes	yes	yes	
Yiddish	yes	yes	yes ?	
Danish	no	no	(no)	[- Spec,TP]
English	no	no	no	
Faroese II	no	no	no	
Norwegian	no	no	(no)	
Swedish	no	no	no	

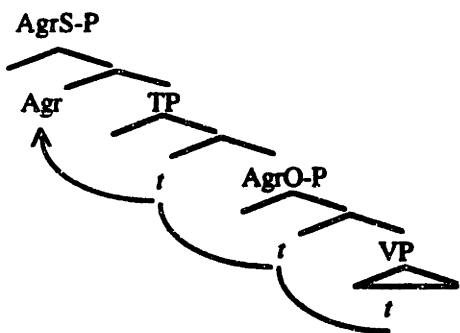
Bobaljik & Jonas suggest tying the (non-)availability of Spec,TP to differences in syntactic derivations (see also Bobaljik & Carnie 1994). They argue that if a language does not license Spec,TP, then the head T must raise and adjoin to AgrS prior to verb raising – the “independent” raising of T proposed in Chomsky 1993.⁷

⁶ On the dialect split in Faroese, see Jonas 1994a.

⁷ See Jonas 1994b, 1995a for a development of this idea. The argument that the derivation in (8) is forced in a language which does not allow Spec,TP is as follows: Assume that the head T has strong N features

(8) *Independent T-Raising*

The other possible derivation, that sketched in (9) below, is possible only if a language allows case-checking in Spec,TP:

(9) *Successive Cyclic Raising*

For Bobaljik & Jonas, the choice of derivation (8) versus (9), and the differences among the Germanic languages, follow from a point of arbitrary parametric variation, *viz.* the setting of the Spec,TP Parameter (6).

In what follows, I will attempt to show that the parameter itself is derivable. In particular, I claim that the overt verbal morphology of a language, its “pieces of inflection,” are subject to principled constraints on insertion and concatenation, which in turn will

which must be checked in the overt syntax (the Extended Projection Principle in Chomsky 1993:31). If a language does not license Spec,TP for checking, then the head T must raise and adjoin to some higher head (e.g. AgrS) and check its features against an NP in the specifier position of that higher head.

decide between (8) and (9). In a nutshell, the inflectional morphemes of some languages do not “fit” into the complex head created by (9). The syntax of such languages is therefore restricted to the derivation (8), which excludes the possibility of case-checking in the specifier of TP.⁸ This in turn underlies the variation in Germanic as analysed by Bures and Bobaljik & Jonas.

2. Morphology: Fusion and complex heads.

Before proceeding to the analysis, I will spell out some assumptions of the theory of morphology to be developed here. For concreteness, I will assume an Item-and-Arrangement theory of morphology, for the most part a version of Distributed Morphology (Halle & Marantz 1993, Noyer 1992 and others).⁹ One point on which I differ from the assumptions of Halle & Marantz 1993 is that in what follows, I will argue that the morphology must act as a filter on syntactic derivations. See McGinnis 1995 for additional arguments in favour of this view. Important for present concerns are two assumptions which set DM and related theories aside from “lexicalist” approaches.

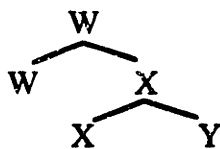
⁸ Note that the derivation in (8) should violate the Head Movement Constraint (Travis 1984). Such a violation is not incurred if the raising of V+AgrO does not “skip” the intervening trace of T, but rather substitutes for it, subsequently raising and adjoining to AgrS. Such substitution, I assume, would mean that any NP in the specifier of this projection would have to check features not against T, but rather against V+AgrO. Hence, the subject could not legitimately move through this position. See Epstein 1993 for discussion in a similar vein of the status and character of the inflectional heads at LF. Alternatively, if “shortest” or “closest” is determined from the point of view of the landing site, and not of the moved element (a proposal which originates as far as I know with Murasugi 1992, Oka 1993 and is adopted in Chomsky, forthcoming), then (8) may behave like multiple *wh*-movement to a single CP. The head T is initially closest to Agr, and therefore is attracted first, but being raised to AgrS, it does not intervene for subsequent determination of closest, and Agr may *attract* the next closest head, *viz.* AgrO. I will not pursue this here as it takes us too far afield at present. See Chapter V, section 4, for some discussion.

⁹ See Pesetsky 1985 for related ideas which are in some ways a precursor to many of the proposals in Halle & Marantz 1993 and subsequent work. Pesetsky offers a view whereby there are rearrangements of morphemes at an abstract level. For him, this abstract rearrangement is at LF, where selectional requirements are taken to hold (see Pesetsky 1982). On the view adopted here, the rearrangements such as fusion and merger take place prior to phonological realization, in the mapping from syntax (where selectional restrictions hold) to phonology. Note that Pesetsky’s view of what constitutes a “morpheme” is quite different from that of Halle & Marantz.

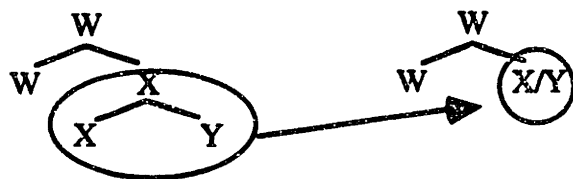
The first assumption has been called “late insertion”, namely, the view that Vocabulary Items (VIs) (i.e. “morphemes” in a loose sense) are inserted discretely, at separate terminal nodes (X°) generated and concatenated in the syntax (Marantz 1994). For instance, where Chomsky 1993 assumes that a verb is drawn from the lexicon fully inflected, and merely checks its features against phonologically contentless functional heads such as T and Agr, DM assumes instead that the different vocabulary items – the verb stem, the tense marker, and so on – are discrete in the syntax and inserted at different terminal nodes.

The second assumption concerns complex terminal nodes, such as those generated by head movement in the syntax. An assumption of DM is that VIs are atomic, i.e. they have no internal complexity. If a vocabulary item expresses features of more than one node in the syntax, then these nodes must be *fused* in order for insertion to take place. Similarly, if VIs which express different features are in complementary distribution, then they may be said to be competing for insertion at a single, fused node which expresses both sets of features. Consider the hypothetical complex head below:

(10)

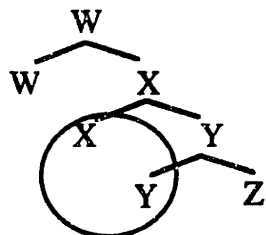


Let us assume that there is some VI which expresses the features X and Y. This item must be inserted at a discrete, atomic node. The only nodes which dominate the necessary features are the root node (the higher instance of W) and the higher instance of X, both complex. Since insertion at internally complex nodes is not possible on DM’s assumption of atonicity, operations to rearrange the nodes are necessary prior to insertion. One such operation is *fusion*, whereby two nodes are joined into one. Thus, X and Y fuse, with the resulting structure in (11):

(11) *Fusion*

Insertion of our hypothetical VI is now possible at the atomic, i.e. non-branching terminal node $[X/Y]$. For Halle & Marantz (p. 116), fusion is restricted to applying to sisters.¹⁰ Consider, in this light, a slightly more complex head:

(12)



In this tree, the lower instances of X and Y (circled) are not sisters, hence fusion is not directly possible between them. But, if Y and Z first fuse, creating $[Y/Z]$, then this latter node is a sister to X, and fusion may apply to create $[X/Y/Z]$ – one atomic node:

¹⁰ The same condition, in a different context, is motivated in Pesetsky 1985.

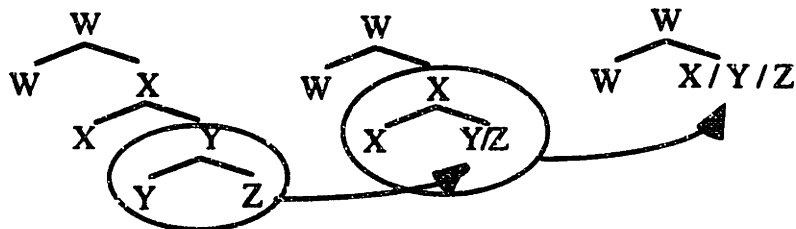
Note that if one sees vocabulary insertion as actually replacing syntactic nodes (composed of features) with vocabulary items, then the combined effect of the restriction of fusion to sisters and the atomicity requirement follow straightforwardly. Rewriting (11) in these terms, let us assume that our hypothetical Vocabulary Item is the phonological matrix $[wug]$. We may insert it at any X' (not only atomic nodes), but doing so replaces that X' and all the features (i.e. nodes) which it dominates, with the lexical item:

(i)



The two views are different in the formalism, but, as far as I can tell, extensionally equivalent. I will continue to use the formalisms of DM in the present text, so that we have two assumptions: fusion may only apply to sisters, and insertion may only occur at atomic nodes.

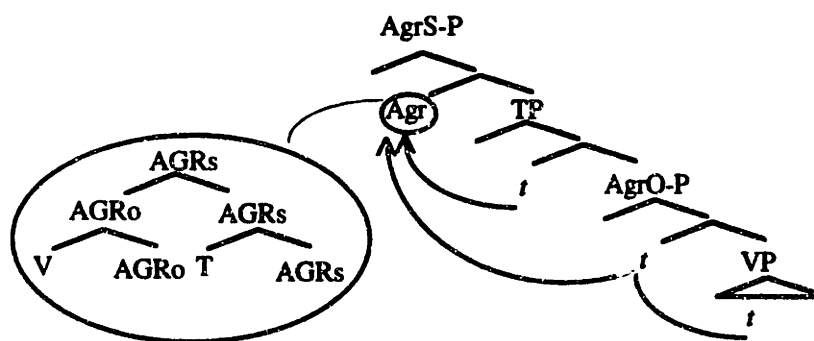
(13)



Note, importantly, that this creates one terminal node which includes all of X, Y and Z. If there are separate vocabulary items expressing {X,Y} (i.e. our hypothetical VI from the preceding paragraphs) and {Z}, then these are in competition. Either item, {X,Y} or {Z}, may be inserted at the fused node, but not both, since only one item may be inserted at a given node¹¹.

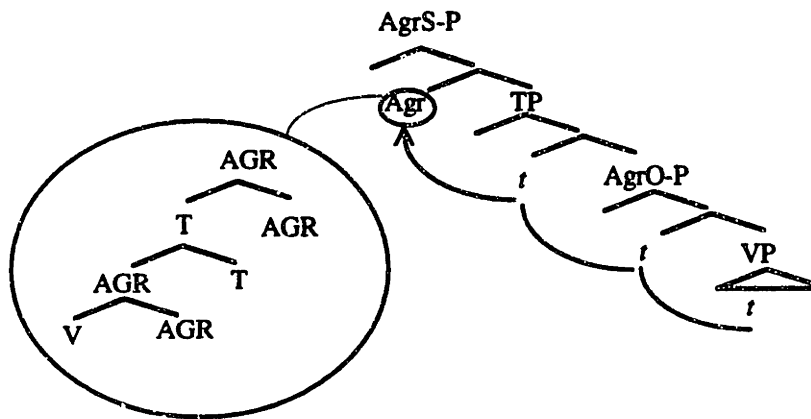
Recall now the two derivations which permit checking of the features of T, discussed in §1. I repeat them here for convenience, and, since this will be the core of the proposal, I have detailed the complex heads created by each derivation.

(14) = (8) [Spec,TP blocked]



¹¹ DM derives this from disjunctively ordered lists of what VIs are in competition for insertion at a single node, ordered in standard fashion from most to least specified. This of course also follows from the replacement idea in the previous footnote.

(15) = (9) [Spec,TP possible]



In the next sections, I suggest that, given the restrictions on fusion and insertion within the theory of DM, the morphology of a subset of the Germanic languages includes pieces which will only “fit” in the head created in (14). This state of affairs thereby restricts such languages to this syntactic derivation, thus prohibiting the use of the specifier of TP.

3. The Analysis

3.1 Icelandic versus English

Recall now the inflectional paradigms of Icelandic and English from the introduction.

(1) Icelandic: *kasta* ‘to throw’

English: *tremble*

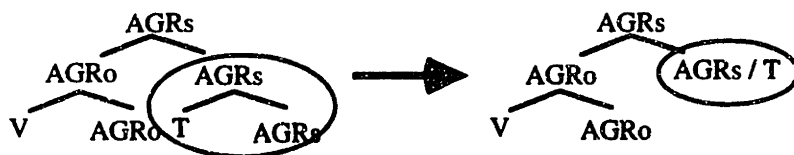
	<u>Present</u>	<u>Past</u>		<u>Present</u>	<u>Past</u>
1 psn sg	<i>kasta</i>	<i>kasta -ði</i>		<i>tremble</i>	<i>tremble -d</i>
2 psn sg	<i>kasta -r</i>	<i>kasta -ði-r</i>		<i>tremble</i>	<i>tremble -d</i>
3 psn sg	<i>kasta -r</i>	<i>kasta -ði</i>		<i>tremble -s</i>	<i>tremble -d</i>
1 psn pl	<i>köst -um</i>	<i>köstu-ðu-m</i>		<i>tremble</i>	<i>tremble -d</i>
2 psn pl	<i>kast -ið</i>	<i>köstu-ðu-ð</i>		<i>tremble</i>	<i>tremble -d</i>
3 psn pl	<i>kasta</i>	<i>köstu-ðu</i>		<i>tremble</i>	<i>tremble -d</i>

Note that Icelandic has three distinct VIs which must be inserted into the complex head: the verb stem, tense, and subject agreement.¹² Such items can easily be inserted into appropriate atomic nodes in the complex head created by either derivation (14) or (15).

English, however, is different. We saw at the outset of the section that in English, Tense and Agreement morphology are in complementary distribution. In the past tense, there is a marker of tense, but no marker of agreement, while in the present tense, there is a marker of agreement (i.e. in the 3rd person, singular), but no overt marker of tense. I claim that this complementarity is evidence that tense and agreement Vocabulary Items are competing for insertion at the same node. That is, there is a *fused* node in English, containing both tense and agreement, a situation which does not obtain in Icelandic.

The English case is the one we considered abstractly at the end of §2.1, with a single VI expressing X and Y. For vocabulary insertion to proceed in English, the nodes T and Agr (separate in the syntax) must first fuse, as did X and Y in (11). In the complex head created in (14), this fusion process is straightforward.

(16) Fusion of T and Agr in (14) [-Spec,TP]

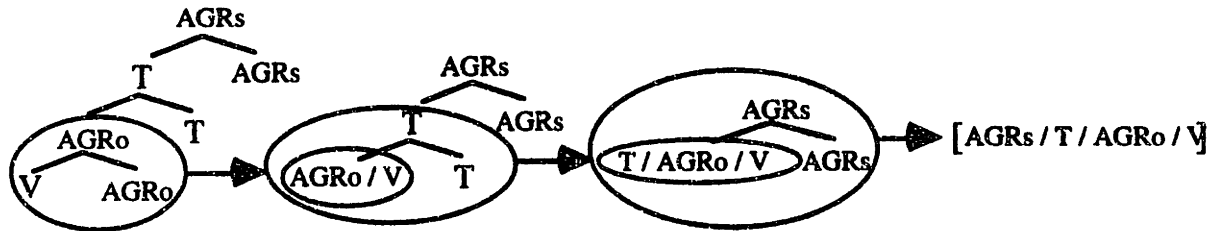


The single VI expressing Tense and Agreement may be inserted at the atomic terminal node circled on the right side of the arrow in (14), i.e. after fusion.

¹² Object agreement never appears in the Germanic languages. The adjectival agreement which surfaces on participles in some languages is not the object agreement which would be associated with an AgrO head. For arguments to support this claim, see Bobaljik 1992, §4, and Chapter V of the present work.

Turning to the complex head in (13), the (atomic) nodes T and Agr are not sisters. This is like the case in (10) above, with X, Y and Z such that X and Y are not sisters. In order for T and Agr(S) to fuse, V and Agr(O) must first fuse, and then the node [Agr/V] must fuse to T, which may in turn fuse to AgrS:

(17) = (15) the [+Spec,TP] head.



Only if the entire complex fuses into one single atomic terminal node may the single VI expressing T or Agr be inserted. However, in such a case, insertion of the item expressing T or Agr (i.e English *-d*, or *-s*) would block insertion of the verb stem, just as insertion of the hypothetical “Z” in (12) above was blocked. That is, only one VI may be inserted at a given terminal node. This is the basis of the competition idea. The complementarity between Tense and Agreement in English, I claim, is evidence that they compete for insertion at one node, the fact which drives the fusion. Only one of either tense or agreement Vocabulary Items may be inserted for a given verb stem, but not both. Inflection is not in complementary distribution with the verb stem, however, which by the same logic indicates that the inflectional markers and the verb stem are not inserted at the same node. Such a configuration of heads, we have just seen, is impossible in (17), i.e. in the head created by (15).

Since English verbs consist of a stem plus a fused “slot” for a Tense / Agreement VI, vocabulary insertion is impossible if head-movement in the syntax has created the complex head in (15). Vocabulary insertion is only possible in (14). In Icelandic, which

does not have fused VIs in the verbal inflection, vocabulary insertion is possible in either complex head.

Now, we know independently that the complex head in (14) is the result of a derivation which does not allow the use of Spec,TP, whereas (15) does not rule out this position. Neither derivation is blocked in the syntax, *per se*, either in Icelandic or in English. However, derivation (15), which uses Spec,TP, is blocked in English by the (overt) morphology. In this sense, English morphology acts as a filter, blocking derivation (15), the only derivation which allows Spec,TP, and thus English cannot make use of Spec,TP in the syntax.

In sum, the syntax allows either complex head to be derived, but the morphology – the vocabulary items in a given language’s store – acts as a filter on possible heads. If a head which is derived in the syntax is incompatible with vocabulary insertion given the vocabulary store of a given language, then the derivation cannot be legitimate at PF; it *crashes*, since the morphology just doesn’t fit.

3.2 *The Full Paradigm*

We have seen that the system works to predict a syntactic difference between Icelandic and English on the basis of overt inflectional morphology. The complementarity of Tense and Agreement morphology (Vocabulary Items) in English indicates that the terminal nodes expressing these features are fused into one node. This fusion in turn serves ultimately to block the projection of Spec,TP in the syntax, thus excluding constructions such as transitive expletives and overt Object Shift of full NPs. In Icelandic, the nodes are not fused, and thus the morphology does not serve to block any relevant derivations. Spec,TP is therefore a possible position for the subject. Hence, Icelandic

shows the cluster of properties associated with allowing subjects in Spec,TP. Note that the implication developed is one-way:¹³

(18) *The morphological condition for fusion*

If a language has T+Agr VIs in complementary distribution,
then derivation (9) is blocked.

This says nothing of the syntax of languages without fused morphology, beyond the fact that (15a) and (15b) are both potential derivations. There may well be independent factors blocking one or other derivation, just as there are certainly other factors involved in TEx constructions and Object Shift, beyond the simple licensing of Spec,TP.

The onus is now upon me to show that this analysis extends to the remaining Germanic languages. In particular, it is incumbent upon me to show that the languages listed in (12) as not allowing Spec,TP all have fused T+Agr nodes, predictable from their morphology, and further, to show that those languages which do license Spec,TP do not have fused morphology. In doing so, we will find that there must be positive evidence of fused morphology in order for the child to posit that (15a) is not a possible syntactic derivation. In the absence of such positive evidence, all else being equal, the child will not rule out the derivation and thereby will not a priori exclude the possibility of Spec,TP. There emerges in this sense a clear default and marked member of the pair of constructions involved.

¹³ Johnson 1990 derives a condition similar to this, but with finer distinctions, by ordering the functional heads (he has more heads than I assume) and having the verb raise only as far as the highest head for which there is an overt morpheme. See Chapter V for an analysis of verb raising in the VO Germanic languages. The ramifications of Johnson's proposal for argument positions have not been considered and I will not do so here, primarily for reasons of space.

3.2.1 German and Dutch

Consider representative inflectional paradigms of German and Dutch:

(19)

German: *sagen* 'to say'

Dutch: *lachen* 'to laugh'

	<u>Present</u>	<u>Past</u>		<u>Present</u>	<u>Past</u>
1 psn sg	<i>sag -e</i>	<i>sag -te</i>		<i>lach</i>	<i>lach -te</i>
2 psn sg	<i>sag -st</i>	<i>sag -te -st</i>		<i>lach -t</i>	<i>lach -te</i>
3 psn sg	<i>sag -t</i>	<i>sag -te</i>		<i>lach -t</i>	<i>lach -te</i>
1 psn pl	<i>sag -en</i>	<i>sag -te -n</i>		<i>lach -en</i>	<i>lach -te -n</i>
2 psn pl	<i>sag -t</i>	<i>sag -te -t</i>		<i>lach -t</i>	<i>lach -te (-n)¹⁴</i>
3 psn pl	<i>sag -en</i>	<i>sag -te -n</i>		<i>lach -en</i>	<i>lach -te -n</i>

We see clearly that Tense and Agreement are not in complementary distribution throughout these paradigms. Rather tense and agreement can easily be seen as separate VIs (morphemes) when one looks at forms such as German *sag-te-st* 'say'-past-2sg, or Dutch *lach-te-n* 'laugh'-past-1/3pl. These paradigms thus do not implicate fusion of T and Agr in the morphology. Since the implicature motivated above is one way, the prediction is that the morphology of these languages does not preclude the derivation which uses Spec,TP. As it happens, these two languages both appear to require Spec,TP at least in some constructions (i.e. they have transitive expletive constructions and object shift of full NPs)¹⁵.

¹⁴ The second person distinction in the Dutch plural past tense forms is rather outmoded, as pointed out by Jan Wouter Zwart and Fleur Veraart, p.c. Modern Dutch, then has only singular versus plural distinctions in the past tense. We will return to this in the discussion of Faroese, below.

¹⁵ Ken Wexler reminds me that the simple past in German and Dutch are rarely used, and especially rare in the data to which children are exposed. To the extent that these forms are thus not readily available to the child for determining the nature of its language, German and Dutch resemble Yiddish and Afrikaans discussed below. Hence, if the reader believes it is correct to exclude the German and Dutch simple past from the input set for the child, due to its low frequency, then that reader is asked to lump German and Dutch with Yiddish. The conclusions of the paper remain the same. A more interesting case would be an English-type language where the simple past tense is rarely used. I know of no such language within Germanic, though I am not aware of any systematic studies focusing on this question.

3.2.2 Mainland Scandinavian.

The paradigm in (20) is from Swedish, but is representative of the standard dialects of the modern mainland Scandinavian languages:¹⁶

(20) Swedish: (*att*) *smaka* ‘to taste’

	<u>Present</u>	<u>Past</u>
1 psn sg	<i>smaka -r</i>	<i>smaka -de</i>
2 psn sg	<i>smaka -r</i>	<i>smaka -de</i>
3 psn sg	<i>smaka -r</i>	<i>smaka -de</i>
1 psn pl	<i>smaka -r</i>	<i>smaka -de</i>
2 psn pl	<i>smaka -r</i>	<i>smaka -de</i>
3 psn pl	<i>smaka -r</i>	<i>smaka -de</i>

This paradigm smacks of fused Tense and Agreement, since, as in English, there is only one “slot” after the verb stem. This is as it should be, since the Mainland Scandinavian languages, like English, are [-Spec,TP] languages. However, unlike English, the Mainland Scandinavian languages do not show any variation for person in the present tense. It would seem that a possibility at least, is that these can be analysed as having only tense morphology, and no agreement.¹⁷ If there is no agreement, there is no direct evidence for complementarity.

However, reflect again upon the languages so far discussed. None of the Germanic languages ever show more than one “slot” after the verb in the present tense, even those

¹⁶ As far as I am aware, the dialects of Swedish and Norwegian which do retain agreement paradigms retain these only in the present tense. As with English, in these dialects the agreement is blocked by the presence of Tense morphology. In my terms, these languages should have fused morphology and thus behave like English and Swedish described in the text with respect to the TP parameter. As far as I know, this prediction is correct.

¹⁷ Historically, this is clearly not the case. The invariant *-r* in the present tense forms of all verbs, even auxiliary *ha-r* ‘has’ and *a-r* ‘is’ was originally the second person singular agreement marker. It later generalized through 3rd singular (cf. Faroese, Icelandic), to singular generally, and finally to all forms in the present tense (see Haugen 1982). Of course, the child does not have access to Haugen’s study, or historical evidence generally and I see no compelling reason that the child could not assume that the *-r* is a present tense marker in Modern (standard) Mainland Scandinavian.

with the richest inflectional systems (eg. Icelandic, German). The relevant morphological distinctions are only ever visible in the past tense. As there are never overt morphemes corresponding to the present tense, evidence for competition between tense and agreement morphemes, and thus evidence for fusion of the T and Agr heads, is only available in the past tense. We restate the implicature in (16) as:

(21)

If the appearance of Tense morphology blocks the appearance of Agreement morphology, then Tense and Agreement Vocabulary Items are in complementary distribution and T and Agr must be fused.¹⁸

Keeping this in mind, let us look at Yiddish and Afrikaans, and we will find further support for (21).

3.2.3 Yiddish and Afrikaans

Yiddish and Afrikaans present a more interesting situation. Both are [+Spec,TP] languages, patterning syntactically with Icelandic, Dutch and German. Neither has a simple past tense, i.e. both make use of auxiliary + participle constructions to express the past tense. While Yiddish shows agreement morphology in the present tense, Afrikaans shows no verbal inflection for agreement or tense whatsoever:

¹⁸ The fact that if only one of tense and agreement is to be expressed via overt morphology, then it will be tense, is undoubtedly not accidental. Noam Chomsky suggests (p.c.) that this may well be due to the fact that tense has semantic import (in terms of Chomsky forthcoming it is “interpretable”), whereas agreement generally redundantly expresses features expressed elsewhere in the clause. For the discussion in this thesis, we are concerned only with the tense / agreement interactions. Finer-grained distinctions may well be necessary. Johnson 1990 proposes that there is an implicational hierarchy in Germanic among the features expressed in a given language. Thus, person distinctions exist only in those paradigms which show a number distinction, number distinctions exist only in paradigms which distinguish “addressee” (i.e. second person) from other forms, and these distinctions in turn exist only in paradigms which have tense distinctions. The hierarchy is not without problems. Yiddish, for instance, shows rich person and number agreement, but has no simple non-present tenses. It could be claimed that there is a tense distinction nonetheless; as Rex Sprouse, pc, points out Yiddish shows vowel quality changes between finite and non-finite verb forms. However, to the extent that Johnson’s or similar finer-grained distinctions are mandated, the simple interpretable versus non-interpretable distinctions will not alone suffice. A promising direction is to explore morphological feature hierarchies, as discussed in Noyer 1992, Harley 1993. If these are universal, then they may ultimately reduce to a more refined notion of “interpretability” than the binarity suggested by Chomsky, just as recent work in phonology has suggested that feature hierarchies are grounded in articulatory / phonetic realities (see, e.g. Halle 1995, Archangeli & Pulleyblank 1994 and references therein).

(22) Yiddish: 'to heal' (Birnbaum 1979, David Braun, pc.)

	<u>Present</u>	<u>Past</u>
1 psn sg	<i>heyl</i>	Non-present tenses are auxiliary constructions
2 psn sg	<i>heyl -st</i>	
3 psn sg	<i>heyl -t</i>	
1 psn pl	<i>heyl -n</i>	
2 psn pl	<i>heyl -t</i>	
3 psn pl	<i>heyl -n</i>	

(23) Afrikaans: 'to work' (Donaldson 1993)

	<u>Present</u>	<u>Past</u>
1 psn sg	<i>werk</i>	Non-present tenses are auxiliary constructions
2 psn sg	<i>werk</i>	
3 psn sg	<i>werk</i>	
1 psn pl	<i>werk</i>	
2 psn pl	<i>werk</i>	
3 psn pl	<i>werk</i>	

Previous accounts attempting to correlate syntax and morphology in Germanic, working from a notion of “richness” of inflection (eg. Johnson 1990, Roberts 1992, Rohrbacher 1994, also Holmberg & Platzack 1993 for Scandinavian) have often been derailed by Afrikaans, or make exactly the wrong predictions about it.¹⁹ Syntactically it behaves like the most richly inflected languages, yet it is the most poorly inflected of all the Germanic languages, showing no tense/agreement inflection at all (though it does have tense suppletion in the verb ‘be’).

¹⁹ The focus of these accounts has been primarily correlations between “richness” of inflection and patterns of verb raising, with no attempt made to connect verbal inflection and argument positions. Jonas 1995a is, I believe, the first to observe that the Spec,TP Parameter correlates with parametric variation in verb raising (although Vikner 1991 identifies the correlation between V-to-Infl in non-V2 environments and the possibility of shift of full NP objects in the Scandinavian languages). In the present analysis, I see no obvious way in which the morphology correlates with verb raising. In Chapter V, I return to this on a revised set of assumptions, offering a unified account of the effects of the Spec,TP Parameter and the verb raising correlations. The discussion is postponed since that chapter relies on different assumptions about the nature of the syntax.

On the account I offer here, Yiddish and Afrikaans behave exactly as predicted by (21). The revised statement of the implicature is still only a one-way implicature. That is, a language which has evidence of fused morphology will behave syntactically as a [-Spec,TP] language. However, such evidence by (21) is only available from simple past tense forms. Since Afrikaans and Yiddish have no simple past tense, they *a priori* cannot have evidence for fusion, and are thus expected to behave as +Spec,TP languages. Nothing more need be said.

It is not, then, “richness” of morphology which determines the syntactic behaviour, but rather the presence or absence of a specific morphological configuration. Fused Tense/Agr vocabulary items only fit into the heads created by one of the two possible syntactic derivations, i.e. (8). If a language does not show competition between tense and agreement, then the “richness” of the morphology is irrelevant; the language learner will not be forced to either of the derivations above by the morphological evidence. In this sense, there emerges a markedness effect: the derivation (9) is the default, or unmarked case. The derivation (8) is posited only if there is compelling morphological evidence that it is necessary. We return to the markedness and learnability issues in section 4.

3.2.4 Faroese

Faroese appears to pose an immediate problem to the analysis I have developed thus far. As noted above, Jonas 1994a has shown that there is a dialect split in Faroese with respect to the relevant syntactic properties. One dialect (Faroese I) licenses Spec,TP (eg, it freely permits transitive expletive constructions), while the other dialect (Faroese II) is a [-Spec,TP] language. Dianne Jonas (p.c.) also reports that there are essentially no

morphological correlates of this dialect split. Thus, the paradigm below is the same for both the [+Spec,TP] and the [-Spec,TP] dialects.²⁰

(24) Faroese: *kasta* "throw"

	<u>Present</u>	<u>Past</u>
1 psn sg	<i>kast -i</i>	<i>kasta -ði</i>
2 psn sg	<i>kasta -r</i>	<i>kasta -ði</i>
3 psn sg	<i>kasta -r</i>	<i>kasta -ði</i>
1 psn pl	<i>kasta</i>	<i>kasta -ðu</i>
2 psn pl	<i>kasta</i>	<i>kasta -ðu</i>
3 psn pl	<i>kasta</i>	<i>kasta -ðu</i>

Unlike the (standard) Mainland Scandinavian languages, Faroese shows variation in the past tense. However, unlike Icelandic and German, such variation is only for number and not for person.²¹ The intuition which I would like to capture formally, (see in a different context, Holmberg & Platzack 1993, and references therein), is that number agreement has a different status from person agreement, though I will not go so far as to posit a separate syntactic projection for number. In particular, I would like to claim that number agreement in the past tense is not sufficient evidence to determine whether or not Tense and Agreement are fused. The child faced with number agreement in a paradigm like (24) must look elsewhere to determine whether this is fused morphology or not.

That is, I suggest that the forms *-ði*, *-ðu*, may be analysed as the tense marker *-ð* plus an agreement marker, which varies only for number *-i*, *-u*. Or, they may be taken as

²⁰ Jonas reports one difference in the morphological paradigms of the two dialects. The second person singular marker in the strong verbs, *-st* is preserved to some degree in Faroese II, but not in Faroese I.

²¹ There are dialects of Swedish and Norwegian which also show number agreement. At least one of these shows number agreement only in the present tense, and hence poses no interesting questions since we have seen that the present tense paradigm is irrelevant. It would appear that these languages behave like Faroese II in not licensing Spec,TP, in that they do not allow OS of full NPs. There is no evidence that I am aware of that they allow TEx constructions either, but the data is extremely scant. Given what we are saying is the nature of the ambiguity in Faroese, we predict only that if any of these languages have number agreement in the past tense, then should behave like either dialect of Faroese, admittedly, not a very interesting prediction.

evidence for fused morphology, a single tense marker with vowel quality allomorphy for number.²²

Given the underdetermination of the analysis by the morphology, the triggers must come from elsewhere. I suggest that there is an interplay between morphological and syntactic triggers, such that in the absence of sufficient evidence from one component, sufficient evidence will come from the other, or the learner will maintain default assumptions. In the case at hand, given insufficient morphological evidence to posit

²² Vowel quality allomorphy conditioned by number and tense is quite pervasive in Germanic. Compare the Faroese inflection with the Icelandic paradigm for the same verb, given above, repeated here:

(i) Icelandic: *kasta* 'to throw'

	Present	Past
1 psn sg	<i>kasta</i>	<i>kasta -ði</i>
2 psn sg	<i>kasta -r</i>	<i>kasta -ði-r</i>
3 psn sg	<i>kasta -r</i>	<i>kasta -ði</i>
1 psn pl	<i>köst -um</i>	<i>köstu-ðu-m</i>
2 psn pl	<i>kast -ið</i>	<i>köstu-ðu-ð</i>
3 psn pl	<i>kasta</i>	<i>köstu-ðu</i>

In addition to the actual agreement markers (-r, -m, -ð...) Icelandic shows a number variation in the vowel of the tense marker -ði ~ -ðu. This of course is the same variation which we see in the Faroese forms.

Throughout the Germanic languages, vowel quality alternations in the stem vowels are characteristic of the "strong" verbs. In English, such alternations are conditioned by tense, and stem class (±participle, etc...): *sing, sang, sung* (also *song*?). In many of the languages, including Icelandic, stem vowel quality alternations in preterite stems are also conditioned by number. Take, for instance, the stem forms of the verb *bjóða* 'to offer' (data from Einarsson 1945):

Present:	<i>bjóð-</i>	from which the infinitive and present tense forms.
Preterite, sg:	<i>bauð-</i>	the singular past tense forms:
Preterite, pl:	<i>buð-</i>	the plural past tense forms:
Participle:	<i>boð</i>	

There is an additional vowel quality change in the present stems which is historically, though not synchronically, phonologically predictable. Thus, the first person, singular present tense form is (*Ég*) *byð* 'I offer', the change from /j/ to /y/ being historically triggered by a suffix /i/ in the singular forms, now lost.

Halle & Marantz (1993) point out that vowel stem allomorphy in Indo-European is independent of the presence or absence of a tense suffix. Thus, there are verbs which have (i) the dental past tense suffix, but no vowel quality alternations (*jump, jumped*), (ii) vowel quality alternations *and* the dental past tense suffix (*buy, bought-t*), (iii) vowel quality alternations with no tense suffix (*dig, dug*), and (iv) neither vowel quality changes nor a past tense suffix (*hit*).

Thus, we have strong reasons, within Germanic at least, not to treat vowel quality alternations necessarily as separate vocabulary items. I thank Morris Halle and Koldo Sainz for discussion.

morphological fusion, the child must look for syntactic evidence which would necessitate the use of Spec,TP. In one dialect, such evidence is available, while in the other dialect it is not.

(25) *Transitive Expletive Constructions in Faroese*

Far I: Tað bygdu nakrir íslendingar hús í Havn.
 there built some Icelanders houses in Torshavn.

Far II: *Tað bygdu nakrir íslendingar hús í Havn.
 there built some Icelanders houses in Torshavn.

'Some Icelanders built houses in Torshavn.'

(Faroese, Jonas 1994a:20)

In section 4, I will flesh out the interplay between morphological and syntactic triggers within the context of some thoughts on learnability.

3.3 *Summary*

In this section, I have been concerned with combining the syntactic analysis assumed in §1 with the morphological theory outlined in §2. I showed how a difference in the inventories of overt inflectional vocabulary items among the Germanic languages predicts certain aspects of the syntactic behaviour of these languages. The descriptive generalization which I proposed was the following:

(21) *Evidence for fusion*

If the appearance of Tense morphology blocks the appearance of Agreement morphology, then Tense and Agreement Vocabulary Items are in complementary distribution, and T and Agr must be fused.

This descriptive generalization was shown to play out rather straightforwardly in terms of the theory of morphology. In order to have competition between tense and agreement for insertion at a single node, T and Agr must be fused. Such fusion is only possible in the complex head which is the output of derivation (8). The derivation (9), equally licit in the syntax, does not concatenate the heads in such a way that the necessary

fusion could occur. Languages with the complementarity indicative of fusion must use derivation (8), and therefore cannot utilise Spec,TP in the syntax. They must all be [-Spec,TP] languages. I also illustrated how the data from the various Germanic languages support this conclusion, on plausible assumptions.

The approach developed above suggests that the connection between morphology and syntax is at least in some instances a question of determinism in the acquisition stage. Thus, (21) could well be an informal statement of a morphological “trigger,” providing a key clue to the child learning its language. For this reason, I devote the next section to a brief discussion of some issues which this paper raises for learnability. In particular, I point out a tension between morphology and syntax, with interesting consequences for situations like the underdetermined nature of Faroese (§3.2.4).

4. Learnability and morpho-syntax tensions.

From the morphological perspective of the theory discussed above, the availability of the [+Spec,TP] derivation (9) seems to be the default case. That is, the child acquiring a Germanic language does not posit the derivation in (8) unless there is overt evidence of fused morphemes. On a global scale, there would seem to be a serious flaw at this point. Surely (8) permits a proper subset of the syntactic constructions or configurations admitted by (9). Given that the child is exposed to a subset of its language, acquisition should proceed from subset to superset and not the other way round. If the default assumption is that the specifier of TP is available, why would the child not simply posit the absence of any syntactic evidence for the position as a gap in the input data, instead of restricting the range of syntactic derivations to a subset of the default cases?

The answer lies, I believe, in an intriguing tension between the syntax and the morphology. True, the implication of (8) in the syntax is that it admits only a subset of the derivations permitted by (9), excluding those derivations involving Spec,TP. However, the complex head created by (8) allows insertion of a superset of the vocabulary items which can be inserted into the head from (9). Insertion of discrete VIs at every terminal node is possible in either tree²³, but it is only (8) which in addition admits insertion of competing Tense/Agreement morphemes, i.e. at a fused node. Thus the derivation which is more restrictive in one component turns out to be the less restrictive derivation from the standpoint of the other component. How might the grammar resolve such a tension ?

Recall that the tension is one of learnability, moving from subsets to supersets, from more restrictive to more permissive, on the basis of positive evidence. The discussion then leads us to the following situation. What is at stake, at the beginning, is the decision between two derivations, (8) and (9).

In the morphology, the null hypothesis is perhaps that each syntactic terminal node corresponds to a potential locus of insertion. Only if there is positive evidence of fusion, i.e. if the presence of a tense marker preempts the possibility of an agreement marker, must the child move to the morphologically more permissive derivation, (8). The syntactic ramifications of this morphologically-driven step are as discussed above.

In the syntax, the null hypothesis would have no reason to begin with constructions utilising the specifier of TP. Note that non-use of the specifier of TP is compatible with either (8) or (9); while (8) *blocks* the movement of the subject to or through Spec,TP, there

²³ Also, both heads allow total fusion - i.e. full suppletion, such that inflected verbs are inserted as a single, morphologically unanalysed unit. If children do make use of all the functional projections at an early stage, then the total suppletion stage would be that stage at which they make no mistakes of over-generalization in their use of inflected forms. That is, there is much evidence that children start with something like total suppletion before they posit that morphological concatenation is rule-governed and that inflected verbs are decomposable.

is nothing intrinsic to the derivation (9) which forces movement to this position. Given that the superset/subset relations are the inverse in the syntax of what they were in the morphology, syntactic evidence must be of the sort that entails the use of the specifier of TP (object shift of NP, or transitive expletive constructions), forcing the child to opt for the syntactically more permissive derivation (9). The morphological consequence of this syntactically-driven step is that fusion of T and Agr will be impossible.

Thus, my claim is not that acquisition is purely morphology-driven, nor is it that acquisition is driven by purely syntactic triggers, but rather that information can come from either source. However, in the model of grammar I have assumed throughout, there are many instances in which a move driven by one component has ramifications, perhaps quite extensive, in the other component. In the case at hand, the resolution of an open option i.e. the decision between (8) and (9), can be based on evidence from either morphology or syntax; however, the source of the evidence will determine in what way the option is to be resolved.

We have seen both cases above. For English and the Mainland Scandinavian languages, the morphology dictates that (8) be the only possible derivation, precluding derivations utilising Spec,TP. For Faroese, the morphology provides insufficient evidence and syntactic triggers are decisive. Thus, in Faroese I, the child has evidence of the use of the specifier of TP, and selects the appropriate derivation (9). Both morphological and syntactic triggers are invoked.

The prediction of the theory, then, is that no single grammar could ever provide truly conflicting evidence. That is, no language, with the general properties of the Germanic languages, should have positive evidence of fused T and Agr (entailing (8)), yet at the same time display positive evidence of derivations involving the specifier of TP,

entailing (9). Within Germanic, as I have shown above, this seems to be borne out quite nicely. The prediction is, of course, independent of the learnability issue, as such a language would violate either syntactic principles (§1) or morphological ones (§2) as I have presented them. I point it out in the context of the present discussion only to show that the tension between the two components need never entail contradiction.

5. Concluding remarks.

In this chapter, I have sketched an account of one way in which an apparent syntactic parameter may in large part be derived from morphological facts of the languages in question. Among the Germanic languages, a substantial cluster of properties has been shown in earlier literature to reduce to a simple parameter: whether or not the specifier of TP is licensed in a given language. Here I have shown that this parameter in turn reduces to whether or not tense and agreement vocabulary items are in competition. If they are in competition in a given language, then that language must fuse Tense and Agreement nodes prior to vocabulary insertion in the morphological component. Such fusion is possible within one syntactically legitimate complex head, but not in another. In this manner, the morphology serves to distinguish between equally legitimate syntactic derivations. The effects of the Spec,TP parameter follow directly, since the derivation excluded for morphological reasons in some languages is the only one in which the specifier of TP can be licensed syntactically.

“Good morning, Pooh Bear,” said Eeyore gloomily. “If it *is* a good morning,” he said. “Which I doubt,” said he.
“Why, what’s the matter?”
“Nothing, Pooh Bear, nothing. We can’t all, and some of us don’t. That’s all there is to it.”

Winnie-the-Pooh. A.A. Milne.

Chapter two

What does adjacency do?

The previous chapter offered an account of parametric variation in the Germanic languages in terms of their inflectional morphology.¹ In particular, I posited that the morphological component may act as a filter on syntactic derivations – ultimately, that morphological criteria may decide between otherwise legitimate syntactic derivations. In this chapter, I will offer another account which has in part the same flavour, considering

¹ This chapter is a revised and expanded version of Bobaljik 1994a. My thoughts on the ideas presented here have benefited from the comments of audiences at the MIT post-generals’ workshop and the *Morphology-Syntax Connection* (MIT), and as a part of larger talks at the University of Durham (UK), the University of California at Berkeley and McGill University, especially from questions and comments of Mark Baker, Cleo Condoravdi and Paul Kiparsky. Many other colleagues have given me invaluable suggestions and comments in the larger context of the dissertation – see the thesis acknowledgements.

for the most part related data from the same range of languages. The specifics of the account, however, are quite different.

With respect to the object shift phenomena discussed briefly in Chapter I, there is an asymmetry in the behaviour of the SVO and SOV Germanic languages.² As first noted by Holmberg 1986, object shift of NPs and pronouns alike in the Scandinavian languages is restricted to those environments in which the main verb raises overtly out of the VP. However, this restriction does not hold in those Germanic languages which display evidence of underlying OV order. This split on the basis of headedness is a serious problem for structurally based accounts of Holmberg's generalization. I will therefore offer an alternative account, relying on a notion of *adjacency* in the morphology which, I show from a discussion of English *do*-support, is independently necessary.

In short, the account runs as follows. Assume the verb stem and the inflectional affix are generated independently in the syntax, under different X° nodes (heads). In the event that the two do not combine in the syntax, through head-to-head movement, they may combine in the morphology, through a process of *morphological merger* (Marantz 1984). Assume further that the environment for morphological merger is *adjacency* as defined below. Certain elements, if they intervene between the verb stem and inflectional affix, disrupt this relation of adjacency, thus prohibiting morphological merger. In English, such disruptions by negation, the subject, or other structural material trigger the insertion of a

² I.e. as distinguished by the word order of embedded clauses in which the finite verb does not raise to C, and by the relative positions of participles and arguments. I will not discuss Yiddish here. If it is an OV language, as has often been claimed (Vikner 1991, Santorini 1992, others) then its behaviour is unsurprising with respect to the phenomena to be considered here. If Diesing 1994 is correct in characterizing Yiddish as a VO language, then, as she and Chris Collins point out (personal communication), Yiddish poses a potential problem for the theory developed here. I return to this in fn 18, and suggest a likely, though uninteresting, solution, to the problem which viewing Yiddish as a VO language poses.

At the end of this chapter, I consider the interaction of the present proposal with a proposal of Kayne 1994 to the effect that all languages are SVO and that there is no headedness parameter *per se*, not even in the morphology.

dummy element, *do*, which acts as a host for the stranded affix (Chomsky 1955[1975]). In the left-headed (i.e., VO) Germanic languages, shift of an object to the specifier of an intermediate functional projection likewise disrupts the adjacency relation between the verb stem and inflectional affix, if the verb has not raised to the affix in the syntax. This is Holmberg's generalization, now stated as a morphological condition (adjacency) which plays a filtering role on the syntax. The syntactic movement of the object is prohibited in case it will disrupt a necessary relation in the subsequent morphological component. This analysis therefore predicts the absence of the effects of Holmberg's generalization in the right-headed (OV) languages. Leftwards movement of the object will not disrupt the adjacency relationship between Infl and the verb stem whether or not the latter has raised, since the two heads are string-adjacent on the right periphery of the clause.

The chapter is laid out as follows. In section 1, I offer some introductory remarks on the nature of affixes and define the relationship of adjacency which will underlie the analysis. Section 2 presents the analysis of *do*-support in English, reworking Chomsky's original analysis in terms of more current assumptions. I will show that this analysis has a wider range of empirical coverage than analyses invoking LF and theta-relations, pointing out a potentially serious problem for such analyses. In section 3, I turn to the object shift phenomena, and Holmberg's generalization, fleshing out the account just sketched. In the final section, I discuss some possible extensions of the analysis offered here to "support" phenomena in other languages.

1. Affixes and adjacency

Let us begin with the notion that included in UG is some principle which says that a lexical item which is an affix must come to be associated in an appropriate manner with some other lexical item before it is interpreted at the phonetic interface. That is, UG requires that an

affix be affixed. Narrowing the possible instantiations of such a requirement, let us suppose that this is not a requirement of LF, nor of the syntax *per se*, but rather a morpho-phonological requirement, that is, one which must be satisfied in the mapping from syntax (s-structure) to phonology, the SPELL OUT component.³ Let us further assume that the mechanism by which an affix comes to join with a stem, in the case that the two are generated separately in the syntax, is distinct from the actual realisation of the phonological features associated with a particular affix, including its realisation as prefix, suffix, or what have you. For example, a head which in the syntax left-adjoins to another head – α° in $[\beta^\circ \alpha^\circ, \beta^\circ]$ – is not in principle required by UG to be realized in the phonology as a prefix, though the possibility is of course not excluded by UG. There is a growing body of evidence in support of this which I will not discuss here (see, among others, Marantz 1989, Bonet 1991, Noyer 1992, Halle & Marantz 1993).

There is more than one way in which the requirement that an affix be an affix may be satisfied. A simple case, alluded to already, is adjunction via head-to-head movement in the syntax (Travis 1984, Baker 1988). Presumably, affixation may also occur in the lexicon (derivational morphology), if derivational morphology is not syntactic.⁴ The goal of this chapter is to suggest that a third configuration will satisfy the condition on

³ In Chapter V, I will argue more strongly that [+affix] cannot be a syntactic feature – this feature cannot drive movement in the syntax. The requirement alluded to here – that an affix be affixed to a stem – is presented in that Chapter as a purely a morphophonological requirement. It can only trigger or block morphophonological processes such as *morphological merger*. This strong claim about the level at which [affix] is relevant is consistent with everything in this chapter as well. However, for the present discussion it suffices to say only that it must be satisfied in the morphological component, with no stand taken on the relevance or irrelevance of the feature [+affix] in the syntax.

⁴ See Marantz 1995b for a refutation of the idea that the lexicon allows derivational procedures. In particular, Marantz reconsiders arguments in Chomsky 1970 to suggest that the lexicon is truly atomic and allows for no complex entities or concatenative procedures. All concatenative operations, according to Marantz, must be in the syntactic computation. This would be inconsistent with the argument structure theory of Hale & Keyser 1993, who invoke a level of Lexical-Relational Structure – in essence a syntax in the lexicon. Chomsky 1993 has independently argued that most of the insights of Hale & Keyser's theory can be captured while maintaining that all operations occur in the syntax. There is a slight residue, including “doubling” of the implicit argument in unergative verbs, as in *I laughed a hearty guffaw*. The unergative verb *laugh* is taken to be underlyingly transitive, at LRS, but then can double its argument since it corresponds to a single V head in the syntax. For a possible solution to this problem without making reference to a separate level of syntactic operations – i.e. a solution consistent with Marantz 1995b – see Bobaljik (to appear).

affixation, namely that of *adjacency*. In other words, an affix may undergo *morphological merger* with (i.e., be realised phonetically on) a stem with which it a) forms a complex head derived in the syntax, b) forms a complex head in the lexicon, or which it c) is adjacent to. Obviously, it would not be too hard to reduce this disjunction to a single statement of adjacency, with a) and b) satisfying the relationship trivially.

(1) *The Adjacency Condition (informal)*

In order for an affix and a stem to be combined, they must be *adjacent*.

A moment should be taken to articulate precisely the relevant notion of *adjacency*. I suggest that, as affixation is a morphophonological condition, adjacency must be defined at (an intermediate stage in) the spell-out or interface between syntax and phonology. Adjacency is sensitive, then, only to those elements which are relevant to the mapping process. Headedness *is* relevant (*linearization*), while traces and empty projections are irrelevant (“PF-deletion”). Adjacency as a morphological notion, however, is not purely linear / phonetic in that adverbs (or perhaps adjoined material more generally) are *not* relevant. Illustrative configurations are given in (2) (a)-(c):

(2) *Adjacency schematized*

- | | | | | |
|----|-------|---------------------------|----------|------------------|
| a. | ... X | [YP NP _[overt] | [Y' Y... | X,Y not adjacent |
| b. | ... X | [YP <i>trace</i> | [Y' Y... | X,Y adjacent |
| c. | ... X | [YP adverb [YP | [Y' Y... | X,Y adjacent |

In (2a), the elements X and Y are not adjacent. The overt lexical NP in Spec,YP intervenes. If X is an affix and Y does not raise to X, then the condition on affixation is violated. In (b) and (c), however, X and Y are adjacent for the purposes of (1). In (b), it is only a trace, a phonetically empty element, in Spec,YP which intervenes between X and Y, while in (c) only an adverb adjoined to YP (which does not alter structural relations)

disrupts the (otherwise linear) adjacency between X and Y. In (b) and (c), then, the affixation requirement of X could be satisfied (among other means) either by head-adjunction of X to Y, or simply by virtue of the adjacency between the two elements without syntactic movement.⁵

The principal claims here are not novel, and indeed the analysis at least of *do*-support below resurrects many ideas of work from 40 years ago (especially Chomsky 1955[1975]). The single claim which is perhaps the least obvious is the contention that adverbs/ adjuncts are not visible for the morphological relation of adjacency, (2c). Though I will not attempt to provide any other motivation for it here aside from the fact that it appears to explain a number of previously mysterious facts, there is a long literature which shows that the adjunct / argument asymmetry is indeed relevant for morphophonological processes. I refer the reader to the literature on phrasal phonology (e.g., among others, Selkirk 1984, Nespor & Vogel 1982, Truckenbrodt 1995), and to the papers in Inkelas & Zec 1990.⁶

⁵ I leave open here how it is that a trace comes to be invisible in the phonology, given that it is visible in the syntax. I assume some mechanism of “PF-deletion” of traces, which occurs early in the morphology. In Chapter VI, I refine the account offered here and in that chapter offer a more detailed view of the mechanism of pronunciation which determines which elements / copies of elements are deleted “at PF.”

⁶ The adjunct/argument distinction is relevant for phonological rules of liaison (French: Selkirk 1972), vowel deletion (Basque: Chen 1990), tone sandhi (Chinese languages) and other processes, indicating that this syntactic dichotomy is somehow preserved well into the phonological component of the grammar. However, as Hubert Truckenbrodt points out, it is not preserved in the phonology in a means which is obviously consistent with the view advocated here. While adjuncts behave differently from arguments in the phonology in many languages, it is not usually the case that phonological processes may occur across adverbs. I leave this as an unsolved problem here, and welcome any suggestions.

2. English Inflection and *Do*-support

2.1 What Adjacency Does.

A well-known difference between English and French which has received much attention in the recent literature is the systematic difference in the relative order of inflected (i.e., finite) verbs and negation. A partial paradigm is given in (3):

- (3) a. Je ne mange **pas** de phoque.
 * Je ne **pas** mange de phoque.
 I neg eat **NEG** eat (of) seal
 'I don't eat seal.' (French)
- b. I have **not** eaten your smoked fish.
 * I **not** have eaten your smoked fish
- c. * Sam eats **not** green eggs and ham.

For all verbs in French, and for auxiliaries in English, the inflected verb obligatorily precedes the negative marker *pas/not*. Conversely main (i.e., non-auxiliary) verbs in English cannot precede the marker of negation. The paradigm is similar with sentential adverbs in place of the negative element:

- (4) a. Je ***souvent** mange **souvent** du poisson.
 b. I **often** eat ***often** fish. (French, English)

The pattern with English main verbs is not, however, simply the inverse of the auxiliary/French pattern. That is, it is not simply the case that the inflected verb in English follows the negation marker *not*. Rather, in the environment of negation, a “dummy” element *do* must be inserted which bears the inflectional features, while the bare verb stem remains in situ in the VP:

- (5) a. * Sam **not** eats horseradish.
 b. Sam does **not** eat horseradish.

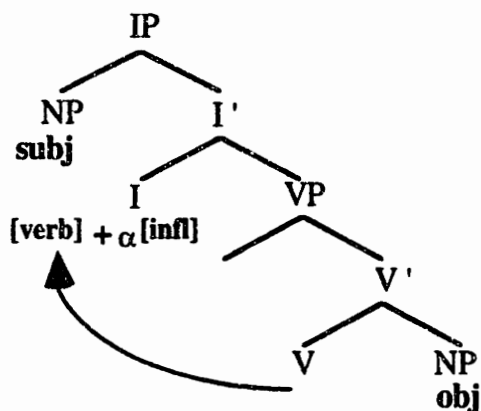
Since Emonds (1978), the standard account of at least (3) and (4) is that English auxiliaries and all verbs in French raise overtly to (some) head of IP – Infl, while main verbs in English remain in situ internal to the VP (at least at s-structure). If negation (and sentential adverbials) occur in some position between Infl and V°, then the linear asymmetries follow.

A first question which arises from this paradigm which is of concern to us here is how a main verb in English (which has not raised to Infl) comes to bear inflection (\pm past / \pm 3sg) in simple declaratives. Various answers have been proposed. Emonds 1978, Pollock 1989, Chomsky 1991, among others, propose that Infl lowers to the verb in the overt syntax, perhaps raising subsequently at LF to ‘repair’ an Empty Category Principle violation on the part of the ungoverned trace in the head of IP. Chomsky 1993 departs from these earlier approaches, suggesting instead that lexical items are inserted from the lexicon fully inflected, and that they raise at or by LF and merely check that the inflectional features from the lexicon match those dictated by the syntactic configuration. For Chomsky’s checking theory, the mechanism of inflection is thus a non-question: the verb is inflected in the lexicon, and raises to Infl at LF to check the inflectional features, lowering is not needed and no ECP violation is triggered. These approaches are summarised in (6):⁷

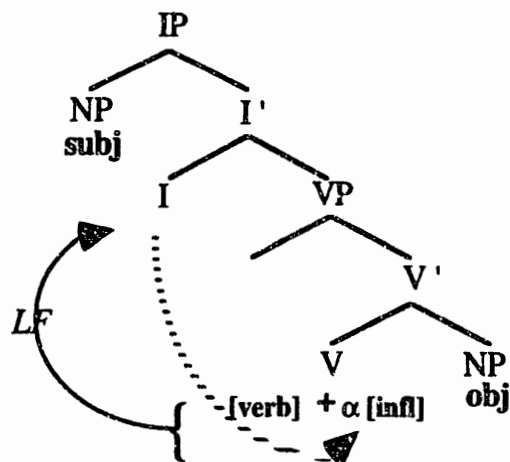
⁷ For expository purposes, I am enclosing certain lexical elements in square brackets, and to those lexical elements which are affixes I attach the sign α . This has no other function than to signal that an item is an affix.

(6)

a. French: all verbs
English: auxiliaries



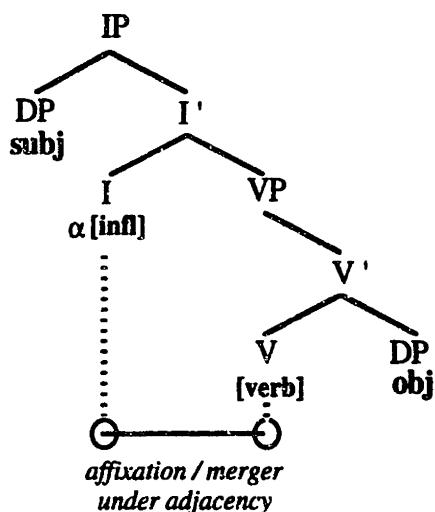
b. English: Main Verbs



On these approaches, the presence of Neg or a NegP is claimed to have no effect on the overt raising (6a), but for whatever reason this element blocks the lowering or LF-raising in (6b). As the verb will not be able to raise out of the VP at LF, a dummy verb *do* must be inserted at s-structure to bear or check the inflectional features, realising them in I', above Neg.

An alternative approach is suggested by Halle & Marantz 1993, returning in many ways to much more traditional assumptions about affixes and linear relations. On their view, neither syntactic lowering nor LF-checking are necessary. Their proposal is that the inflectional affixes and verbal heads may *merge* under (some form of) adjacency. In simple, affirmative declaratives in English, there is a clear relation of adjacency between an inflectional affix in Infl and the verb stem in V° (indicated by the solid, horizontal line in (7)).

(7)



The derivation of (7) would proceed as in (8).⁸

(8)	Sam	$\alpha[-\text{past},3\text{s}]$	like	green eggs and ham	linear order
			↓		
	Sam	word { $\alpha[-\text{past},3\text{s}]$, like }		green eggs and ham	affixation under adjacency
			↓		
	Sam	like+s		green eggs and ham	Spell Out

The adjacency which is required for affixation is disrupted by the presence of the negative marker *not*, presumably in Spec,NegP.⁹ While auxiliary verbs raise past

⁸ Though the inflectional affix $\alpha[-\text{past},3\text{s}]$ precedes the verb stem in linear order, the fact that it is regularly realised as a suffix is presumably an idiosyncratic phonological characteristic, listed in the vocabulary, on a par with its specification as a coronal fricative or what-have-you.

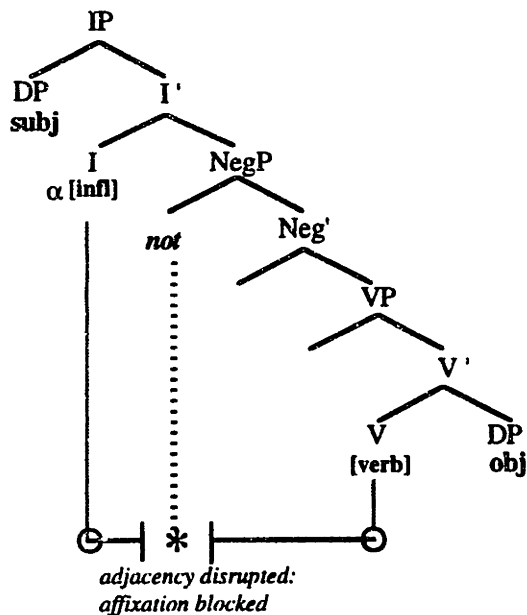
⁹ The structural position of *not* is not crucial for this analysis. It is descriptively not a controversial fact that negative elements appear to be different categories cross-linguistically, adverbials in some languages, clitics in others, heads or other things in still others. For present purposes, I assume that English *not* and French *pas* are located in Spec,NegP as they do not block head movement whenever such movement is permitted on independent grounds (English auxiliaries, French finite verbs). A plausible candidate for a negative element which would be the head of NegP would be the negative markers in the Finnic languages, which bear (some) Tense and Agreement features, while the main verb does not raise and does not bear these features:

- (i) Minä ota-n tätä. ota-n / ota-t / ottaa
(1sg) take-1sg this.PAR 1 / 2 / 3 (sg)
'I'll take some of this.'
- (ii) Minä e-n ota mitään. e-n ota / e-t ota / e-l ota
(1sg) NEG-1s take what.PAR 1 / 2 / 3 (sg)
'I won't take any.'

(Finnish, Aaltio 1984:67)

negation, thus appearing, inflected, preceding the marker, main verbs in English do not have this option. Resurrecting the simplest of ideas from, e.g., Chomsky 1955[1975], the “dummy” element *do* is inserted from the lexicon to support the affix in I°. This is shown schematically in (9).

(9)



The derivation is:

(10)

Sam	$\alpha[-\text{past}, 3\text{s}]$	not	like	green eggs and ham.	linear order
	⇓				
Sam	$\{\alpha[-\text{past}, 3\text{s}], \mathbf{do}\}$	not	like	green eggs and ham.	<i>do</i> -insertion
	⇓				
Sam	does	not	like	green eggs and ham.	spell-out

On the face of it, this is an attractively simple approach, accounting not only for the observed word order, but also for the fact that, unlike aspectual *have* or *be*, the main verb stem following *do* surfaces as its uninflected base and not as a participle.

As Halle & Marantz observe, this account extends straightforwardly to *do*-support in non-subject *wh*-questions. Like the negation cases, with main verbs these are uniformly ungrammatical without *do*-support, though *do*-support is not triggered with auxiliaries.

(11)

- a. * When ate Sam the horseradish ?
- b. * When Sam ate the horseradish ?
- c. When **did** Sam eat the horseradish ?
- d. **Did** Sam eat the horseradish ?

- e. What *(**did**) Sam eat ?
- f. What **has** Sam eaten ?

When the subject is questioned, however, *do*-support is not triggered with either main verbs or auxiliaries:

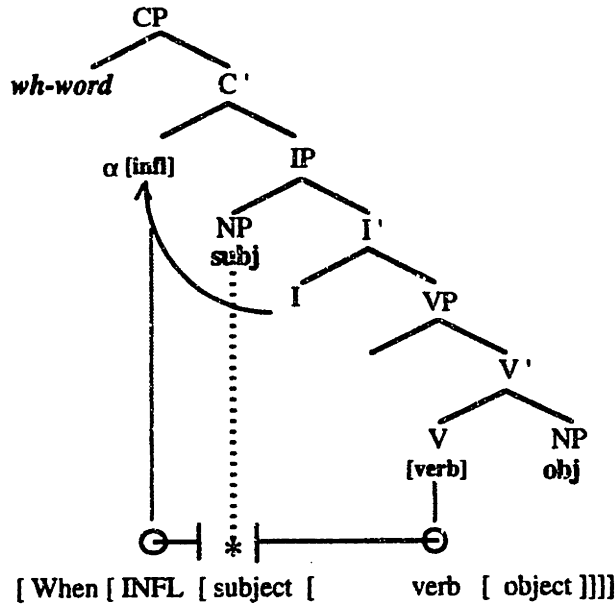
(12)

- a. Who ate my horseradish ?
- b. Who **has** eaten my horseradish ?

- c. * Who **did** eat my horseradish ? (on non-emphatic reading)

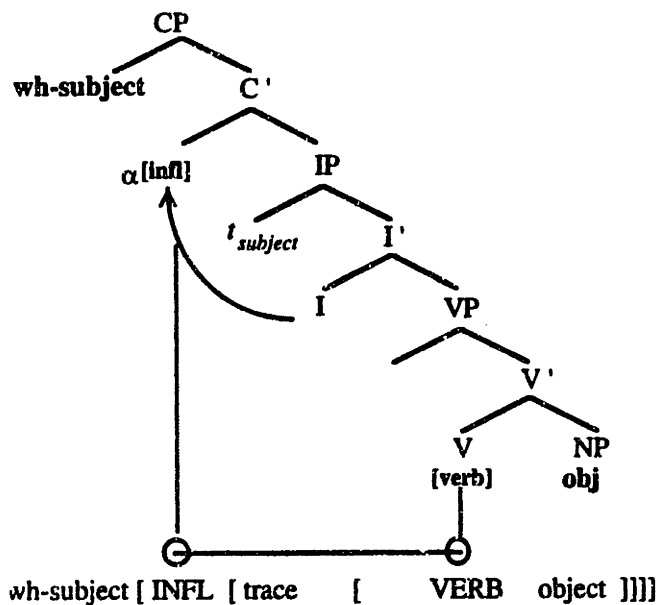
If we assume that the syntax forces the *wh*-word to raise to Spec,CP and Infl to raise to C°, at least in matrix questions, then the account of *do*-support in non-subject questions falls together with that of negation. In interrogatives, the overt subject NP in Spec,IP interrupts the adjacency relation between the inflectional affix (in this case in C°) and the verb stem in V°:

(13)



As long as a lexical subject occupies Spec,IP, it will intervene to block the adjacency between the inflectional affix in C° and the verb stem in V° when *wh*-movement to Spec,CP has triggered ‘inversion’ of Infl to COMP. When it is the subject itself which is being questioned, however, as in (12), there is no longer overt lexical material intervening, only the (phonologically null) trace of the subject, and Infl, even in C°, is adjacent to the verb stem.

(14)



The examples just considered indicate clearly that it is adjacency and not structure which is relevant here. Exx (13) and (14) do not differ structurally in any respect relevant to head movement. The only relevant difference between them is in the phonological content of Spec,IP. In (13), Spec,IP contains a lexically overt NP, and *do*-support is obligatory. In (14), the same position contains only a trace of the *wh*-moved subject, by definition phonologically null. *Do*-support is not triggered.¹⁰

Yet a further environment which supports the adjacency analysis over structure-based analyses of *do*-support is the interaction of constituent questions and Locative Inversion (LI).¹¹ In LI constructions in English, the subject surfaces following the finite verb, as in (15):

(15) *Locative Inversion*

- a. Into this auditorium poured **throngs of undergraduates**.
- b. Over that bridge rode **Robin Hood and his band of married men**.

That the postverbal DPs boldfaced in (15) are indeed subjects at some level can be seen by the fact that they obligatorily trigger agreement with the verb:

(16) *Post-verbal DP triggers agreement.*

Every Thursday at noon, over that bridge $\left\{ \begin{array}{l} *ride \\ rides \end{array} \right\}$ King John.

¹⁰ For analyses of the differences in the distribution of *do* between subject and non-subject questions which do not refer to phonology, see Watanabe 1993 and Richards 1995. While these analyses account for the subject versus non-subject asymmetries in syntactic terms, they fail to generalize to the other cases of *do*-support in English. The account offered here claims that all instances of *do*-support in English fall under a single generalization and accounts which do not derive this are therefore missing the generalization.

¹¹ Surely this data has been noticed before in the literature, but I have been unable to find mention of it in a cursory search of some of the relevant articles. My thanks to Heidi Harley for discussion of these facts.

If we assume that triggering subject agreement requires the subject to be in Spec,IP at some level (perhaps LF in these cases), then we have another range of data where the structure-based and adjacency-based accounts make different predictions. When the locative PP is questioned, then the adjacency-based account predicts that there should be no *do*-support; the subject is pronounced in the post-verbal position and does not intervene between C° and the verb stem. These are non-subject questions, however, and thus on a non-adjacency account might be expected to pattern with other non-subject questions, requiring *do*-support. As the examples in (17) illustrate, the prediction of the adjacency account is borne out – *do*-support is not triggered in LI questions:

(17) *LI questions - no do-support*

- a. Into which auditorium **poured** throngs of undergraduates?
- b. * Into which auditorium **did pour** throngs of undergraduates?

Do-support is ungrammatical if the subject is post-verbal. However, the same structures with a preverbal subject show the opposite pattern – *do*-support is obligatory. They behave just as other non-subject questions (18). The crucial difference is not theta-relations or structure, but rather the position in the linear string in which the subject DP is pronounced.

(18) *Preverbal subject*

- a. * Into which auditorium throngs of undergraduates **poured**?
- b. Into which auditorium **did** throngs of undergraduates **pour**?

2.2 *Beyond the obvious: other instances of do-support.*

Negation markers (*not*, *n't*) are not the only elements which trigger *do*-support in non-interrogative environments in English. As is well known, emphatic elements (*so*, *too*) do so as well:

- (19)
- a. Heidi's fish ***(do)n't** eat horseradish.
 - b. Heidi's fish ***(do)so** eat horseradish.

This implies that what we have called NegP is more accurately the locus of both contrastive affirmation or focus and negation, Laka 1990's Σ P.

In this context, so-called "emphatic *do*" can also be accommodated, very much in the manner of Chomsky 1955[1975] (pp. 446-7). As is well-known, dummy *do* is permitted in the context of simple declaratives, but only if it is heavily accented (indicated by ALLCAPS), unlike *do* in any of the obligatory contexts:

- (20) *Emphatic do*
- Heidi's fish **DO** eat horseradish.

Ex. (20) has a reading of affirmation similar to (19b). The account is straightforward. The elements which can occupy (Spec of) Σ P (i.e. which block adjacency) include one which is phonologically overt, but includes no segmental features, only a suprasegmental diacritic: [+ACCENTED] (Chomsky's "Ac"). Like the other markers of Σ , including the clitic *n't*, this affirmation element disrupts the adjacency between I° and V°, triggering *do*-support.

This also explains the otherwise curious restriction that “emphatic *do*” is the only auxiliary-like element which can never co-occur with other modals:

(21) * *Emphatic do with auxiliaries*

- a. * Sam will DO leave.
- b. * Sam DID have left.

Auxiliaries in English, as we know, raise past ΣP to Infl (or are base-generated in Infl – see Chapter V) and the environment for *do*-support never arises. If emphatic *do* reduces to “normal” *do*-support in the manner just indicated, then auxiliaries should raise in these constructions as well. This is confirmed by the fact that raised auxiliaries support [+ACCENTED] in exactly the same way that they support *n't* :

(22) [+accented] with auxiliaries

- a. Sam hasn't left.
- b. Sam HAS left.

One final environment which triggers *do*-support worth considering here is that of VP-ellipsis.¹²

(23)

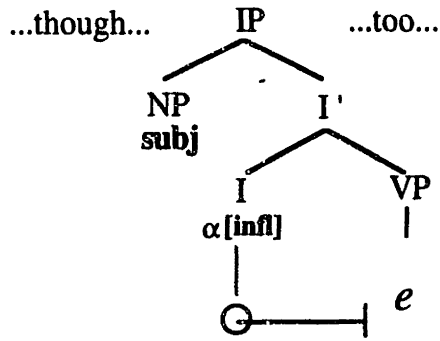
- a. Sam *will* leave today (even) though Pat *might* _____ too.
- b. Sam left on Thursday (even) though Pat *did* _____ too.
- c. * Sam left on Thursday (even) though Pat _____ too.
- d. Sam left on Thursday and Pat will _____ tomorrow.

As (23a), shows, it is possible to elide the VP complement of a modal auxiliary, even if the modals of the first and second VP are not identical. This indicates that it clearly is the VP which is elided in the second clause, and not, say, IP or I'. Now (23c) shows that when there is no modal, *do*-support is obligatory. The account of this is intuitively

¹² A context which makes the sentences of (23) more felicitous would be along the lines of some rule that only one person may leave on a given day. Sam, in these instances would be violating the rule.

straightforward: even though the VP is elided, the inflectional affix in I° is still present and must be affixed to a stem. In (23a) and (d), a modal occupies I° at s-structure, but when there is no auxiliary verb, *do* must be inserted to support the affix (23b). Schematically:

(24)



On the adjacency account, this is not surprising: the affix in INFL must be (*do*-) supported. Note that *do*-support in VP-ellipsis contexts is a potentially serious problem for theories of *do*-support which do not make reference to phonology, such as those invoking LF-raising (Chomsky 1991, Jaeggli & Hyams 1993), or those based on thematic considerations treating *do* as an auxiliary verb (Watanabe 1993). The appearance of *do* in (23b) is a problem for these theories if VP-ellipsis involves PF-deletion of the elided VP, i.e., the entire VP being visible for syntax and LF, as argued in Tancredi 1992, and Chomsky & Lasnik 1993. Consider in this light the pre-Spell Out representation of (23c) on the copy-deletion theory of VP-ellipsis:

(25) *Pre-Spell Out representation of (23c)*

[_{IP} Sam [_{VP} left on Thursday]] even though [_{IP} Pat [_{VP} left on Thursday]] too.

On Tancredi's (and Chomsky & Lasnik)'s theory of VP ellipsis, this is the representation which feeds both Spell Out (PF) and LF. The apparent deletion of the VP in the second conjunct is a late phonological process (Tancredi's "copy intonation"). Thus,

from the point of view of LF, there is no difference between the two conjuncts. That is, the structural configuration which obtains between Infl and the main verb in the first conjunct, which does not have *do*-support but rather a simple, inflected main verb, is identical to the structural configuration which obtains between Infl and the main verb in the second conjunct. If *do*-support is an LF-phenomenon, triggered by an ECP violation or the inability of the main verb to raise at LF, as in Chomsky 1991, then there is no motivation whatsoever for *do*-support in the second conjunct. If the main verb may raise to Infl at LF in the first conjunct (thus not requiring *do*), then it must be able to do so in the second conjunct as well. But this does not accord with the facts; as we know from (23c) *do*-support is obligatory in the second conjunct, but not in the first.

The point is even more straightforward than this. If one assumes a PF-deletion-under-identity approach to VP-ellipsis, then (23) shows that *do*-support (in at least these cases) must be sensitive to the phonological environment.

An extension of the adjacency account to the appearance of *do* in tag questions such as (26) should be straightforward. Again, the differing behaviour of main verbs (a,b) and auxiliaries (c) indicates that an Infl node is involved.

(26) *Tag questions.*

- a. The linguists didn't go to the faculty club again, *(did) they ?
- b. The linguists went to the faculty club again, { didn't they }
*went they } ?
- c. The linguists have gone to the faculty club again, { haven't they }
*didn't they } ?

The analysis offered here provides a remarkably simple account of English *do*-support and inflection. Resurrecting the ideas of Chomsky (1955[1975]), the leading idea is that the dummy verb *do* is inserted to support an inflectional affix which cannot be

legitimately associated with the verb either through overt verb-raising (auxiliaries) or through affixation under adjacency (i.e., the cases where adjacency is blocked by phonologically overt structural material or where there is simply no overt verb-stem to be adjacent to).

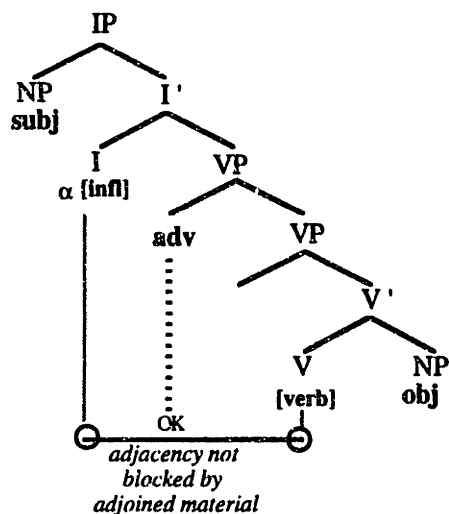
Lasnik 1994 extends this account of *do*-support to a range of phenomena in VP-ellipsis contexts and pseudo-gapping, reducing the latter to the former. Lasnik shows that with reasonably few problems, the impossibility of stranding affixes can be extended to the participial affixes in VP-ellipsis constructions with multiple auxiliaries.

Lasnik's account, as he acknowledges, has some outstanding problems. For a discussion of these, and thoughts on both extensions of Lasnik's proposals and an adaptation of them to the "feature-movement" framework of Chomsky, forthcoming, see Hagstrom 1994. I leave this as beyond the scope of the present work.

The case that I have laid aside without comment, which has received treatment in other accounts, is the question of why adverbs do not trigger *do*-support in English, even though they occur between Infl and the verb stem.

(27) *Adverbs do not disrupt adjacency.*

- a. An adverb never disrupts adjacency.



An adverb never disrupt +s adjacency

The answer I will offer is not deep, and is admittedly somewhat *ad hoc*. Adjacency was defined in the introduction such that adverbs are not relevant, and in particular do not block the merger of an affix and stem. As we shall see, this one observation allows simple explanations of a wide range of phenomena in quite a few languages. This is not an entirely uninteresting point. That the inflected verb occurs following the adverb indicates that the single vocabulary item which is the output of the merger of affix (Infl) and (verb) stem occurs in the position occupied by the stem. Thus, in a non-trivial sense, the affix adjoins to the stem and not vice-versa. This will be seen to be the case in all the instances of merger/affixation examined below. It remains an open question if this is a universal characteristic of such merger operations.¹³

The use of *never* as the illustrative adverb in (27) is important. Unlike *not*, the adverbial negation *never* does not trigger *do*-support. However, *never* does license

¹³ If cliticization is a process occurring also at this level, then it would seem to fall within the scope of this generalization. Certainly, English "clitics", like negative *n't*, or the clitic forms of the auxiliaries do not run counter to this, though see Pullum & Zwicky 19xx for discussion of English *n't*.

negative polarity items like *any* as in (27). One of the principal motivations for the existence of a NegP in the literature is the licensing of negative polarity items, at least on some accounts. If this is so, then the minimal difference between *not* and *never* makes an important point. Namely, it reinforces the observation from the consideration of questions above. That is, if NPI licensing entails a NegP (or Σ P), then such a projection must be present in (27). Thus, in terms of syntactic projections, the structure of (27) with *never* is the same as the structure of (9) with *not*. However, only the latter triggers *do*-support, indicating the relevance of the difference between structural elements such as *not* and adverbs such as *never*, and the irrelevance of projections.

As noted in the introduction (especially note 6), it is well known that the adjunct versus argument dichotomy is relevant in the phonology. The stipulation that this distinction makes itself felt in adjacency phenomena as well is thus only *ad hoc* to the extent that I have offered no account of just how the “transparency” of adjuncts should reduce to a more general problem of expressing this syntactic notion in the phonological component.¹⁴

3. Object Shift

Another set of phenomena which has received a fair deal of attention in the recent literature is the clause-internal fronting of non-subject arguments in the Germanic languages, subsumed under the terms Object Shift and Scrambling, and discussed briefly in the previous chapter. Of particular interest to us at the present are the conditions affecting the

¹⁴ An intriguing suggestion, which has wound its way into the literature now and again, is that adjuncts are on a separate plane or tier from structural elements. If trees are represented in three dimensions, with adjuncts “sticking out,” this could account for the structural effects (scope, etc...) of adverbs, as well as their linear positions, while other processes (head-movement in the syntax, adjacency in the morphology) would “see” only two dimensions and thus be blind to adjuncts. Detailed proposals concerning three-dimensional trees for coordination and other phenomena have been entertained by Moltmann (1992) and references therein.

distribution of the A-movement fronting across elements which demarcate the left edge of the VP, exemplified in (28):¹⁵

(28) *Object shift in Germanic*

- a. **Á barnum drakk stúdentinn bjórinn [stundum]**
 In bar.the drank student.the beer.the [vp sometimes trace]
 ‘In the bar, the student sometimes drank all the beer.’
 (Icelandic)
- b. **I går læste Peter den [uden tvivl [ikke.]]**
 yesterday read P. it [vp without doubt [vp not trace]]
 ‘Peter doubtlessly read it yesterday.’
 (Danish, Vikner 1991:300)
- c. ... **dat veel mensen dat boek gisteren gekocht hebben**
 that many people that book [vp yesterday [vp t bought]] have
 ‘... that many people bought that book yesterday.’
 (Dutch)
- d. **Mit Professoren in den 60ern hat Renate den Hubert [nicht [gegvält.]]**
 with professors in the 60s has R. the H. [vp not [vp t tormented]]
 ‘Renate has not tormented Hubert about professors in the 60’s.’
 (German)

The issues that the phenomena associated with object shift raise are slightly different in SOV Germanic languages (German, Dutch, Frisian, Afrikaans...) and the SVO Scandinavian languages. I will consider them separately here.

3.1 OS-1: The SVO Languages

In the Scandinavian languages, there is a class of adverbial elements including the sentential negation markers (Icelandic *ekki*, Swedish *inte*, Danish *ikke* ...), which are taken to

¹⁵ I will not generally provide arguments in this chapter either that any specific example involves A-movement (as opposed to A'-movement) or that any specific example involves movement at all. I will provide a long argument in Chapter III, §1 that these examples do involve object shift, and in particular the same object shift process as in Icelandic, i.e. for NPs this is movement to Spec,AgrO-P. For pronouns, the question is more delicate. In the previous chapter, I argued (following Bobaljik & Jonas 1994 and others) that pronoun shift (28b) is a distinct process, or rather involves a different landing site. While I believe shifted NPs occupy Spec,AgrO-P, shifted pronouns must occupy a different structural position, also between Infl and VP. For the purposes of this chapter, I will collapse this distinction and treat the pronouns as if they were also in Spec,AgrO-P as nothing here hinges on the distinction.

mark the left edge of VP. Presumably, like English adverbs *quickly* or *never*, these elements are adjoined to the VP.¹⁶ Using these as a diagnostic, it is well known that in certain contexts, object NPs may raise overtly to a derived, VP-external position. A near minimal pair with non-shifted indefinite (a) and shifted definite (b) NP objects is given here, illustrating the two positions. See also the shifted pronoun in (28b).

(29) *Definites shift, indefinites do not.*

- a. Í fyrra máluðu stúdentarnir [VP ekki hús].
 last year painted students.the not house
 'The students painted a house last year.'
- b. Í fyrra máluðu stúdentarnir húsið [VP ekki trace].
 last year painted students.the house.the not
 'The students painted the house last year.'

(Icelandic)

In the SVO Germanic languages (excluding English), Object Shift is dependent upon overt verb raising, an observation originally due to Holmberg 1986.¹⁷ In the examples above, the verb has raised to some VP external position, either Infl or COMP. In the environments where it is permitted, shift of unstressed pronouns is obligatory in all the Scandinavian languages, while Object Shift of full NPs is possible only in Icelandic and Yiddish. In these languages, shift is apparently dependent upon the contrast between new and old information, or something similar (see Chapter III, §1, and references there,

¹⁶ Again, I am assuming that negative markers do not universally occupy the same structural position cross-linguistically. In footnote 9, I suggested that the Finnish negative markers were heads in their own right, as they bear inflectional morphology for (some) tense and agreement. In English, I assumed that *not* occupies Spec,NegP. That Scandinavian negation markers are adverbial does not preclude the projection of a Neg (or Σ) P in negative contexts, in the same manner that English *never*, as an adverb, does not trigger *do*-support, even though it licenses Negative Polarity Items as discussed in the end of the last section.

¹⁷ I assume that English does not have object shift, contra Johnson 1991, Koizumi 1993, Lasnik 1993. For one thing, a characteristic of object shift is that, when possible, it is obligatory for arguments which carry old information (especially weak pronouns), and prohibited for arguments which introduce new information, see Chapter III, Zwart 1993b, Diesing 1995 and others. The proposed cases of "object shift" in English do not display this characteristic. To the extent that there are movement processes involved in, for example, the alternations in (i) with particles, or the more subtle effects in pseudo-gapping and Antecedent Contained Deletion (Lasnik 1993), these do not show the semantic/interpretive effects which are hallmarks of true object shift.

(i) I put [a new hat] on ~ I put on [a new hat].

More discussion of this will crop up in Chapter III and Chapter VI.

especially Zwart 1993b, Diesing 1995). In the Scandinavian languages, when the verb has not raised overtly, however, no object shift is possible (Holmberg 1986).¹⁸ There are two environments in which the verb does not raise overtly. The finite verb remains VP-internal in embedded clauses (outside of “bridge” environments) in the mainland Scandinavian languages (30) and Icelandic non-finite complements of modal verbs (Thrainsson 1993).¹⁹ Likewise, if the inflected verb is an auxiliary, the participle remains internal to the VP in all the languages (31).

(30) *Embedded clause, verb in VP*

- a. Det var godt [at Peter [ikke kobte den.]]
 b. *Det var godt [at Peter den [ikke kobte .]]
 it was good that P it [vp not [vp bought it]]
 ‘It was good that Peter bought it.’

(Danish, Vikner 1991)

¹⁸ Yiddish apparently does allow leftward movement of (definite) NPs to a position between Infl and V even in constructions with auxiliaries (i.e., without verb raising):

- (i) Max hot [NP dos bukh]_i ni(sh)t geleyent t_i.
 Max has the book not read
 ‘Max has not read the book.’

(Yiddish, Molly Diesing, pc)

This is also possible for some speakers of Icelandic (Rognvaldsson 1987, see Jonas & Bobaljik 1993:93f for discussion) and Norwegian () but only with certain quantified objects, and not all speakers agree.

There is reason to believe that these are instances of A'-movement, i.e. Focus Scrambling, and not Object Shift, in the technical sense in which the latter is (A-) movement to the Spec of AgrO-P. For example, constructions such as (i) in Yiddish are not restricted to NPs, and also license parasitic gaps (Molly Diesing, pc):

- (ii) Max hot dos bukh aroysgevorfn on frier vertsoleyenen
 Max has the book out-ge-thrown without earlier ver-to-read [e].
 ‘Max has thrown the book out without reading it.’

(Yiddish, Molly Diesing, pc)

If the medial NPs are adjoined higher than the participle phrase (see below) and not in the Specifier of an intermediate projection, then this data does not run counter to the analysis at hand.

Thanks to Molly Diesing, Chris Collins, and David Braun for the Yiddish data and discussion of it.

¹⁹ In Icelandic and Yiddish, the verb generally raises to Infl or higher in embedded clauses even in the presence of an overt complementizer. In such cases, as might be expected, NP objects may shift, and unstressed pronouns must do so. This provides further confirmation that the relevant factor is overt raising of the finite verb. Furthermore, as Thrainsson 1993 points out, the verb does not raise to Infl in the non-finite complement of a modal verb, and in these contexts object shift is prohibited. See Chapter V for an analysis of verb raising in these languages.

- c. * Risarnir ættu [að ríkisstjórnirnar [éta. trace]]
 giants.the ought to governments.the [vp eat]]
 (The giants ought to eat the governments.)
 (Icelandic, Thráinsson 1993:304)

(31) *Compound tense, auxiliary in Infl, verb in VP:*

- a. Hvorfor har Peter ikke købe den?
 b. * Hvorfor har Peter den ikke købe ?
 why has P it not bought it ?
 'Why hasn't Peter bought it ?'
 (Danish, Vikner 1991)
- c. Hann hefur [aldrei lesið bókina]
 d. * Hann hefur bókina [aldrei lesið]
 He has book.the [vp never read book.the]
 'He has never read the book.'
 (Icelandic, Thráinsson 1994b:20)

Holmberg's generalization, namely the fact that (overt) verb raising is a precondition for (overt) Object Shift, is well known, and is accounted for in most treatments of the phenomenon. In recent accounts within the framework of Chomsky 1993, this is derived for the movement of full NPs through an interpretation of Baker's 1988 *Government Transparency Corollary* through which verb movement may render two positions "equidistant" for purposes of Relativized Minimality qua Shortest Movement (see especially Bobaljik & Jonas 1993, Bures 1993, Marantz 1995a and Chapter III, below). On these accounts, however, Holmberg's Generalization receives a principled account only insofar as it applies to full NPs, even though it applies equally to the shift of pronouns in the SVO Germanic languages.²⁰

I would like to suggest that there is an alternative analysis to derive Holmberg's Generalization. The fact that Object Shift (OS) is prohibited when the verb has not raised

²⁰ Tarald Taraldsen (personal communication) has drawn my attention to certain weak pronouns in Norwegian which may occur preceding the subject, but are not strictly clitics in the sense that they may be separated from the verb by adverbs. See Josefsson (1992) and Holmberg (1993) for some thoughts on these. Though I have little to say about them here, it should be noted that they occur in a higher position than INFL and therefore do not interact at all with the adjacency phenomena discussed in this paper.

can be seen as another result of the Adjacency Condition. For the SVO languages, this account is at least equal to other accounts that have been offered. In the next section, we will see that it allows a much clearer picture of the interaction of headedness with Object Shift.

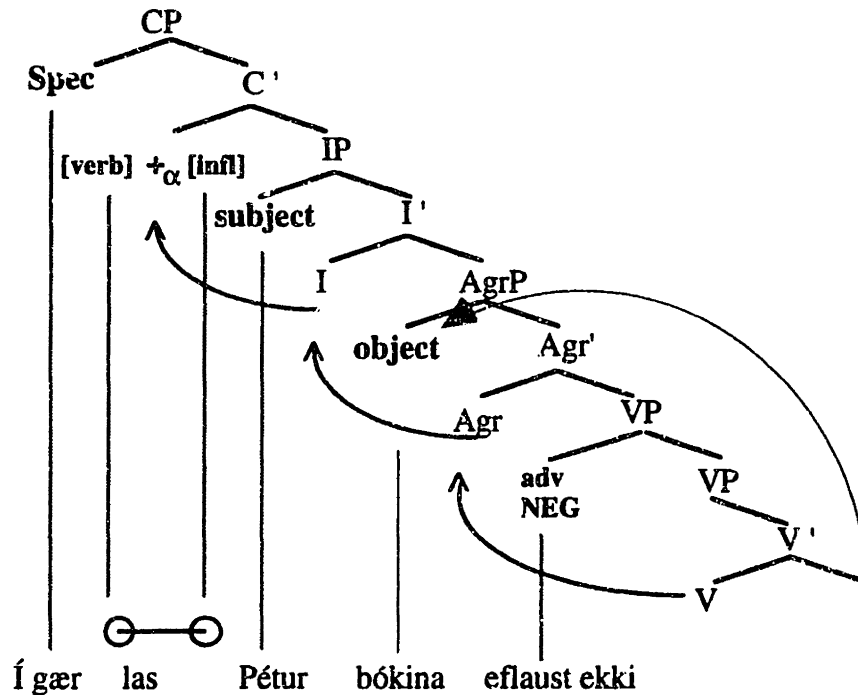
Let us first lay aside the case of auxiliary + participle constructions and take the case of matrix clauses with overt verb raising (28) versus embedded clauses with overt complementizers and no overt verb raising (30). I will assume that Object Shift is movement of the NP or pronoun to some A(rgument) position between IP (i.e., TP) and VP. For the sake of familiarity, I will continue to call this the specifier of AgrO-P as in the previous chapter, though I will ultimately wish to distance myself from the case-theoretic connotations of this label (see Chapter VI). This phrase is simply “whatever phrase the object moves to,” and could equally, for present purposes, be AgrO-P (Chomsky 1991), Inner Asp(ect)-P (Travis 1992), μ P (Johnson 1991, Koizumi 1993) or some other functional projection. In labeling the position occupied by shifted pronouns and that occupied by shifted NPs as “Spec,AgrO-P,” I am collapsing an important distinction between shift of NPs and shift of pronouns. While pronouns and full NPs behave the same for the purposes of Holmberg’s generalization, it is well known that they behave differently with respect to a wide range of other properties examined in other chapters of this thesis. I will make this abstraction for the present chapter, as nothing hinges on it here.

To begin with, the derivation I assume for a simple V2 clause in Icelandic with overt object shift is given in (32):

(32) *object shift in a V2 clause*

- a. Í gær las Pétur bókina eflaust ekki.
 yesterday read P. book.the undoubtedly not
 'Petur undoubtedly didn't read the book yesterday.'
 (Icelandic, Vikner 1991:300)

b.



The verb has raised from V° to adjoin to I° , and then the complex head has itself raised to adjoin to C° . The subject is in Spec,IP and the topic is in Spec,CP (though the latter is not important, the topic may be elsewhere). The object has raised out of the VP, as it is to the left of the VP-adjoined adverbial negation *ekki*, and I assume it is in Spec,AgrO-P. Assuming that, as in English and French in the previous section, Infl is an affix, the adjacency condition is satisfied trivially between α [Infl] and the verb stem, as they form the two parts of a complex head. Object Shift does not interact with this relationship at all. The prediction, then, is that OS will be possible when the verb has raised. Independent factors, (definiteness, specificity, pronoun vs. NP) will interact to determine whether or not the object actually raises.

be supported is by hypothesis inviolable. Thus, in an important way, we see another example of the morphology acting as a filter on the syntactic derivation. The movement process of Object Shift is prohibited in the syntax when it would disrupt the adjacency between the affix Infl and the verb stem in V° in the morphology. The independent factors governing the distribution of objects shift (e.g. old versus new information) do not come into play here; Object Shift is excluded for all objects.²¹ This part of Holmberg's Generalization reduces straightforwardly to the adjacency requirement on affixation. As in the analysis of the previous chapter this entails that syntactic derivations may be filtered by morpho(phono)logical considerations.

The second environment where the verb stem does not raise overtly is the case of auxiliary constructions. As the adjacency requirement under discussion is a condition on affixation, it is not transparently clear why it should hold of an auxiliary (in Infl) and the verb stem. In fact, it doesn't, as any case of Infl to COMP movement in a question or V2 clause shows. In the grammatical (34), the subject NP intervenes between the auxiliary in C° and the verb stem in V° , exactly the environment which for Inflectional affixes required *do*-support in English:

(34) *Auxiliary and participle need not be adjacent*

[CP Hvorfor **har** [IP Peter [vp ikke **købe** den]]]?
 why has P not bought it
 'Why hasn't Peter bought it?'

(Danish, (=31a))

Adjacency between the auxiliary and the verb stem is not required, then. But if it was the requirement that Infl and the verb stem be adjacent which prevented OS when the

²¹ Certain quantificational objects appear to escape this generalization. See Jonas & Bobaljik 1993 for discussion.

verb was in situ in the VP (33), then why should OS be blocked in auxiliary + participle constructions in the SVO languages ?

Recalling that the leading idea here is that inflectional morphology may head its own projection in the syntax (i.e., that the affix α [Infl] may be base-generated in Infl), it seems plausible that the participial affix heads a PARTicipial Phrase, the complement of the auxiliary.²² If we assume that AgrO-P is the phrase to which shifted objects move, immediately dominates the thematic VP headed by the verb stem, then the prohibition against Object Shift in these constructions is also a case of the adjacency configuration we have been investigating. Note that the assumption that AgrO-P is between VP and PartP is required if the syntax of these constructions is governed by Relativized Minimality qua *Shortest Movement* plus *Equidistance*. The situation we are dealing with is:

(35) *Object shift blocked in participle constructions.*

- a. Hvorfor har Peter ikke købe **den**?
 b. * Hvorfor har Peter **den** ikke købe ?
 why has P it not bought it ?
 'Why hasn't Peter bought it ?'

(Danish, =(31a,b))

²² Thanks to David Pesetsky (pc) for suggesting this approach to the participle constructions. See also the discussion of Lasnik 1994 in section 2.

See Hedlund (1992) for a different analysis of the formation of the participles in Swedish, where it is suggested that at least some participle formation takes place in the lexicon. Her assumptions differ too much to permit a comparison of these approaches here.

3.2 Object Shift II - The SOV languages

The discussion of Object Shift in the previous sections has been limited to the members of the Germanic family with SVO word order, i.e., Yiddish and the Scandinavian languages. The remaining languages aside from English, i.e., German, Dutch, Frisian, Afrikaans..., all display underlying SOV word order. That is, they are head-final languages. Besides the gross word-order difference, another correlation with this word order is that Holmberg's Generalization fails to obtain.²³ That is, all of the SOV (Germanic) languages allow Object Shift (i.e., A-movement to Spec,AgrO-P) in exactly those cases in which it was prohibited in the SVO languages, in particular, when the verb does not raise due to the presence of an overt complementizer, or when the main verb is a participle selected by an auxiliary.²⁴

(36) No dependence on verb raising in SOV

... dat veel mensen [AgrO-P dat boek [vp gisteren gekocht]] hebben].
 that many people that book yesterday bought[PART] have
 '... that many people bought that book yesterday.'
 (Dutch =(28c))

On accounts which derive Holmberg's generalization as a principle independent of headedness, this fact poses a potentially serious problem.²⁵ On the adjacency account under investigation, the account is very straightforward. The tree in (37) is exactly the same tree as in (33) the sole difference being the setting of the headedness parameter. That

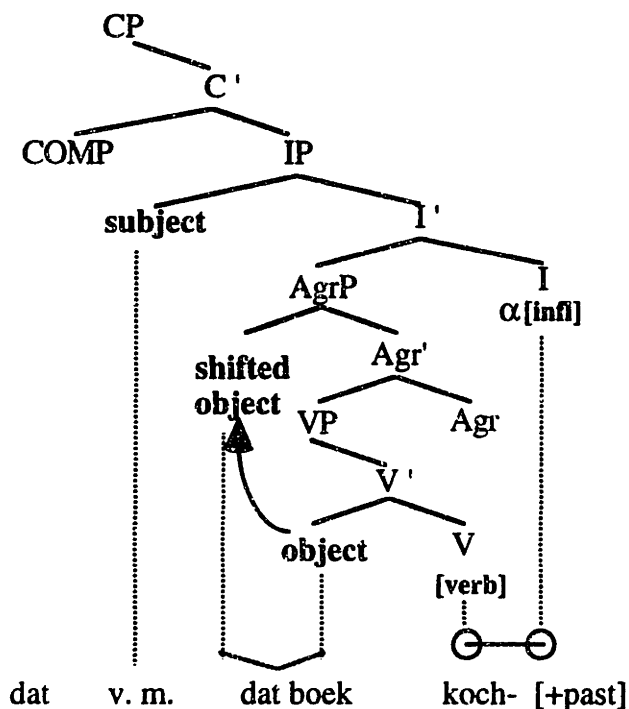
²³ This was first noted by Vikner 1991, though from it he concludes that object movement in the SOV languages is a different process. In Chapter III, §1 I will argue that the two are the same process and thus the lack of a dependence on verb movement needs to be explained. Déprez 1991, Watanabe 1993, Zwart 1993b, 1995a and Koopman 1995 all note the apparent failure of the generalization to extend to the SOV languages.

²⁴ For arguments that these examples do indeed involve object shift, as opposed to a scrambling operation to some higher projection, see Chapter III §1 and references there.

²⁵ There are, of course, various technical solutions, including the analysis of ex-corporation offered by Watanabe 1993 following a proposal for Romance phenomena in Roberts 1991. While this solution accounts for the data mechanically, it offers no insight as to why the variation should correlate exactly with headedness. Zwart 1995a.

is, in (33), the heads are to the left of their complements (SVO order), while in (37) the heads are to the right (SOV order).

(37) *Structure of (36)*



Regardless of whether or not the object has shifted, it will never interrupt the adjacency between the verb stem and either the inflectional affix in I° or the participial affix in Part°. Not only is Holmberg's Generalization accounted for in terms of adjacency relations, then, but the systematic failure of Object Shift to be dependent on verb raising in verb-final languages is predicted on this account.

On a final note, Kayne 1994 proposes that universal grammar dictates a fixed order such that specifiers are universally to the left of a head, and complements to the right, a proposal extended to Dutch by Zwart 1993b.²⁶ Though I do not adopt this proposal, it is

²⁶ Predating Kayne, Davis & Alphonse 1991 propose the antisymmetry which Kayne argues for on the basis of parsing considerations, though they do not enforce left-right ordering *in toto*. For them, a language

worth considering how the analysis of the present chapter may be integrated into the Kayne-Zwart framework.

Under their proposal, the difference between the SOV and SVO languages is not one of headedness, but rather the SOV order is derived by multiple raising of all constituents which surface to the left of the verb to specifiers (and heads) of projections dominating the projection hosting the verb. Thus, a simple SOV embedded clause would have the all objects (and preverbal PPs and adjuncts) shifting from complement positions following the verb to specifier positions c-commanding the verb phrase. As there seem to be few if any constraints on such leftward movement in this framework, my proposals above could easily be recast as forcing the object to move to some position higher than one which would intervene between the inflectional head and Infl. While we have a way of expressing the analysis of this chapter in terms of Kayne's approach, it is unclear how this approach accounts for the differences among the Germanic languages in any meaningful way.

4. Extensions

In this final section, I would like to suggest a few ways in which the analysis proposed here may extend to problems from other languages. The first case, involving quirks of the Irish complementizer system, is taken from McCloskey 1992b. For the most part, I present McCloskey's data and arguments. I agree with his conclusion that the verb is no higher than (the highest head of a split) Infl, and that the complementizer is base generated in C°. The fact is that the two surface as a single phonological unit, towards the left periphery of their clause, but to the right of material which is taken to be adjoined to the left

should be specifier-head-complement, or complement-head-specifier, with ramifications for the theory of *wh*-in situ. The rigid left-to-right ordering is derived for Kayne by means of an added stipulation.

edge of IP. McCloskey invokes a rule of PF lowering, which I suggest is exactly the process of morphological merger under adjacency developed above. In section 4.2, I will similarly reanalyse Koopman's 1992 Bambara data. In Bambara, in certain tenses, the verb and Infl are realized as an affix+stem combination if nothing intervenes between them. In transitive clauses, the direct object intervenes between Infl and the verb stem, and a *do-support*-like process is triggered. Unfortunately, while the Bambara data is consistent with the approach taken here, the predictions which my approach makes are untestable for independent reasons, hence I will not dwell on the data for very long.

4.1 *Modern Irish Complementizers*

4.1.1 The Problem

In Modern Irish, as in most of the Celtic languages,²⁷ the finite verb is the first element of a simple declarative clause. The standard assumption, at least since McCloskey 1983 is that the underlying order is SVO and that the verb has raised overtly to some position external to the VP, generally taken to be (some head in a complex) Infl (see Carnie 1995b for extensive discussion). The question to be addressed here is whether or not the finite verb raises further than Infl, in particular, does the finite verb raise all the way to COMP?

The one piece of evidence which would suggest that the answer is in the affirmative, that the finite verb does raise overtly to COMP, is the fact that the sequence COMP + Infl + verb forms a phonological unit, an inseparable sequence at the front of any clause with a complementizer and a finite verb:²⁸

²⁷ The notable exception is, of course, Breton, which has an obligatory fronting process reminiscent of a V2 or Wackernagel effect.

²⁸ Infl itself is internally complex, with both an (aspectual ??) past/non-past distinction (traditionally associated with the complementizer) and a further tense distinction... I abstract away from this here, as it is not entirely relevant.

(38)

Creidim [**gu-r** **fhail** sé ar an bhaile].
 I-believe COMP-PAST return he on the home
 'I believe that he returned home.'

(Irish, McCloskey 1992b:4)

Nevertheless, McCloskey 1992b and Bobaljik & Carnie 1994 maintain that the verb raises (overtly) no farther than I°. While the latter authors do not address the problem posed by (38), McCloskey suggests that COMP lowers to Infl at PF in order to derive the observed order and the phonological unity in (38). In this section, I will propose that McCloskey is in essence correct, except that in place of PF-lowering, I suggest that the process is affixation under adjacency familiar from the preceding sections of this paper. For this reason, where I am simply adopting McCloskey's reasoning, I will give only the main points of the analysis and a subset of the data, referring the reader to McCloskey for a more detailed and careful discussion.

The analysis again is that the verb raises overtly to (some head of) Infl and then the affix in COMP is associated with this complex head under adjacency. We turn now to the relevant data, as offered by McCloskey (1992b).

4.1.2 IP-Adjuncts

McCloskey 1992a has carefully delineated a class of adjuncts which behave in a similar manner across languages. These include time-adverbials such as *next year* and longer adverbial clauses such as *when she got home*. The paradigm relevant for present purposes is (39):

(39) *IP adjuncts*

- a. She promised *when she got home* [CP that she would read Marx's "Kapital"]
- b. She promised [CP that *when she got home* she would read Marx's "Kapital"]
- c. She promised [CP that she would read Marx's "Kapital" *when she got home*]

when she got home modifies

- a: matrix event - time of promising
- b: embedded event - time of reading
- c: ambiguous

(after McCloskey 1992a)

The available readings are as noted above. For example, if the adjoined adverbial precedes the complementizer of the embedded clause, it cannot be construed as modifying any aspect of that embedded clause, as shown in (39a). McCloskey derives this, in essence, from the *Adjunction Prohibition* (Chomsky 1986a:6), which prohibits adjunction to a selected complement; in the present case it rules out adjunction to an embedded CP.

McCloskey 1992a proposes that these elements are adjoined to the IP which they modify. In (39b), the adverbial is adjoined to the left of the embedded IP. In (39a), it is adjoined to the right of the matrix IP, preceding a postposed CP, and in (39c) the adverbial is adjoined to the right of either IP, whence the ambiguity. The mechanics are not directly relevant. The observation is that an adjunct cannot be adjoined to an embedded CP, as shown by the fact that the embedded reading is unavailable in (39a).

Turning to Irish, we find that a similar class of adjuncts exists, with similar properties. Assuming then that these elements are adjoined to IP, if the verb (+Infl) raised to C, then we would expect them to follow the finite verb. In fact, they obligatorily precede the entire verbal complex including the complementizer. The examples below are McCloskey's, taken from text sources:

(40)

- a Bhí sé ráite nuair a thógann na sagairt an mhóid
was it said when C take the priests the oath

dheireanach go gcuirtear an machine orthu.
last COMP put[impers] the on-them

'It was said that when the priests take the final oath, the machine is applied to them'
lit: ... said [*when ... oath*] that-is-applied ...

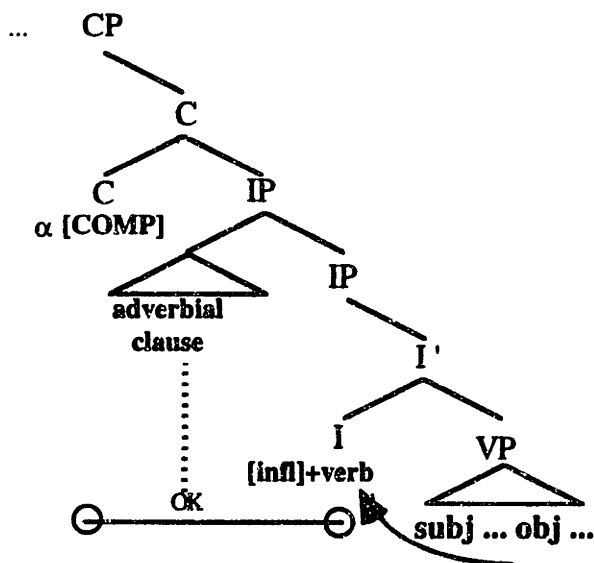
- b. Deiridís *an chéad Nollaig eile* go dtiocfadh sé aníos
they-used-to-say the first Christmas other COMP would-come he up
'They used to say that next Christmas he would come up.'

cf. * They used to say next Christmas that he would come up.
(Irish, McCloskey 1992b)

In both examples, the adverbial clause is construed with the clause which follows it. This is clearest in the second example, in that the adverbial clause has a future interpretation – 'the next Christmas' – compatible with the embedded clause, though clearly incompatible with the matrix clause which is in the past tense – 'they used to say...'. As McCloskey points out, this data is not predicted on the verb+Infl in COMP analysis, though it is clearly consistent with the analysis offered here in which the verb moves only to Infl.

Recalling that we have seen in a number of instances above that adjoined elements such as adverbials are irrelevant for adjacency, the derivation of a clause such as (40b) is given in (41):

(41)



Deiridís α [go] [*the 1st X-mas*] dtiocfadh sé aníos.

↓

Deiridís [*the 1st X-mas*] $w\{\alpha$ [go], dtiocfadh } sé aníos.

↓

spell out

affixation

The verb raises and adjoins to Infl, where it is now adjacent to the affix in COMP, the only element intervening being the adverbial clause (italicised), which is irrelevant in the same way that VP-adjoined adverbials do not trigger *do*-support in English (§1) nor do they disrupt the adjacency between Infl and the verb stem in the Germanic languages (§2).²⁹

4.2.3 Against Syntactic Lowering: NPI Licensing

Though a syntactic lowering account (C to I) would derive the same result, it is perhaps desirable to prohibit syntactic lowering on general theoretical considerations (cf.

²⁹ For another source of evidence that the main verb is not in C', see Carnie, Pyatt & Harley 1994. They compare verb and complementizer positions in Old and Modern Irish, tracing a historical shift from a time when the verb did (or could) occupy Comp, to the modern case. Their argument is sound from a historical perspective, though it does not exclude the possibility of reanalysis by the child acquiring modern Irish who does not have access to the historical data.

Ouhalla 1990, Speas 1991, Chomsky 1993).³⁰ There is also, as McCloskey notes, subtle empirical evidence that even though the complementizer does surface following IP-adjoined material, i.e., lower than C°, it nevertheless occupies C° at s-structure. This evidence comes from the distribution of Negative Polarity Items in Modern Irish. Chung & McCloskey 1987 have argued that items such as *ar bith* (lit: ‘at all’) or *pingin rua* ‘red penny’ are best understood as Negative Polarity Items, with a behaviour similar to English *any* and the like (see McCloskey 1992b for arguments that they are not negative quantifiers such as French *personne*). One would assume, then, that these items would obey a naïve s-structure c-command condition, i.e., they should be licensed only if c-commanded by a negative element such as the negative complementizer. Unlike English, NPIs in Irish are licensed in subject position, but this difference results from another obvious difference between the two languages. In Irish, negation is expressed with a negative complementizer.³¹ As the subject is c-commanded by the complementizer, NPIs such as *ar bith* are licensed in this position:

(42)

Char labhair duine ar bith liom.
 NEG-PAST speak person “any” with-me.
 ‘Nobody spoke to me.’
 lit: Didn’t speak any person with me.

(Irish, McCloskey 1992b)

The relevance of an s-structure c-command condition for Negative Polarity Licensing is seen for example by the fact that while NPI objects are generally licensed in English, this is not possible if the object has topicalised past the subject:

³⁰ Though see Lasnik & Saito 1992, who argue that lowering should not be excluded *a priori*. As they argue, if movement operations are constrained, the constraints should be derivative of independent considerations.

³¹ Negation in Irish is expressed by an element which for all intents and purposes is a complementizer, as argued in Chung & McCloskey (1987). Laka (1991) and references therein includes a long discussion and analysis of sentence-initial negation in a number of languages. See also footnotes 9 and 16 above for a comment on differences in the morpho-syntactic realisations of negation and its implications for the present work. Uribe-Etxebarria 1994 argues, as have many others, that an s-structure c-command condition is too simple to account for the distribution of Negative Polarity Items, though such an account will suffice for present concerns.

- (43) * Anyone, Sam really doesn't like. {fails c-command condition on NPL}

Modern Irish also has a process of topicalisation, generally referred to as Narrative Fronting. The topicalised constituent occupies a position preceding the verbal complex including the complementizer, a position which McCloskey 1992b argues is analogous to that occupied by IP-adjoined adverbial clauses. We assume that this position is the same, IP-adjoined position. Now, if the apparent “lowering” of the complementizer from C° to I° were indeed a syntactic process, it would of course have to occur prior to s-structure, thus we would predict that NPIs would not be licensed in fronted topics. On the view advocated here, though, the complementizer occupies C° in the syntax at s-structure, and the apparent lowering effect is simply affixation under adjacency, the IP-adjoined material not being visible for adjacency as we have seen above; thus, the present analysis (and McCloskey's) predict that NPI's are licensed in the topic position.

The facts bear out the latter prediction, against a syntactic lowering account:

- (44)
- a. [Greim ar bith] ní fhuil sé a ithe.
 bite any_{NPI} NEG is he eat [PROG]
 'Not a bite is he eating.'
 (cf. * Any bite isn't he eating)
- b. [Pingin rua] char chaith mé ar an bhád.
 penny red_{NPI} NEG spend I on the boat
 'Not a red cent did I spend on the boat.'
 (cf. * A red penny I didn't spend on the boat)
- (Irish, McCloskey 1992b:41)

This entails that the IP-adjoined topic position is c-commanded at s-structure by the negative complementizer. Note that this obtains even though the complementizer follows the topic in linear order. What is more, the topic can be separated from the verbal complex by another IP-adjoined manner adverb:

(45)

[_{IP} Bó amháin [_{IP} i mbliana [char dhíol mé t
 cow one.single this year NEG-PAST sell I
 'Not one single cow did I sell this year.'
 (Cf. * A single cow didn't I sell this year.)

(McCloskey 1992b:37)

This situation is totally unexpected on either the V-to-Infl-to-COMP approach, or on a syntactic account of the “lowering” of COMP to Infl, though it follows straightforwardly on the assumptions entertained here. The verb raises overtly to Infl, and the complementizer is base-generated in COMP. Thus at s-structure, the negative complementizer c-commands subject, object, and IP-adjoined topics. In the mapping from syntax to phonology, the complementizer, by hypothesis an affix, must be supported by an appropriate stem. As the verb has not raised, this must be realised through affixation under adjacency. We know for independent reasons that the distinction between structural material (Specs, heads, ...) and adjuncts is important in that while the former do disrupt adjacency, the latter do not. Thus, even in the presence of two IP-adjoined elements as in (45), the complementizer and the complex head in Infl *do* satisfy the formal requirement on adjacency, and the complementizer is realised phonetically as a prefix to the complex head, following the IP-adjoined material.³²

In its essential respects then, I have suggested that McCloskey's analysis of the surface position of the verb, inflection, and most importantly, the complementizer, may be grafted into the general direction of this chapter, with no additional theoretical machinery. The one major point of difference between McCloskey's analysis and the present one is the

³² It is tempting to try to relate the VSO order to this adjacency requirement as well. The account would be that raising of the subject to Spec,IP (or Spec,AgrS-P) would disrupt the adjacency between the complementizer and the verb+infl complex in INFL. This works nicely for all the cases which involve an overt complementizer, but does not derive the VSO order for simple affirmative declaratives without a complementizer. Nothing in the account so far is incompatible with the analysis of VSO presented by Bobaljik & Carnie, nor is it incompatible with many other analyses. For present purposes, I leave the matter of how VSO order is derived as an open question.

process by which the complementizer in C° comes to be realised phonetically as a prefix or proclitic on the verbal complex (i.e., in I°). McCloskey suggests that the complementizer lowers at PF, adopting Chomsky's reformulation of Rizzi's (1990) *Relativized Minimality* and phrasing it in terms of a constraint on movement such that head movement can not skip intervening heads. This, he proposes, would apply equally to lowering and raising. In place of this, I have shown that the relevant configuration is exactly that which we have been examining throughout this paper, namely adjacency, but in particular a relation of adjacency which is blind to adjoined, adverbial material. Among structural elements, when Spec,IP is not occupied by the subject the complementizer in C° and the inflected verb in I° in the syntax are adjacent. Hence, the complementizer may be affixed to the inflected verb. The strict locality of this operation follows as adjacency is by definition a local relation.

4.2 *Bambara transitive perfectives*

Bambara, a Mande language spoken in Mali, displays the following basic word order, essentially as characterized by Koopman 1992:556, though with some details omitted:

(46) *Basic Bambara Word Order*

Subject - Infl - (object) - Verb - Adjuncts (PP, Adv ...)

This is seen in an example like (47):

(47) *Bambara word order - an illustration*

Bala bè ji di den ma.
B. INFL water give child to
'Bala is giving water to the child.'

(Bambara, Koopman 1992)

This example is in the imperfective tense/aspect, as indicated by the selection of the inflectional element *bè*. Bambara has a range of inflectional elements, most of which are

independent as in (47). This is not the case of all Infl elements, though. In particular, the marker of perfective aspect can be either an affix *-ra* (with phonologically conditioned allomorphs) on the verb or an independent element *ye*. The choice between the two is far from arbitrary. If the verb is intransitive, then the perfective marker surfaces as the suffix on the verb, but if the verb is transitive, then the independent form of the auxiliary is used, separated from the verb by the direct object as in (47). This is illustrated in (48).

(48) *Transitive versus intransitive.*

- | | | | |
|----|---|----|--|
| a. | A kasi-ra
s/he cry-PERF
'S/he cried.' | b. | * A ye kasi.
s/he PERF cry
(S/he cried) |
| c. | * Den min-na ji.
child drink-PERF water
(the child drank water) | d. | Den ye ji min.
child PERF water drink
'The child drank water.' |

(Bambara, Koopman 1992:559f)

Laying aside the finer questions of structure, this pattern is strikingly reminiscent of the pattern of object shift in the SVO Scandinavian languages, save that shift is obligatory (the object always appears between the verb and Infl) and Bambara has *ye*-support, akin to English *do*-support. We could analyse it in this way. Koopman's analysis is that the verb trace cannot assign case, and that the verb raises to Infl in intransitives, but remains *in situ* in the VP when it must assign case. Unfortunately, independent factors of Bambara syntax conspire to preclude the evidence which could distinguish between the two proposals. Let me sketch why this is so.

First, on my analysis, the verb remains in the VP uniformly. In most cases, Infl is a separate element, one of the many perfective markers. It is only in the case of the perfective affirmative that the verb and aspectual marker form a phonological unit, and then only in the intransitive. In Koopman's analysis, the verb raises only in this environment,

and in my analysis, the affix merges only in this environment. Empirically, the matter is undecidable – the only element which may ever intervene between the Infl and verb positions is the direct object. Elements which provide the test cases for verb positions in other languages, such as adverbs and the like, occur either sentence initially or after the verb. Hence, we have no empirical test to decide between the raising and lowering analyses.

Could there be any theoretical reason to prefer either the verb-*in-situ* or the verb raising analysis? Possibly. In Chapter V, I will follow an earlier discussion of Koopman 1984, showing that the morphological condition of being an affix is doubly dissociated from the syntactic feature [+affix] often posited as a motivation for raising. That is, Koopman has shown independently that being morphophonologically an affix is neither a necessary nor sufficient condition to trigger raising in the syntax. Clearly, Infl is not in and of itself a category to which the verb obligatorily raises in the syntax in Bambara. Of nine aspect / mood / negation markers which Koopman 1992 identifies as occupying Infl in sentences with a verbal predicate, only one (that under consideration) is ever realized as an affix on the verb stem. The same considerations lead us to believe that it is not a property of Bambara verbs that they raise to Infl when possible, since raising is apparently not attested in any of the other inflectional environments. Thus, Koopman's 1992 argument must be that the morphophonological status of one specific lexical item, namely the perfective affirmative inflectional element, is triggering otherwise unmotivated raising of the verb in the syntax. On the morphological merger account, this behaviour is exactly what is expected. This one lexical choice for Infl is idiosyncratically marked in the lexicon as an affix, a morphophonological feature. This feature is irrelevant in the syntax, and the verb remains in the VP. At the morphological level, if the adjacency relationship between the affixal Infl and the verb stem is satisfied (in intransitives), the affix merges with the stem under morphological merger. If the adjacency relationship does not hold, due to the

presence of an object (transitives), affixation in the morphology is blocked, and the supported form, *ye* must be used. In this way, I believe there are, or can be constructed, theoretical reasons to prefer the analysis I am proposing over Koopman's, though these are not overwhelming by any stretch.

Is there any other evidence that may decide the issue? My adjacency account makes a very clear prediction in which it differs from Koopman's. If the object is dislocated in any way from its position between Infl and the verb stem, leaving a phonologically null trace, then the affixal (*-ra*) form of Infl should be used, even in transitive clauses. Unfortunately, the syntax of Bambara conspires against us, again.

The standard cases which trigger dislocations in the Indo-European languages fail to trigger movement in Bambara. Thus, *wh*-words obligatorily remain *in situ* (49a). Relative clauses are dislocated, but the NP which they modify, plus a relative marker, remains *in situ* (49b). Even focus constructions do not allow movement, rather indicating focus by means of a particle following the focused constituent (49c). Finally, clausal arguments occur after the verb, but obligatorily involve a (p)resumptive pronoun or pleonastic in the canonical object position (49d).

(49) *Bambara objects. You can't get away from them.*

- a. I ye jon ye?
 you PERF who see
 'Who did you see?'

(*wh*-object)

- b. I ye cè min ye, o tɔ̀gò Bala.
 you PERF man REL see that.one's name B.
 'The man you saw is called Bala.'

(relative clause extraposition)

- c. N ye cè de ye.
I PERF man FOC see
'I saw the MAN.'
(focus)
(Bambara, a-c Koopman 1992:581)
- d. N ye a fò i taa-ra.
I PERF it say you go-PERF
'I said (it) that you left.'
(Bambara, Koopman 1992:562, n7)

Here, then, we are at an impasse as far as the data is concerned. There is only one more piece of data which may distinguish the two analyses, but this only on a very specific assumption which the reader may or may not adopt. Hale & Keyser 1993 (and elsewhere) have suggested that unergative verbs, i.e., those taking an agent as their sole surface argument (*laugh, cry, jump, run, walk...*) are structurally transitive, taking a “cognate” or “implicit” argument. While this hypothesis has few implications for the case patterns of nominative-accusative languages, the proposal makes striking predictions for ergative-accusative languages. In such languages, the subject of transitive and intransitive clauses are marked distinctly, intransitive subjects bear absolutive case, while transitive subjects bear ergative case. If Hale & Keyser are correct (and the implicit argument is syntactically no different from other arguments), then their theory would predict that unergative verbs (those taking an implicit argument) should behave as transitive verbs, their subjects bearing Ergative case. In Bobaljik 1993 I argued that this is correct, at least for some ergative/absolutive languages. Thus, in Basque (and other Ergative languages), verbs which correspond to English intransitives are split such that unergative verbs have Ergative subjects and a transitive auxiliary, while unaccusatives have Absolutive subjects and an intransitive auxiliary.³³

³³ Many ergative languages do not show this pattern. In this, Basque contrasts with, for instance, the “Eskimo” languages, including Yup’ik and Inuktitut/Inuit which never allow an ergative subject or transitive agreement on an intransitive verb. Contrast the Basque pattern with Yup’ik:

(50) *Unergatives have ergative subjects.*

- a Haurr-ak negar-egin zuen.
child-ERG cry [+trans]AUX.3A/3E
'The child cried.'

(Basque, Bobaljik 1993)

- b Jonek jaten du.
Jon.ERG eat [+trans]AUX.3A/3E
'Jon ate' / 'Jon ate it'

(Basque, Levin 1983:308)

(i) *unergatives*

- Qiaguq. Cuuget assigtut pinirluteng.
cry.[-tr].3s people dance.[-tr].3p be.strong.[-fin].[-tr].3s
'S/he is crying' 'The people are dancing well.'

(Central Alaskan Yup'ik, Jacobson 1984:330,85)

(ii) *unaccusatives*

- Angpartuq. Tekituq elakamek.
open.[-tr].3s arrive.[-tr].3s water.hole.from
'It opened.' 'S/he arrived from the waterhole.'

(C.A. Yup'ik, Jacobson 1984:71,366)

Contrast these with verbs with transitive agreement, especially (iii), which forms a minimal pair with (ii):

(iii) *transitives*

- Angpartaa. Neqairayuli tuqutaa nersaagpakallrani.
open.[+tr].3s/3s magpie.abs kill.[+tr].3s/3s eat.try.while.[-tr].3s
'S/he opened it.' 'S/he killed the magpie while it was trying to eat.'

(C.A. Yup'ik, Jacobson 1984:71,379)

In Bobaljik 1993, in prep, I argue that this is due to an independent difference between the languages. Yup'ik and Inuktitut productively allow noun incorporation (Baker 1988) and the resulting complex predicate is formally intransitive (contrast (iv) and (v), the latter transitive):

- (iv) Palasi niqi-tur-puq [incorporation]
minister.ABS meat-"eat"-[-trans].3sA
'The minister is eating/ate meat'

- (v) Palasi-p niqi niri-vaa [transitive]
minister-ERG apple.ABS eat-[+trans].3sA/3sE
'The minister is eating/ate the meat.'

(West Greenlandic Inuit, Rischel 1971:231)

Incorporation is not, as it is sometimes taken to be, an optional process. For any given verb stem, it either obligatorily incorporates or cannot do so. Further, the incorporated object is always non-referential, i.e., "classificatory" in the sense of Mithun 1984. I propose in the work cited that the "implicit" object in unergative verbs in Yup'ik, Inuktitut, etc. obligatorily incorporates as well, accounting for the surface intransitivity of all intransitive verbs, unergative and unaccusative alike.

- c. Emakumea-k dantzatu du.
 woman-ERG dance [+trans] AUX
 'The woman danced.'

(Basque, Laka 1993:154)

(51) *Unaccusatives have absolutive subjects.*

- a Ume-a etorri da.
 kid-the.ABS arrived [-trans]AUX.3A
 'The kid arrived'

(Basque, Laka 1990:14)

- b Ate-a ireki da.
 door-the.ABS open [-trans]AUX.3A
 'The door opened'

(Basque, Levin 1983:301)

If one accepts the hypothesis that unergative verbs are structurally transitive with an implicit argument behaving as the structural object, then my theory and Koopman's make different predictions for Bambara. As my theory relies on the morphophonological status of the object (overt versus null), the implicit argument should not intervene to disrupt adjacency between the verb stem and Infl, and the affixal perfective *-ra* should be used for unergatives and unaccusatives alike. As Koopman's theory relies on the inability of the verb trace to assign case, the implicit argument, if it requires structural case (as the Basque examples would support), would predict that unergatives should behave as transitives, taking the *ye* perfective, even though no overt element intervenes between Infl and the verb stem. The data bears out the prediction of the adjacency account; there is no difference between unaccusative and unergative predicates, as Koopman has noted.

(52) *unergatives*

- a. A kasi-ra
 s/he cry-PERF
 'S/he cried.'

- b. *A ye kasi.
 s/he PERF cry
 (S/he cried)
 (Bambara, =(48), above)

(53) *unaccusatives*

- a. A taa-ra
 s/he go-PERF
 'S/he left.'

- b. *A ye taa.
 s/he PERF go
 (S/he left.)
 (Bambara, Koopman 1992:559)

Final support for this view, perhaps, comes from the behaviour of a class of verbs in Bambara which select a PP complement (54a). This class of verbs appears to be unergative, and, notes Koopman 1992:n6, licenses an overt non-thematic / “cognate” object (54b). If the (a) example does indeed involve a null “cognate” or “implicit” argument, as Hale & Keyser have argued for other languages, then the alternation in (54) between *ye* and *-ra* aspectuals depending upon the null versus overt status of this argument lends support to the theory advocated here.

(54) *Cognate / implicit arguments.*

a. N maga-ra a la.
I touch-PERF on it
'I touched it.'

cf. *N ye maga a la.
I PERF touch on it
(I touched it.)

b. N ye n bolo maga a la.
I PERF my hand touch on it
'I touched it (with my hand).'

(Bambara, Koopman 1992:561)

The arguments in favour of my adjacency account of Bambara are at best weak, the strongest being that from the nature of affixation after (48) above. They rest on a large number of independent assumptions which I have not tried to motivate here. The arguments in favour of Koopman’s approach are of a similar character. In her article, Koopman relates the case-theoretic account of (48) to other processes in the language, also arguably case-related. Ultimately, the issue must be decided by which theory’s assumptions are independently motivated. I have offered reasons why I feel that the adjacency account may be preferable, though these reasons are by no means meant to be compelling.

5. Conclusion

At the outset of this chapter I suggested that the relation between an affix and its head need not in all cases be derived in the syntax or the lexicon. Rather, simple adjacency is a sufficient condition for an affix to be associated with an appropriate stem, even if the two elements remain structurally distinct in the syntax. The move, I feel, is plausible, as the notion of affix is by definition a morpho-phonological notion and thus a condition on affixation should not hold at any point in the derivation earlier than the mapping from syntax to phonology. The relation of adjacency which is relevant for present purposes is for the most part a linear notion, as the discussion of the SVO vs. SOV differences among the Germanic languages (§3.2) showed. The major exception is that the argument vs. adjunct asymmetry appears relevant, the former being “visible” for adjacency, the latter not. While this must remain an *ad hoc* exception for the time being, it is not without empirical justification to the extent that this asymmetry is relevant for purely phonological effects in many languages. Further, that this stipulation allows us a cleaner account of a number of seemingly disparate phenomena in a number of languages justifies making use of it until further investigation may uncover what it may reduce to.

Focusing on the Germanic data, the discussion above offers the most complete account of Holmberg’s generalization, and in particular, an account of why the applicability of this generalization seems to vary for the most part with headedness within the Germanic languages. Permitting the morphology to filter syntactic derivations, movement operations in the syntax may be blocked if they lead to a violation of a morphophonological condition: the requirement that an affix and a stem be *merged*, a process demanding adjacency between the elements to be concatenated.

Recently, adjacency accounts similar to the one offered above and that in Halle & Marantz 1993 have been shown to have promising effects in a number of domains. The results are still preliminary, and some of the analyses which appeal to the adjacency account rest on assumptions to varying degrees different from those adopted here. Without discussing the accounts, I refer the reader to (i) Lasnik's 1994 account of verbal inflection in English, French and Swedish, and in particular to the sections on VP-ellipsis under auxiliaries, (ii) Pesetsky's 1995 account of a curious restriction on English double object constructions with verb + particle combinations, and (iii) Hagstrom's 1995 account of some apparent *do*-support like phenomena in Korean – *ha*-support.

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Part two

Syntax

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Tweedledum and Tweedledee
Agreed to have a battle;
For Tweedledum said Tweedledee
Had spoiled his nice new rattle.
Just then flew down a monstrous crow,
Black as a tar-barrel;
Which frightened both the heroes so,
They quite forgot their quarrel.

L. Carroll, *Through the Looking-Glass*.

Chapter three

Leapfrogging and stacking

This chapter will contrast two competing views of clausal architecture which have arisen in current literature.¹ For the purposes of this chapter, I make three assumptions without question, accepting that the empirical and conceptual evidence for these is well enough established to make them at least plausible, if not amply demonstrated.

¹ This Chapter developed initially out of discussions with Masatoshi Koizumi, and builds in part upon the ideas in Koizumi 1993,1995. In addition to my committee members and those colleagues thanked in the general acknowledgements, I would like to thank Kai von Fintel and Uli Sauerland for written comments on an earlier version of this chapter which also, subsumed the next.

First, I assume that the base, i.e., θ -position of the subject is lower than Spec,IP. That is, I assume some version of a VP-internal subject hypothesis. For the sake of simplicity, I assume that the base position of the subject is a specifier of (some) VP, although for present concerns the extra position should be irrelevant. The characterization offered by Koopman & Sportiche 1991, for instance, that the subject is slightly higher, i.e., sister to the VP, is not different from the specifier view in any important way. Similarly, the projection which I write as a higher VP could be Pr(edicate)P (Bowers 1993), VoiceP (Kratzer 1994), or a “light verb” (Chomsky, forthcoming). Second, I accept that there is some functional projection the specifier of which is the position to which “derived” objects move in “Object Shift” constructions. I refer, of course, to the projection which I have called AgrOP in Chapters 2 and 3 (Travis’s 1992 Inner Aspect Phrase). And finally, I assume that indirect objects enter into the computation in a manner similar to subjects and direct objects.

For the purposes of this chapter, it is not important whether or not all (direct) objects raise to the specifier of AgrOP, as claimed by Chomsky (1991-1994), or only those with some additional requirement which requires them to be in a derived position, such as the interpretive effects (presupposition, specificity...) discussed by, among others, Adger 1994, Diesing 1995, Meinunger 1993 and Runner 1994. For the arguments of this chapter, we restrict ourselves to those cases where some argument raises detectably in the overt syntax, or fails to do so when otherwise expected to, making no claim as to whether or not objects which do not shift overtly do so later (i.e., covertly). See Chapter VI for some thoughts.

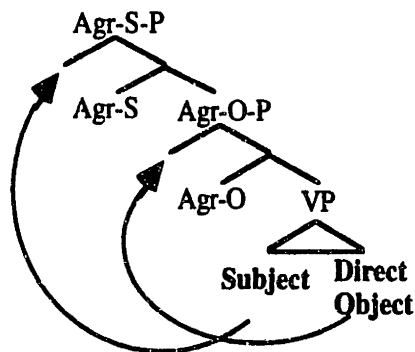
The question of central interest, then, is the following:

- If the base position of the subject is lower than the specifier of IP *and* (at least some) objects may surface in a “derived” position higher than the VP containing the base position of the object, then what is the relative hierarchical ordering of the base/lower subject position and derived/higher object position ? Furthermore, what is the relative order of lower indirect object and higher direct object positions ?

One possible answer, introduced by Chomsky 1991 and maintained in some form or another through Chomsky 1995 (at least for subject and object) is that the base position of the subject is lower than the derived position of the object; thus, those objects which raise (at least overtly) must raise across the base position of the subject, resulting in “crossing paths”. Bures 1992, Koizumi 1993, and Collins & Thráinsson 1994 extend this analysis to indirect objects of ditransitive verbs, within the framework outlined in Chomsky 1993. I gloss over irrelevant differences among these proposals in the tree in (1b). I will call this family of views the Leapfrogging Hypothesis.²

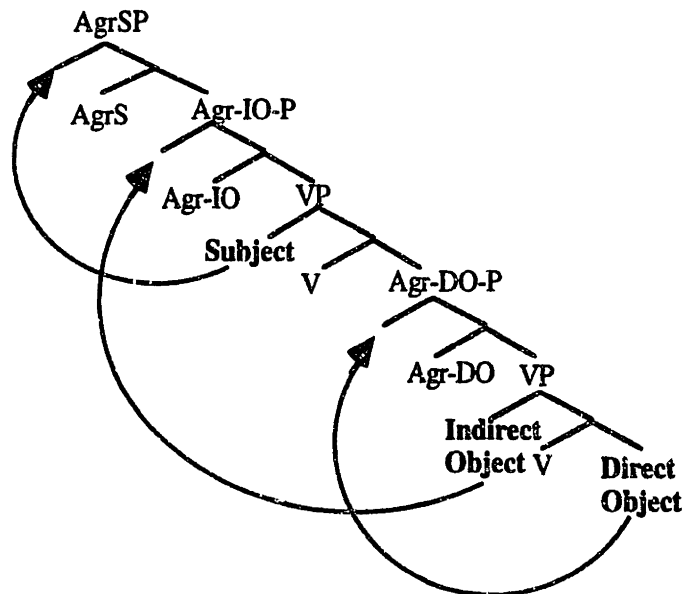
(1) *The Leapfrogging Trees*

- a. simple transitive (Chomsky 1991 et seq)



² “Leapfrog” is a children’s game in which the players take turns leaping over each other, one at a time. According to the OED, the word is first attested in 1599.

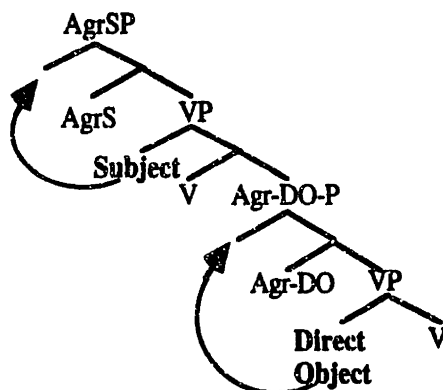
- b. double object construction
(Bures 1992, Koizumi 1993, Collins & Thráinsson 1993)



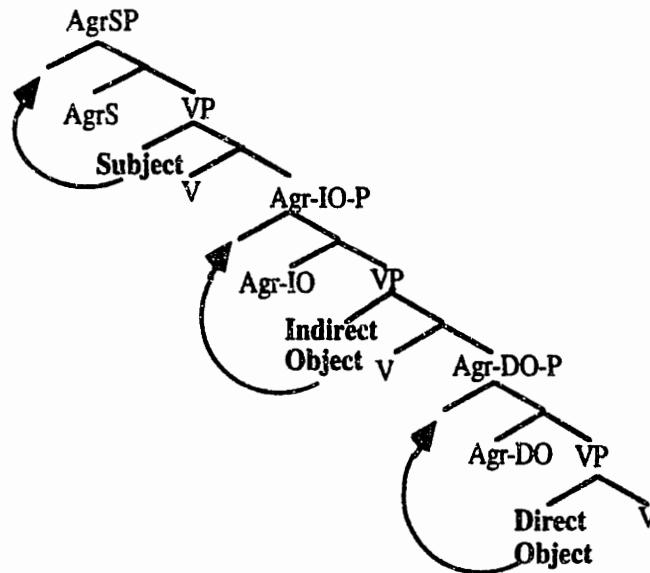
Another possible answer to the question, introduced in this context by Koizumi 1993, 1995 and Travis 1992 for subject/object interactions (see Sportiche 1992 for a related proposal, and Harley 1995 for discussion), is that the base position of the subject is indeed contained within some projection of IP (i.e., it is VP-internal), but nonetheless it is higher than the derived position of the object. That is, raising of the direct object does not cross the base position of the subject. I refer to this analysis as the Stacking Hypothesis.

(2) *The Stacking Hypothesis*

- a. simple transitives (Koizumi 1993, Travis 1992)



b. double object constructions



This chapter will show that there is no evidence for the leapfrogging hypothesis, while there may be some evidence in favour of stacking. Moreover, I will show that, on a common set of assumptions, the stacking hypothesis makes the correct predictions, while the leapfrogging hypothesis makes incorrect predictions. Additional assumptions are necessary for the leapfrogging hypothesis to account for data that is straightforward on the stacking hypothesis.

In section 1, I consider the empirical evidence adduced in favour of the Leapfrogging Hypothesis. Arguments come from two sources. The first – and strongest – argument that the base position of the subject is lower than the shifted position of the object comes from Chomsky’s 1993 derivation of Holmberg’s (1986) generalization, i.e., the observation that objects in the Scandinavian languages can only shift overtly to a position (assumed to be the specifier of AgrO) external to the VP if the main verb also raises overtly out of the VP. If the main verb remains internal to the VP, as it does in compound tenses (i.e., auxiliary + participle constructions) and (certain) embedded clauses, then the object

must remain VP-internal as well. Chomsky introduced the notion of “equidistance” of two positions, arguing that overt verb raising provides an “escape hatch” allowing an object to raise across the subject trace, by rendering the specifiers of the VP and AgrO-P “equidistant” from the object. If the verb raises, the object will not violate Shortest Move in raising to Spec,AgrO. If the verb does not raise, however, the specifier of AgrOP is “too far” and the object must remain VP-internal. This theory had the merit that, with a single assumption about the universal nature of movement – namely the “equidistance” clause – a single account was provided which both forced the subject and object to raise to the specifiers of the appropriate Agr projections, and which derived the restriction that object shift was dependent upon verb movement. Unfortunately, this restriction on object shift (i.e. Holmberg’s generalization) is not universal. As I showed in Chapter III, the restriction does not even hold across the Germanic languages, and runs into serious problems in other languages as well. In Chapter III, I attempted to show that it was a part of a larger generalization, one which does not necessitate or support crossing paths. It is hard to see how Chomsky’s “equidistance” account could be weakened enough to admit the data, but still have any predictive force. Accounting for a generalization which does not fully generalize can hardly be a feather in any theory’s cap, let alone an argument in favour of the account.

A more direct empirical argument that the base position of the subject is lower than the position of the derived object rests on Sportiche’s 1988 analysis of “floating” quantifiers as marking the position of the subject trace. Observationally, a subject-oriented “floated” quantifier in Icelandic may follow a shifted object, but not an object in its base position. The conclusion drawn by Bobaljik & Jonas 1994 and Collins & Thráinsson 1994 is that this data shows that there is a subject trace above the base-position of the object but below the derived position of the object. That is, they take this as an argument in favour of the Leapfrogging architecture. There are, however, two serious flaws with this

conclusion. On the one hand, even on its own assumptions, this analysis of the distribution of floating quantifiers in simple transitives makes the wrong predictions concerning the distribution of the same elements in double-object constructions. Moreover, in the next Chapter I will show that the crucial premise, i.e., the view that floating quantifiers mark the positions of subject traces, is itself untenable for a wide range of reasons. An alternative account is that the floating quantifiers are adjoined to (maximal ?) projections of predicates. This account, I will show in Chapter IV, is at the very least plausible, if not superior to the trace-based account. However this alternative does not entail that there is a subject trace beneath the shifted object in its account of the relevant data. The second argument in favour of leapfrogging thus also vanishes.

In section 2, I consider possible empirical support for the stacking view. In sections 2.1-2.3 I consider a number of arguments, some based on new data, which show that, accepting the evidence for two distinct positions for each of subject and object, we nonetheless find that the lower surface positions of the subject are higher than the higher positions of the object, as predicted by stacking. For the leapfrogging theory, this requires the postulation of additional positions and additional machinery, which have little if any independent motivation. Section 2.4 extends these observations to indirect object positions in double object constructions. In this section, I will show from consideration of novel data that the leapfrogging hypothesis actually makes the wrong predictions in double-object constructions involving adverbs adjoined to the lower VP projection. The additional assumptions required to avoid the problem created by the data presented there are not obviously plausible.

As always, it is possible to maintain virtually any analysis with extra assumptions. However, in the present case invoking Occam's Razor is appropriate. The stacking and leapfrogging hypotheses can be made to account for the same range of empirical

observations. However, the stacking hypothesis does so on a proper subset of the assumptions required by the leapfrogging hypothesis. That is, both hypotheses posit base and derived positions for subjects and objects, partly in order to account for the range of phenomena falling under the rubric of object shift in the Germanic and Celtic languages. Further, adopting split VPs (i.e., VP-shells) for double object constructions, both accounts must accept that certain adverbs, especially those which serve as diagnostic tools for object shift phenomena, must be allowed to adjoin to VP projections other than the highest VP (i.e. the projection containing the subject trace). For the stacking hypothesis, this is all that need be said to explain all the data in the present work. For the leapfrogging hypothesis, a number of extra assumptions are needed, as will be made clear below. Stacking requires no assumptions which leapfrogging does not, but leapfrogging requires assumptions which are not required by stacking and are not independently motivated. There is thus, to my knowledge, no reason at all to maintain the leapfrogging view of clausal architecture.

1. In this corner... The arguments for leapfrogging.

1.1 Equidistance, Shortest Move, and Holmberg's generalization.

The major argument in favour of leapfrogging is that, when combined with the “equidistance” clause in the definition of Shortest Move (Chomsky 1993), the result was a straightforward account of the generalization noted by Holmberg 1986, to the effect that object raising is dependent upon verb raising (in the Scandinavian languages). That is, within the context of a study of the Scandinavian languages, Holmberg 1986 proposed the following rule to describe a process which is attested in some form or another in most of the Germanic languages:

(3) Holmberg's: *Object Shift*

Move an object NP leftwards within the X' projection of its governing verb, when this verb is phonetically empty.

(Holmberg 1985:184)

The important part of this observation is the clause *when this verb is phonetically empty*. In particular, Holmberg had in mind cases where the main (i.e. thematic) verb raises overtly out of the VP. From this observation stems the following, which has come to be known as Holmberg's generalization:

(4) *Holmberg's Generalization*

Object shift is possible only if the (main) verb raises out of the VP.

The condition in (4) has become a standard feature of work on argument movement within the framework set forth in recent work by Chomsky 1993 et seq. The generalization describes contrasts like (5) versus (6) in the mainland Scandinavian languages, repeated here from Chapter II.

(5) *Verb raises, object shifts across VP-adverb*

- a. Peter købte **den**_i [VP ikke [VP t_i]]
 Peter bought it not
 'Peter didn't buy it'.

(Danish, Vikner 1991)

- b. I går læste Peter **den** [uden tvivl [ikke.]]
 yesterday read P. it [VP without doubt [VP not trace]]
 'Peter doubtlessly read it yesterday.'

(Danish, Vikner 1991:300)

- c. Á barnum drakk stúdentinn **bjórinn** [stundum]
 In bar.the drank student.the beer.the [VP sometimes trace]
 'In the bar, the student sometimes drank all the beer.'

(Icelandic,)

(6) *main verb remains in VP, object shift prohibited*

- a. auxiliaries: Hvorfor har Peter ikke købe **den**?
 * Hvorfor har Peter **den** ikke købe ?
 why has P it not bought it ?
- b. embedded: Det var godt [at Peter ikke købte **den**.
 * Det var godt [at Peter **den** ikke købte .
 it was good that P it not bought it
 (Danish, Vikner 1991)

In Icelandic, unlike the mainland Scandinavian languages, finite verbs do not remain in the VP in most embedded clauses, hence object shift is possible in the environment parallel to (6b), as seen in (7a). However, in cases where the auxiliary occupies Infl, the main verb (participle) obviously remains VP-internal, and object shift is blocked.

(7) *Holmberg's generalization in Icelandic:
 (shift of full NPs blocked with auxiliaries)*

- a. Jólasveinarnir borðuðu **búðinginn** [vp ekki]
 the.X-mas.trolls ate the.pudding not
 'The Christmas Trolls didn't eat the pudding.'
- b. * Jólasveinarnir hafa **búðinginn** [vp borðað].
 the.Christmas trolls have the.pudding eaten
 (Icelandic, Jonas & Bobaljik 1993:93)

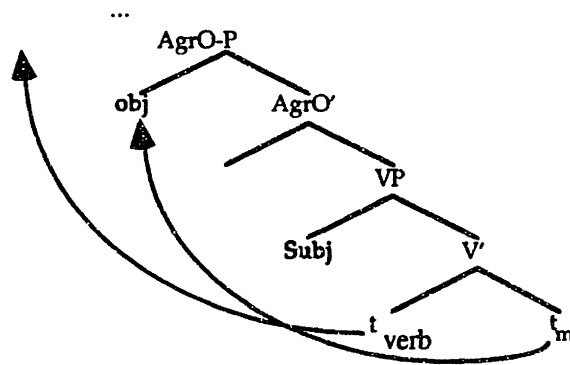
Object shift is likewise blocked by (4) in Icelandic in non-finite complements of modal verbs, where there is no raising of the non-finite main verb (Thráinsson 1993, see also Chapter V).

(8) *Complements of modal verbs: no v-raising, object shift prohibited*

- a. * Risarnir ættu að ríkisstjórnirnar éta.
 giants.the ought [IP to governments.the eat]
 (The giants ought to eat the governments.)
 (Icelandic: Thráinsson 1993:204)

The structure assumed for the object shift examples in all cases is the following:

(9)



Chomsky's 1993 account of this generalization relies on a notion of *equidistance* [i.e. from moving element, of two potential landing sites] by domain extension.³ In brief, Chomsky was concerned with the general problem of ensuring that subject and object arguments raise to the specifiers of the appropriate agreement phrases. Translating major aspects of Rizzi's *Relativized Minimality* condition into strictly derivational terms, he proposed a principle of *Shortest Move* (see also Chomsky & Lasnik 1993 Minimal Link Condition), which dictates that movement must be to the closest potential landing site.⁴ The immediate problem is that raising of the object to Spec,AgrO across the subject or its trace in Spec,VP would appear to violate this principle. The solution proposed is as follows:

Raising and adjunction of the verb to AgrO⁰ forms a chain C={V, t_{verb}} with the head in AgrO⁰ and the foot as the trace heading the VP projection. The specifiers of AgrO-P and of VP exclusively stand in the same minimal relationship (i.e. Spec-Head,

³ This is discussed in much more detail elsewhere in the literature springing from Chomsky 1993. For early detailed discussion of this, see Bobaljik 1992, Branigan 1992, Bures 1992, and papers in Bobaljik & Phillips 1993 and Phillips 1993b. For more recent summaries, see Marantz 1995a, Lasnik 1993) and many others.

⁴ Bobaljik & Jonas 1994:4 offer the following definition for *shortest move*:

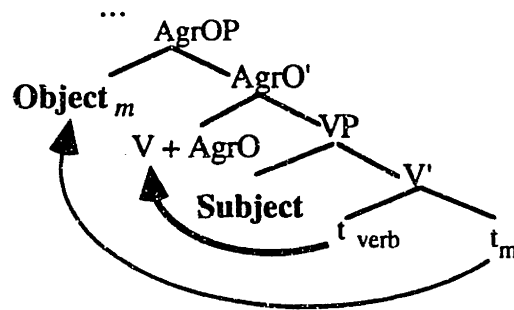
(i) *Shortest Move* (Economy)

The target of movement must be no farther than the first appropriate landing site, where appropriate includes the following:

(i) A Head position for Head Movement (cf. The HMC of Travis 1984).
 (ii) A-positions for A movement.
 (iii) A'-positions for A' movement.

minimal domain) to this chain. The two positions may thus be said to be *equidistant* from, e.g., the complement of V. Raising of the object to [Spec,AgrOP] can in effect “skip” [Spec,VP]: while [Spec,VP] is the “first appropriate landing site”, head-movement renders [Spec,AgrOP] equidistant to, and thus by definition no farther than, [Spec,VP] for the object. This skipping of exactly one specifier therefore does not constitute a Shortest Movement violation, iff the heads of the two projections are part of the same chain.

(10)



Holmberg’s generalization is offered as strong support for this analysis. If the verb has not raised overtly at least to AgrO, then Spec,AgrO and Spec,VP are not equidistant from the object and it is trapped in its base, VP-internal position.

Much fruitful work stems from this approach, in particular from the application of this mechanism to other parts of the clause; see for instance the various papers within this framework of assumptions investigating the TP node (Bures 1993, Bobaljik & Jonas 1994, and others) and double object constructions (Bures 1993, Koizumi 1993,1995, Collins & Thráinsson 1994, and others).

As I showed in Chapter III, the requirement that the verb raise for object shift to be possible does not hold of all the Germanic languages. In particular, it systematically fails to hold of the OV Germanic languages (Dutch, German, Afrikaans...) and fails also in

languages beyond Germanic as far as object shift has been investigated in these (for instance, Modern Irish).⁵ The accounts which elevate Holmberg's Generalization to a universal principle constraining object movement are too strong.

The following examples all show instances of object shift – overt raising of the object NP across a VP-adjoined adverb, presumably to Spec,AgrO. Given that the languages are head-final, it is not straightforward to determine whether a simple inflected finite verb is in V or Infl. However, in Icelandic, even though the finite verb raises to Infl in embedded clauses, it clearly does not, and could not, raise to Infl when Infl is occupied by an auxiliary. Thus, the test case for the applicability of Holmberg's generalization in the SOV languages must be clauses with auxiliaries, since in none of the Germanic languages do these involve raising of the main verb to Infl, which is occupied by the auxiliary. In Icelandic, as we have seen (7b), object shift is impossible. However, in the SOV Germanic languages, such as Afrikaans, Dutch and German, object shift is not blocked in these constructions:

(11) *Object shift with auxiliaries, SOV Germanic.*

- a. Ons het **al die bier** [vp gister gedrink.
 we have all the beer yesterday drunk
 'We drank all the beer yesterday.'
- (Afrikaans)
- b. ...dat veel mensen dat boek gisteren gekocht hebben.
 that many people [AgrOP that book [vp yesterday bought]] have]
 '... that many people bought that book yesterday.'
- (Dutch after Zwart 1993a)

⁵ The observation that object raising in the SOV languages does not require overt verb raising is originally due to Vikner 1991 (who Chomsky 1993 cites for Holmberg's generalization). Vikner takes this fact as evidence that the leftward movement of objects in SOV languages is different from that in SVO languages, though with no thoughts on why the difference may correlate with headedness in this way. Since then, Déprez 1991 noted the fact that the SOV languages do not fall under Holmberg's generalization, followed by Watanabe 1993, Zwart 1993b, 1995a, Bobaljik 1994a, and Koopman 1995 for Dutch.

- c. Ich denke...
I think...

... [CP daß viele Leute [AgrOP die Zeitung [vp ganz gelesen]] haben].
that many people the article completely read_[PART] have

'I think that many people have completely read the article.'

(German: Bobaljik & Jonas)

If these examples involve object shift, i.e., movement to Spec,AgrO-P, then they constitute clear counterexamples to the structural account of Holmberg's generalization, as offered by Chomsky. If object shift requires overt verb raising, then it should be blocked in all the examples in (11). Since it is not, we must give up the equidistance account as empirically untenable. If, on the other hand, object shift does not require overt verb raising, then the equidistance-based account of Holmberg's generalization is not correct. Thus, either way, the account of Holmberg's generalization rooted in the interaction of Shortest Move and Equidistance is found to be untenable.

Before proceeding further, then, I will demonstrate that the leftwards movement of the objects in these examples do involve A-movement, i.e. shift to Spec,AgrO-P, as opposed to a clause-internal adjunction or A'-movement operation.

1.1.1 Object Shift in SOV Germanic is Object Shift

As is well known, movement to Spec,AgrO-P is not sufficient to account for all instances of leftward movement of arguments within a clause. Cross-linguistically, there are at least two well-attested processes which are of this character. One of these, clearly attested in, e.g. Icelandic, and discussed above will be referred to as "object shift". This is

distinct from “focus scrambling”, a much freer process in terms of derived word order, as we shall see presently.⁶

The clearest distinction between the two movement processes is in Dutch. Of the two processes, I will show that the one exemplified in (11b) has very much the properties of Icelandic object shift and should therefore be considered the same operation. The relevant properties are that it is quite local, that it is obligatory for arguments introducing old information and impossible for arguments introducing new information, that it licenses floating quantifiers, and that it does not require a special, marked intonation characteristic of focus scrambling. For the second and especially the last points, I draw heavily on arguments in Zwart 1993 and refer the reader to that work. In all of these, the movement contrasts with “focus scrambling”.⁷ The one objection that has been raised to the characterization of leftwards movement in Dutch and German as object shift is that it appears to license parasitic gaps, which has been argued to be a diagnostic of A'-movement (Webelhuth 1989). I will discuss this in §1.1.2 and show that this fact clusters with other facts of the SOV languages, suggesting that the apparent gaps licensed in these environments are not true parasitic gaps. They show quite different distribution from the

⁶ There is much confusion of terms in the literature. The term “focus scrambling” is due to Neeleman 1990, I believe. The term “scrambling” on its own is used by some authors to mean what I call “focus scrambling”, an A'-adjunction process with certain focus characteristics (since Mahajan 1990, also Bobaljik & Jonas 1994), as distinct from what I call “object shift”. Zwart 1993 and other European scholars use “scrambling” to refer to what I call “object shift”, i.e. movement of a full NP to Spec, AgrO, reserving “object shift” for the movement of pronouns in Scandinavian. Vikner 1991 uses “scrambling” to refer to leftward NP movement in the SOV languages, and “object shift” to refer to the movement in the SVO languages. While there are differences between the movement in SOV languages and that in SVO languages, I believe that the differences are for the most part due to the interaction of independently motivated factors, as I will show. Diesing 1994 argues that all movements are part of a single, semantically driven range of possibilities, though she has no account for the subtle differences among different languages which form one of the central topics of this thesis.

For this reason, I have decided to avoid the simple term “scrambling” entirely. For me, “object shift” is movement of pronouns and full NPs to a fixed position to the left of the verb phrase. In the case of full NPs, this position is Spec, AgrO-P; and for pronouns some similar position (see Chapter V, below). This process, I argue directly, is attested in all the Germanic languages, save English. The term “focus scrambling” is reserved for a different process, quite marked in Dutch though freer in German and perhaps Yiddish (Diesing 1994).

⁷ I will not consider the arguments from binding theory and weak crossover here. There is a standing debate in the literature as to what these show, and substantial disagreement in the judgements. Someday, it is hoped that careful investigation will sort the matter out, but this is beyond the scope of this thesis.

gaps licensed by A'-movement, as first discussed by Zwart 1993. If there are gaps at all here, then they are the pseudoparasitic gaps identified in English by Postal 1994, though I will suggest tentatively that there are no gaps here at all; rather, these structures involve coordinate structures.

We begin with consideration of the two types of movement, as exemplified by (12) and (13):

(12) object shift

- a. Jan heeft Marie gisteren gekust.
J. has M. yesterday kissed
'Jan kissed Marie yesterday.'
- b. ... dat Jan Marie gisteren gekust heeft.
... that J. M. yesterday kissed has
'... that Jan kissed Marie yesterday.'

(Dutch: Zwart 1993b:48)

(13) focus scrambling

- a. * ... dat Marie de jongens vaak kussen
that M. the boys often kiss
(... that the boys kiss Marie a lot.)
- b. ... dat MaRIE de jongens vaak KUSsen
that M. the boys often kiss
'... that the boys kiss Marie a lot.'

(Dutch)

(Dutch: Zwart 1993:47)

Zwart 1994:49 observes that the word order in (13) is possible only with what is felt to be a marked intonational pattern. That is, (13) requires an intonation with emphasis on both the object *Marie* and the verb *kussen* 'kiss'. Further, he notes that the type of scrambling in (13) is possible with non-arguments such as resultative predicates (p. 49), which is not possible in object shift. Finally, this movement is optional, and in fact rejected by many speakers. At first presentation, some informants reject (13) out of hand, and only accept it when the distinct intonational pattern identified by Zwart is pointed out.

The movement in (12), on the other hand, does not require a marked intonation. With neutral intonation (Zwart cites van Buuren 1980 for a discussion of intonation in Dutch), such movement is obligatory for elements which denote old information (pronouns and definite, specific NPs), but blocked for elements introducing new information (indefinite, non-specific NPs). de Hoop 1992 also gives this characterization of the semantic effect or motivation of object shift.

(14) *object shift = old information*

- a. ... dat Jan **Marie** gisteren gekust heeft.
 that J. M. yesterday kissed has
 ‘... that Jan kissed Marie yesterday.’
 [Marie = old information]
- b. ... dat Jan **een meisje (uit zijn klas)** gisteren gekust heeft.
 that J. a girl (from his class) yesterday kissed has
 ‘... that Jan kissed a girl (from his class) yesterday.’
 [specific reading preferred, viz. ‘a girl who I have in mind.’]
 (Dutch: Zwart 1993:313ff)

(15) *non-shifted object = new information*

- a. ... dat Jan gisteren **Marie** gekust heeft.
 that J yesterday M. kissed has
 ‘...that Jan kissed Marie yesterday.’
 [felicitous as answer to: ‘Who did Jan kiss yesterday?’ = new information]
- b. ... dat Jan gisteren **een meisje (uit zijn klas)** gekust heeft.
 that J. yesterday a girl from his class kissed has
 ‘... that Jan kissed a girl (from his class) yesterday.’
 [i.e. some girl in his class]
 (Dutch: Zwart 1993:313ff)

This split between old and new information is the same semantic split between shifted and non-shifted object in Icelandic, *modulo* the effects of Holmberg’s generalization, and has been studied in detail in a number of languages by Adger 1994,

This contrasts with a different context in which mention of the title, *Barriers*, would introduce new information, as in (18). In such a case, the judgements are reversed:

(18) *object in situ = new information*

context: Does he know Chomsky's work?

- a. # Hann les **Barriers** alltaf.
 he reads B. allways
 (He is always reading **Barriers**.)
- b. Hann les alltaf **Barriers** .
 he reads allways B.
 'He is always reading **Barriers**.'

(Icelandic, Höskuldur Thráinsson, pc)

The relevance of the contrast between old and new information is clear here, though it is perhaps possible to find a slightly better term.

Finally, as noted by Diesing 1994 and others, intonation can disrupt this pattern in the same way it can in the SOV languages. That is, by emphasizing, or placing contrastive stress on an element which otherwise introduces old information, it can behave as if it is introducing new information into the discourse. This is, of course, unsurprising on semantic grounds.

In their distribution, then, focus scrambling and object shift have different properties in Dutch. Further, what I have called object shift in Dutch patterns quite clearly with object shift in Icelandic.

There is another, much stronger argument that object shift, the leftward movement in the SOV languages, has the characteristics of an A-movement property, and not of an A'-movement operation like *wh*-movement or topicalization, as noted by Déprez

1989,1991. Sportiche 1988, and more careful work in Déprez 1989:90ff demonstrated that floating quantifiers in English may be licensed by A-movement operations such as raising or passive, but not by A'-movement operations such as relativization, topicalization, and *wh*-movement. These facts are, of course, independent of the issue of the analysis of floating quantifiers, to which Chapter IV is devoted. Thus:

(19) *A-movement licenses floating quantifiers.*

- a. The children have *all* been invited to this party.
- b. The children *all* seem to have understood Orin's instructions.
(cf. Déprez 1989)

(20) *A'-movement does not license floating quantifiers.*

- a. * [NP the professors who I will have *all* met before the end of term] ...
(relativization)
- b. * These professors, I will have *all* met before the end of term.
(topicalization)
- c. * Which professors will she have *all* met before the end of term?
(*wh*-question)

As Déprez shows, the same facts obtain in French:

(21) *A-movement licenses floating quantifiers*

- a. Les enfants ont *tous* été invités à cette soirée.
the children have all been invited to this party
'The children have all been invited to this party'
- b. Les enfants ont *tous* semblé avoir compris les exercices.
the children have all seemed to have understood the exercises
'The children have all seemed to have understood the exercises.'
(French, Déprez 1989:90)

(22) *A'-movement does not license floating quantifiers*⁹

- a. * [NP ces livres, que j'ai tous cru que tu avais lu]...
 these books which I-have all believed that you had read
 (these books, which I thought you had read all of)
- b. * [NP ces hommes, que j'aurais tous cru qui auraient été arrêtés]...
 these men which I-had all believed who had been arrested
 (these men, whom I had believed to have all been arrested)
 (relativization, French, Déprez 1989:92-94)

Turning to the SOV Germanic languages, we see that the same considerations apply, as Déprez 1989 has shown. A-movement licenses floating quantifiers, but A'-movement does not.

(23) *A-movement licenses floating quantifiers.*

- a. Strákana var *allra* getið í ræðunni.
 boys.the were all mentioned in speech.the
 'The boys were all mentioned in the speech.'
 (passive, Icelandic, Sigurðsson 1991:331)
- b. Mína kamrater ska *alla* verka konstiga.
 my friends will all seem (to be) strange.
 'My friends will all seem (to be) strange.'

⁹ Long distance (successive cyclic) extraction is necessary to make the point in French, since, as Kayne 1975 (Chapter 1) discusses in great detail, French has a process moving *tous* leftward, Kayne's *L-tous*. This movement is illustrated in (i). As (ii) shows, *L-tous* is clause-bounded.

(i) Il a *tout* repris.
 he has all taken.back
 'He took back everything.'
 (French, Kayne 1975:38)

(ii) * Tu a *tous* cru les avoir compris.
 you have all believed them to.have understood
 'You thought you understood them all.'
 (French, Déprez 1989:92)

Note that the position of *tout* in *L-tous* constructions such as (i) is not a possible position for either clitics or NP objects.

(iii) Il les a repris. / * Il a les repris.
 he them has taken.back he has them taken.back
 'He took them back.'

(iv) Il a repris ses livres. / * Il a ses livres repris.
 he has taken.back his books. he has his books taken.back
 'He took back his books.'

(French)

Déprez points out that sentences parallel to (20) are grammatical in French, but the possibility of *L-tous* deriving the order in these cases cannot be excluded. Since *L-tous* is clause-bounded, successive cyclic extractions control for this possibility and are thus the test case for A'-movement in French.

(raising, Swedish)¹⁰(24) *A'-movement does not license a floating quantifier*

- a. * [NP boeken att jeg ikke leste *alla*]...
 books.the that I not read all
 (the books, which I didn't read all of)
 (relativization, Norwegian, Déprez 1989:197)
- b. * [NP bækurnar sem Jón keypti ekki *allar*] ...
 books.the which J. bought not all
 (the books, which Jon didn't buy all of)
 (relativization, Icelandic, Déprez 1989:202)
- c. * Dessa flaskor vin har min kamrat *alla* druckit.
 these bottles wine has my friend all drunk
 (My friend has drunk all these bottles of wine.)
 (topicalization (V2), Swedish)
- d. * Vilka flaskor vin har min kamrat *alla* druckit.
 these bottles wine has my friend all drunk
 (Which bottles of wine has my friend drunk all of)
 (*wh*-question, Swedish)

Object shift in these languages, of both NPs and pronouns, is fully compatible with object-oriented floated quantifiers on the left edge of the VP.

(25) *Object shift licenses floating quantifiers.*

- a. Jeg leste dem ikke *alla*.
 I read them [vp not all]
 'I didn't read all of them.'
 (Norwegian, Déprez 1989:197)

¹⁰ Ingvar Löfstedt (personal communication) observes that using *verka* 'seem' in a non-present tense seems strange in Swedish, just as it does in English. However, in the context of something one might say to someone right before being introduced to the speaker's friends, (23b) and the English gloss are much more natural: *Don't worry, my friends will all seem to be quite strange at first...*

Another point can also be made from these examples. Preliminary results show that the floated quantifier in Swedish is quite marked between the subject and the finite verb in subject initial sentences:

- (i) Mina kamrater (**alla*) verka vara lyckliga.
 my friends all seem to.be happy
 'My friends (*all) seem to be happy.'

(Swedish)

This could be taken as evidence that subject-initial clauses in Swedish are V2, involving topicalization of the subject to Spec,CP and raising of the verb to C, a position which I must take in Chapter V. This final stage of movement, being topicalization, is expected not to license floating quantifiers, just as in (24c) below. I leave development of this idea to further work, and testing with a wider range of data.

- b. Það borðuðu margir strákar bjúgun [VP ekki [VP öll]]
 there ate many boys the.sausages not all
 'Many boys didn't eat (all of) the sausages.'
 (Icelandic, Bobaljik & Jonas 1994)
- c. Á barnum drakk stúdentinn bjórinn stundum *allan*.¹¹
 In bar.the drank student.the beer.the sometimes all
 'The student sometimes drank all the beer, in the bar.'
 (Icelandic)
- d. Hann las bækurnar eflaust ekki *allar*.
 he read books.the doubtlessly not all
 'He undoubtedly didn't read all the books yesterday.'
 (Icelandic, Vikner 1991:291)

This argument is the strongest I am aware of in favour of object shift being (or at least involving a stage of) A-movement. Independent of the analysis of floating quantifiers which one prefers (see Chapter IV), the facts seem to be that A-movement licenses floating quantifiers while A'-movement does not. The SVO Germanic languages are no exception to this general rule.¹² Following Déprez 1989, 1991, I therefore take the licensing of floating quantifiers to be a diagnostic for A-movement. Applying this to the SOV Germanic languages, we see right away that this movement licenses floating quantifiers:

(26) Object shift licenses floating quantifiers in SOV Germanic

- a. Die Männer haben die Würste nicht *alle* probiert.
 the men have the sausages not all tried.
 'The people have not eaten all the sausages.'
 (German, Uli Sauerland, p.c.)¹³

¹¹ Höskuldur Thráinsson points out that this example is perhaps somewhat marked. Interestingly, it contrasts clearly with shift of the full NP including the quantifier:

(i) ?? Á barnum drakk stúdentinn *allan* bjórinn stundum.
 in bar.the drank student.the all beer.the sometimes
 The student sometimes drank all the beer, in the bar.

(Icelandic,)

This contrast might have to do with the semantics of object shift, the difference between old and new information. That is, *all the beer* is actually new information, even though morphologically definite, in the same way as *lengstu bókina* 'the longest book' in (16). Recall that this latter NP could shift only if it referred to a presupposed, specific book, known to be the longest, i.e. the *de re* reading. Only in its unshifted position does this NP prefer the *de dicto* reading "whichever book happens to be the longest." These examples are discussed in more detail in Chapter IV.

¹² Déprez 1989 extends the A/A'-distinction as a diagnostic for floating quantifier licensing beyond the languages considered here as well.

¹³ The floated quantifier in this example is actually ambiguous between the subject and the object. I return to this in Chapter IV.

- b. Er wird die Bücher ohne Zweifel nicht *alle* lesen
 he will the books without doubt not all read
 'He undoubtedly will not read all the books.'
 (German, Vikner 1991:291)
- c. Marie heeft de dronken taalkundigen *allemaal* uitgelachen.
 M. has the drunk linguists all made.fun.of
 'Marie has made fun of all the drunk linguists.'
 (Dutch,)

Evidence that A'-movement in the SOV languages does not license floating quantifiers is more difficult to construct, since the possibility of object shift (A-movement) having applied prior to A'-movement, licensing the floated quantifier, must be excluded. Thus, like French, the test cases will have to involve long-distance or successive cyclic A'-movement. As we see, A'-movement clearly does not license a floated quantifier in these languages.¹⁴

(27) *A'-movement does not license a floating quantifier*

- a. Welche Würste hat der Peter (**alle*) bezweifelt ob der Hund gegessen hat.
 which sausages has the P. all doubted whether the god eaten has
 'Which sausages did Peter wonder whether the dig has eaten all (of)?'
 (*wh*-movement, German)

¹⁴ Something which I have no explanation of is the following fact, brought to my attention for Dutch by Fleur Veraart. As far as I have been able to test it, long-distance *wh*-movement appears to license floated *all* in the matrix clause if the verb is a bridge verb. Hence, the Dutch (i) is not entirely ungrammatical. Compare the English contrast in (ii) versus (iii):

(i) Welke dronken taalkundigen heeft Freek *allemaal* gezegd dat Marie uilachte.
 which drunk linguists has F. all said that M. made.fun.of
 'Whch drunk linguists did Freek all say that Marie made fun of?'

(ii) ? Which bottles of wine did he *all* say that my roommate had drunk.

(iii) * Which bottles of wine did he *all* regret that my roommate had drunk.

As Mark Hale reminds me, in addition to triggering root-like phenomena in embedded clauses, these verbs also permit other instances of apparent raising of elements out of the lower clause, as in, for example, Neg-raising:

(iv) I don't think that Mark left. [can = I think that Mark didn't leave]
 (v) I don't regret that Mark left. [can't = I regret that Mark didn't leave.]

- b. Diese Würste hat der Peter (**alle*) bedauert daß der Hund gegessen hat.
 these sausages has the P. all regretted that the dog eaten has
 'Peter regretted that the dog ate all these suasages.'
 (V2 topicalization, German)
- c. De dronken taalkundiger heeft Freek (**allemaal*) gezegd dat Marie uitlachte.
 the drunk linguists has F. all said that M. made.fun.of
 'Freek said that Marie has made fun of all the drunk linguists.'
 (V2 topicalization, Dutch)

We conclude that the short leftwards movement of objects even in SOV Germanic is object shift, that is, that it is or involves an A-movement operation.

1.1.2 Parasitic gaps and pseudo-gaps¹⁵

Webehuth 1989 argued that what I am calling object shift in German (and Dutch) has both A and A'-movement properties. Binding facts aside,¹⁶ the main argument that the movement has A'-properties comes from the fact that it licenses, or appears to license, parasitic gaps (Bennis & Hoekstra 1985, Webehuth 1989, Vikner 1991), as in (28). It is perhaps important to note that these sentences are not found to be fully grammatical by most speakers, at least in German, and vary in the degree of markedness assigned to them by different speakers (Fanselow 1990, Susi Wurmbrand, Uli Sauerland, personal communication). In the following examples [e] marks the supposed parasitic gap.

(28)

- a. ?Ich habe den Artikel ohne zu lesen zerrissen.
 I have the article [without [e] to read] ripped.up
 'I have ripped up the article without reading it.'
 (German)
- b. Pim heeft het boek zonder te lezen afgekraakt.
 P. has the book [without [e] to read] slighted
 'Pim has slighted the book without reading it.'
 (Dutch, Vanden Wyngaerd 1989:268)

¹⁵ This section is somewhat preliminary in nature and I hope to develop it in later work, should it lead anywhere. For discussion of the material in this section, I am indebted to Susi Wurmbrand, Marcel den Dikken and especially Jan-Wouter Zwart.

¹⁶ See Déprez 1989, 1991 for a lengthy discussion of why the binding facts are inconclusive.

That the movement is indeed licensing the gaps in these constructions is seen by the contrast between (28b) and (29):

(29)

- a. *Pim heeft zonder te lezen het boek afgekraakt.
 P. has [without [e] to read] the book badmouthed
 (Pim has badmouthed the book without reading it.)
 (Dutch, Vanden Wyngaerd 1989)

There are, however, a number of reasons to believe that the gap in these constructions is not a parasitic gap, or at least not the same type of parasitic gap as licensed by A'-movement, as in:

(30)

- a. Welk boek heeft Jan zonder uit te lezen weggelegd ?
 which book has J [without [e] out to read] t put.away
 'Which book has Jan put away without reading ?'
- b. Dit boek heeft Jan zonder uit te lezen weggelegd ?
 this book has J [without [e] out to read] t put.away
 'Jan has put away this book without reading it ?'
 (Dutch, Zwart 1993)

Zwart (1993, pp 309ff) and personal communication) has offered evidence that the gaps in (30) are true parasitic gaps, licensed by A'-movement (i.e. the presence of a non-c-commanding trace, hence the name "parasitic") and substantially different in distribution from those licensed by object shift.

Here, I will summarize Zwart's evidence and add to it facts which suggest that the gaps in these constructions are something else, likely akin to the pseudo-parasitic gaps identified by Postal 1994 as being licensed by Right Node Raising (RNR) in English. Though I will not go beyond a brief discussion of the data, I believe the data suggests that a direction for future inquiry is to relate the leftwards movement in Dutch and German which licenses these gaps to the rightwards movement in English which does. In fact, there is reason to believe that these operations, English RNR and Dutch Left Node Raising (LNR) involve no movement at all, rather coordinate structures.

- b. * zonder je af te vragen of wij al uitgenodigd hadden
without you off to ask whether we [e] already invited had
'without wondering whether we had already invited (them)'
- c. * zonder te weten voor welk feest je moest uitnodigen
without to know for which party you [e] must invite
'without knowing to which party you had to invite (them)'
(Dutch, Zwart 1993:312)

A contrast between true parasitic gaps and the gaps licensed by object shift is to be found in complement clauses.

(33) *Parasitic gap licensed in complement clause*

Wie heb je overtuigd dat we zouden bezoeken?
who have you *t* convinced that we [e] would visit
'Who did you convince that we were going to visit (them).'
(Dutch, Zwart 1993:312)

(34) *Object shift does not license a gap in complement clause*

* Ik heb Piet overtuigd dat we zouden bezoeken.
I have P. convinced that we [e] would visit
'I convinced Piet that we were going to visit (him).'
(Dutch, Zwart 1993:313)

Postal 1994 has argued at length that there are two distinct processes in English which are generally subsumed under the rubric "parasitic gap". In particular, he shows that the gaps permitted by one of these operations, those involving A'-extractions, display a distinct cluster of properties, and labels these "true parasitic gaps." The other gaps do not necessarily show this cluster of properties and Postal calls these "pseudo-parasitic gaps". A characteristic environment of pseudo-parasitic gaps is Right Node Raising (RNR) constructions such as the following:

(35) *RNR - pseudo parasitic gaps*

John offended, by not recognizing immediately, his favourite uncle from Cleveland.

I refer the reader to Postal 1994 for extensive arguments that the gap (if there is one) in these constructions is not a true parasitic gap. Of the properties which Postal (1994:80ff) describes as characteristic of true parasitic gaps, not all are obviously testable in the object shift cases under discussion. However, Zwart (1995b) notes that those properties which are testable lead to the conclusion that the gaps in object shift constructions are pseudo-parasitic gaps.¹⁸ First, Postal claims that true parasitic gaps cannot correspond to or be licensed by NPs which are not inherently passivizable (Postal 1994:83). Here, there are two relevant tests.

First, indirect objects do not passivize:

(36) *Indirect objects impassivizable.*

* Marie wordt het boek gegeven.
 M. was the book given
 'Marie was given the book.'

(Dutch, Zwart 1995b:2)

But, indirect objects do undergo object shift and in such constructions license the type of gap associated with object shift generally.

(37) *Indirect object shift licenses pseudo-parasitic gap*

... dat hij Marie zonder iets te geven blij maakt.
 that he M [without [e] to give] t
 'that he ...' xx

(Dutch, Zwart 1995b:2)

A second class of nominals which do not passivize well in Dutch is the language in a construction like *I know Chukchi* (cf. English ?* *Chukchi is known by me.*)

¹⁸ The following paragraphs, including the construction of the tests and the argumentation, reproduce a squib-length letter from Jan Wouter Zwart, to whom I am deeply indebted. For convenience, I refer to this letter as Zwart 1995b.

(38) *Languages do not passivize*

?? Chukchee wordt door mij gekend
 Chukchi was by me known
 (I knew Chukchi), lit: Chukchi was known by me.
 (Dutch, Zwart 1995b:2)

As the reader should be expecting by now, object shift of *Chukchi* permits a pseudo-parasitic gap.

(39) *Languages license p.p.g.*

... dat hij Chukchee zonder te kennen vloeiend spreekt.
 that he Chukchi [without [e] to know] *t* fluently speaks
 'that he speaks Chukchi fluently without knowing it [i.e. Ch.]'
 (Dutch, Zwart 1995b:3)

A second diagnostic which Postal motivates is that predicate nominals may not license parasitic gaps. Zwart notes that constructions which appear similar to the object shift cases license gaps; however, he cautions that predicate nominals do not generally undergo object shift. It is therefore not clear what exactly is involved here.¹⁹

(40) *Predicate nominals*

... dat hij honkballer zonder ooit te hebben willen worder jarenlang met plezier geweest is
 that he baseballer [without ever [e] to have wanted become] for.years with pleasure been has
 'that he has, without ever wanting to be a baseball player, has been one for years.'
 (Dutch, Zwart 1995b:2)

There is thus, for Dutch at least, a surprisingly large range of data converging on the conclusion that the apparent gaps which occur with object shift constructions are not true parasitic gaps, which are licensed by A'-dependencies. If anything, they would appear to pattern with Postal's pseudo-parasitic gaps, though concluding that this is what they are may be somewhat premature.

¹⁹ Likewise, Zwart observes that certain non-NP constituents, such as locatives *er* 'there', *daar* 'there', *ergens*, *overal*, ... also license gaps in these constructions, again failing two of Postal's tests for parasitic-gap-hood.

However, there is a range of data from both Dutch and German which makes the connection to English RNR, I believe, rather tempting.

The leftward movement in the head-final languages, which above I have characterized as object shift, in addition to showing the pseudo-parasitic gap effects associated with RNR in English, also shows the mirror image of the typical RNR configuration, a form of reduced conjunction. First, the English pair:

(41) *Right Node Raising*

- a. I have ironed, without having washed, my new shirt.
- b. I have washed, but have not ironed, my new shirt.

In Dutch and German, the mirror image is attested:

(42) *Left Node Raising* ²⁰

- a. ... dat ik mijn nieuwe overhemd zonder te wassen gestreken heb.
 that I my new shirt without to wash ironed have
 '...that I have ironed, without washing, my new shirt.'
- b. ... dat ik mijn nieuwe overhemd gewassen, maar niet gestreken heb
 that I my new shirt washed but not ironed have
 '...that I have washed, but not ironed, my new shirt.'
- (Dutch: den Dikken, pc)

²⁰ Jan-Wouter Zwart points out (personal communication) that something which looks like a form of rightwards RNR is also possible in main clauses in Dutch.

- (i) Jan schrijft, en Piet leest, artikelen over taalkunde.
 J writes and P reads articles about linguistics
(Dutch, Zwart 1995b:3)

This is contrary to the claim of Kayne 1994:67f that Dutch does not display RNR at all. I thank Marcel den Dikken for bringing Kayne's claim to my attention. Note that Kayne's examples (citing Teun Hoekstra) involve compound tenses. The apparent parallel to (i) is ungrammatical with a compound tense, as in (iii).

- (ii) * Jan heeft gekocht en Marie heeft verkocht de spullen waarmee zij rijk werden.
 J has bought and M. has sold the things wherewith they rich became
 'Jan bought and Marie sold the things with thich they became rich.'
(Dutch, Kayne 1994:67, citing T. Hoekstra)
- (iii) * Jan heeft geshreven en Piet heeft gelezen artikelen over taalkunde.
 J has written and P. has read articles about linguistics
(Dutch, 12/05/95:4)

Recall that Dutch is a V2 language, SOV language. Hence, the object does not follow a verb *in situ* in the verb phrase, such as a participle:

- (iv) * Jan heeft gekocht de spullen.
 J has bought the things.
(Dutch, Kayne 1994:68)

However, in case the main verb is inflected, then in the absence of topicalization the observed order is SVO:

- (v) De kinderen maken zoo een lawaai.
 the children make so much noise
 'The children make so much noise.'
(Dutch, Bloomfield 1944:57)

Thus, Zwart's example (i) need not involve rightwards movement of the object, but rather a structure where the conjoined elements are the subject and inflected verb, both above the position of the object, which could be in its base position to the left of a participle or in Spec, AgrO. We maintain the claim, standard in the literature, that Dutch does not have rightwards extraposition of NPs. This analysis of Zwart's example sharply calls into question the analyses of RNR involving rightwards movement of the object and a gap. Rather, a biplanar (i.e. forking) conjunction analysis, such as that entertained by Moltmann 1992 and references therein, especially Muadz 1991, seems to be forced at this point. I wish there was more time to discuss this, but we will have to postpone this for a later paper. Thus, for Dutch, using Moltmann's notation, the structure of (i) would be (vi) and for its English gloss, as in (vii):

- (vi) [IP Jan schrijft
 en Piet leest] > [VP [Nparticles about linguistics]]
- (vii) [IP Jan writes
 Pete reads] > [NP articles about linguistics]]

- c. ? Ich habe den Artikel ohne zu lesen zerissen.
I have the article without to read ripped.up
'I have ripped up, without reading, the article.'
- d. Ich habe den Artikel im Haus gelesen und dann in der Schule zerissen.
I have the article in.the house read and then in the school ripped.up
'I have read the article at home and then ripped (it) up at school.'
(German, Susi Wurmbrand, pc)

The final link in the argument is to show that these constructions do not entail A'-movement. There are a number of directions in which one could go to show this, and I will leave this hanging. However, if these involve coordination structures, then I believe a plausible analysis will be to subsume them with other Across-The-Board (ATB) phenomena.²¹ In particular, a planar analysis of coordinate structures such as that of Moltmann 1992 or Muadz 1991 will allow an analysis of these phenomena without necessitating movement at all. Hence the word *raising* in Right and Left node raising is perhaps a misnomer. I will not pursue the analysis here, though Moltmann's structures will arise again elsewhere.

To sum up this long excursus, we have seen a number of reasons to liken the local, leftwards movement in the SOV languages, especially Dutch, to that found in Icelandic. It has the hallmark characteristics of object shift, including an old versus new information structure, a strictly local character, and an unmarked intonation. Moreover, it licenses floating quantifiers, which I have argued, following Déprez 1989, is a clear diagnostic of A-movement, and we have seen strong reasons to doubt that the apparent gaps licensed in these constructions are true parasitic gaps licensed by A'-movement. At this point, I feel that we have sufficient evidence to assume that the movement is A-movement, and proceed accordingly.

²¹ Williams 1990 has argued that parasitic gaps are ATB structures, as has, apparently Muadz 1991.

1.1.3 Holmberg's generalization also fails in Irish

The point in the first part of this section (and of Chapter II) was that the requirement that the verb raise overtly in order for object shift to be possible (Holmberg's generalization) does not hold of all the Germanic languages. In particular, the split seems to pattern with headedness. Beyond Germanic, Modern Irish has been investigated in some detail with respect to an Object Shift-like movement in non-finite clauses (Duffield 1990, Noonan 1993, Guilfoyle 1994 and Carnie 1995b).²² If this process is akin to object shift in the Germanic languages, then it too fails to show the dependence on verb raising. The discussion here summarizes a section of Bobaljik & Carnie 1994, and I refer the reader to that work and to Carnie 1995b for more discussion.²³

Modern Irish shows certain alternations between OV and VO orders in non-finite clauses. The VO order is assumed to be basic and the OV order derived (see, especially the references above). What is of immediate relevance is those infinitive clauses in the Munster dialect which display an SOV order, such as that in (43).

- (43) Ba mhaith liom [é an teach a thógáil]
 COP good with.1s him.ACC the house.ACC TRANS build
 'I would like him to build the house.'
 (Irish, Bobaljik & Carnie 1994:5)

In such constructions, it is possible that the non-finite verb has raised to AgrO, thereby rendering the specifiers of AgrO and VP equidistant from the object, licensing object shift. However, given that the object precedes the verb, the verb could be no higher than AgrO. Recall that the leapfrogging account of overt object shift involved two instances of crossing paths. First, the object raises to Spec,AgrO, skipping the subject.

²² Though this movement fails the new versus old information test. However, there is an aspectual character to the analogous process in Scots Gaelic (Ramchand 1992, Adger 1994). I am beyond considering the implications of this fact at this point.

²³ *Go raibh maith agat* to Andrew Carnie for telling me about Irish.

This movement is licensed by the overt raising of the verb to AgrO, thereby extending the domain of the verb. This much is not problematic - the verb could well have raised to AgrO in (43). The next step of the derivation is subject-raising to Spec,TP, skipping the object in Spec,AgrO. On the equidistance account, this is licensed by raising of AgrO (containing the verb) to T. Since the verb in Irish follows the shifted object, we have evidence against this crucial step of the derivation. AgrO (the verb) can not have raised to T° and the subject should be trapped lower than, i.e. after, the shifted object. Since (43) is grammatical, we conclude that the equidistance-based account is seriously flawed.²⁴

The point that these data raise should be clear by now. Chomsky's analysis of object shift, and those building on it, derives Holmberg's generalization from very basic principles constraining movement, namely, Shortest Move and its Equidistance subclause. For this family of proposals, overt verb/head raising is the crucial factor in extending domains to allow a specifier position to be "skipped". However, we have seen that Holmberg's generalization is a valid generalization only of a subset of even the Germanic languages, let alone those beyond Germanic. The leapfrogging story is too strong in an important way. We conclude, then, that this argument cannot be maintained.

In Chapter 2, I offered an alternative proposal to capture Holmberg's generalization, relating it to *do*-support in English and other processes in other languages. This proposal correctly predicted the correlation between the validity of Holmberg's generalization and headedness of the VP. In the SVO languages, a shifted object intervenes between Infl and an unmoved V, while in the SOV languages, V and Infl will be adjacent

²⁴ A solution to this proposed by Watanabe 1993 is that a null AgrO element "excorporates" out of the AgrO+verb complex moving at least to T and extending the domains in the appropriate manner. This is also the analysis Watanabe offers for German and Dutch. While this analysis works mechanically, there is no independent motivation for it, and it drastically weakens the predictive force of the theory.

Bobaljik & Carnie 1994 note the problem, but do not attempt to solve it, while Noonan 1994, Guilfoyle 1994, and Carnie 1995b all take the position argued for below, namely, some form of the stacking hypothesis, such that the problem does not arise for them.

whether or not the object shifts. This account is thus superior to the equidistance account. However, it does not distinguish between stacking and leapfrogging. It is compatible with either view of clause architecture. Thus, at this point we are without an argument for either. We now turn to the major putative empirical example for leapfrogging, the distribution of the floated quantifier *allir* ‘all’ in Icelandic. We will see that it, too, does not support the leapfrogging view after all.

1.2 Floating Quantifiers and object shift.

The strongest (in fact the only) direct empirical argument which I am aware of to support the claim that the base position of the subject is lower than the derived position of the object is based upon the following examples, first noted in Jonas & Bobaljik 1993 and Collins & Thráinsson 1994.²⁵

- (44)a. Í gær máluðu strákar­nir húsið [vp allir rautt].
 yesterday painted the.boys the.house all red
 ‘Yesterday all the boys painted the house red.’
 (Icelandic, Jonas & Bobaljik 1993:92)²⁶
- b. Í fyrra máluðu stúdentarnir húsið [vp stundum allir rautt.]
 last year painted the.students the.house sometimes all red
 ‘Last year, all the students sometimes painted the house red.’
 (Icelandic, Bobaljik & Jonas 1994:36)

In (44) the “floated” quantifier *allir* is unambiguously construed with the subject NP *stúdentarnir* ‘the students’ as is immediately apparent from its morphological shape (masculine, plural). The premise from which the argument is made that (44) entails crossing paths is that the floated quantifier occupies (or “marks”) the base position of the subject (Sportiche 1988 and others since). Since the quantifier is to the right of the shifted

²⁵ The relevance of floating quantifiers as a test of the base position of the subject (i.e. assuming a Sportiche-style analysis) was in this context first suggested to Dianne Jonas and myself by Chris Collins.

²⁶ This sentence may be slightly marked; indeed, it was assigned the judgement of (?) in Jonas & Bobaljik 1993 to reflect some disagreement among speakers. However, the variation seemed to be from acceptable to slightly marked. In Collins & Thráinsson, the sentence is fully grammatical.

object, it would follow that the base position of the subject is to the right of the shifted object.

In the remainder of this section, I will show that the argument from the distribution of floating quantifiers in favour of leapfrogging cannot be maintained. In 1.2.1. I will give in some detail the steps of the argument which take (44) to be pro-leapfrogging. In the next section (§1.2.2) I show that these arguments, when extended to double object constructions, make exactly the wrong predictions. In the next chapter, I will show that the floating quantifier as trace analysis is untenable. The interested reader is invited to skip ahead to that chapter prior to reading the following, if they are convinced of the validity of that analysis.

1.2.1 Painting the houses red...

I will now briefly summarise the arguments from Jonas & Bobaljik 1993 and Collins & Thráinsson 1994 that the floated quantifier *allir* ‘all’ in (44) marks the position of a subject trace. Where relevant, I extend their paradigms with new data as marked.

Recall from section 1 that Object Shift in Icelandic is restricted to pronouns and definite or specific NPs (see Chapter VI). Thus, in (45a), the definite NP *húsið* ‘the house’ is licit in the position preceding the negation marker *ekki*, taken to denote the left edge of the VP, while an indefinite, non-specific object in that position is ungrammatical (45b).

(45)

- a. *Í fyrra máluðu stúdentarnir [AgrOP húsið [vp ekki.]]*
 last year painted the.students the.house not
 ‘Last year, the students didn’t paint the house.’

- b. * Í fyrra máluðu stúdentarnir [AgrOP hús [vP ekki.]]
 last year painted the.students house(s) not
 ('Last year, the students didn't paint a house / houses.')

(Icelandic)

Extending the paradigm of (44), we note that only a definite NP can precede the subject-oriented quantifier *allir* 'all', and take this as evidence that the definite object *húsið* 'the house' in (44) is in the shifted position.

(46)

- a. Í fyrra máluðu stúdentarnir [vP **allir** einhver hús rauð.]
 last year painted the.students all some houses red
 'Last year, all the students sometimes painted some houses red.'
- b. * Í fyrra máluðu stúdentarnir [AgrOP einhver hús **allir** rauð.]
 last year painted the.students some houses all red
 ('Last year, all the students sometimes painted some houses red.')

(Icelandic, Bobaljik & Jonas 1994:37)

We may also take (46) as evidence that the quantifier must occur somewhere no lower than (i.e., not following) the base position of the object.²⁷ Recalling that object shift is prohibited in auxiliary + participle constructions in Icelandic (Holmberg 1986), we add the following paradigm to help delineate the position of the quantifier.

(47)

- a. Í gær hafa strákararnir **allir** [vP málað húsið rautt.]
 yesterday have the.boys all painted the.house red
 'Yesterday, the boys all painted the house red.'

²⁷ For instance, the subject-oriented floating quantifier cannot be adjoined to the resultative [χ P rauð]. The sentence (i) is grammatical in English.

(i) The students have painted the house all red.

But this cannot have the reading where *all* is construed with (i.e. "floated from") the subject NP *the students*. Rather, *all* in (i) has some sort of completive reading, or a meaning like *entirely*, cf. (ii):

(ii) The students painted the house entirely red.

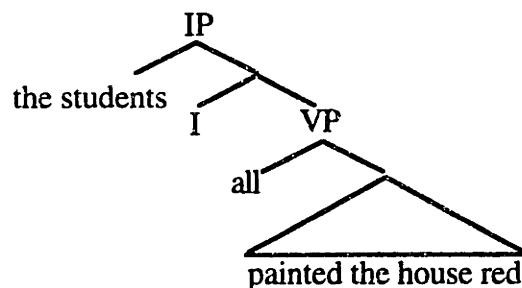
(iii) The house is $\left\{ \begin{array}{c} \text{all} \\ \text{entirely} \end{array} \right\}$ red.

See also Chapter IV, below.

- b. * Í gær hafa strákarirnir [vp málað allir húsið rautt.]
 yesterday have the.boys painted all the.house red
 (Yesterday, the boys all painted the house red.)
 (Icelandic: 11/05/95:1)
- c. * Í gær hafa strákarirnir [vp málað húsið allir rautt.]
 yesterday have the.boys painted the.house all red
 (Yesterday, the boys have all painted the house red.)
 (Icelandic: Bobaljik & Jonas 1994:37)

This paradigm shows that the quantifier can indeed occur no lower than the position to the left of the participle. A reasonable partial structure for sentences such as those in (47) is something like (48):

(48)



Given something like this, the candidate positions for the quantifier are those denoting the left edge of the VP, including the position which would be the base position of the subject under a VP-internal subject hypothesis, eg., the specifier of VP, and also the VP-adjoined position.

Sportiche 1988 analyses “floating” quantifiers in Romance (French unstressed *tous*) and English (*all*) as being restricted to positions containing traces of the subject (i.e. in the case of subject-orientation; object-oriented floating quantifiers are also considered to some degree).²⁸ If Sportiche was correct, and if Icelandic *allur* is syntactically the same as

²⁸ Postal 1974 proposes that quantifier float is only possible from subject NPs. Fiengo & Lasnik 1976 show that this is clearly wrong; floating quantifiers are quite possible associated with non-subject arguments. Similar examples are considered by Maling 1976.

(i) I considered the professors all crazy.

French *tous* and English *all*, then (44) would be strong evidence for a trace of the subject beneath the shifted object. Of course, if either of these premises is incorrect, then the paradigm is no evidence for the leapfrogging hypothesis. Before turning to independent reasons for rejecting the subject-trace analysis in favour of the adjunction analysis, let us accept these assumptions at face value and examine the predictions regarding the positions of floating quantifiers in double object constructions.

1.2.2 FQs and double object constructions

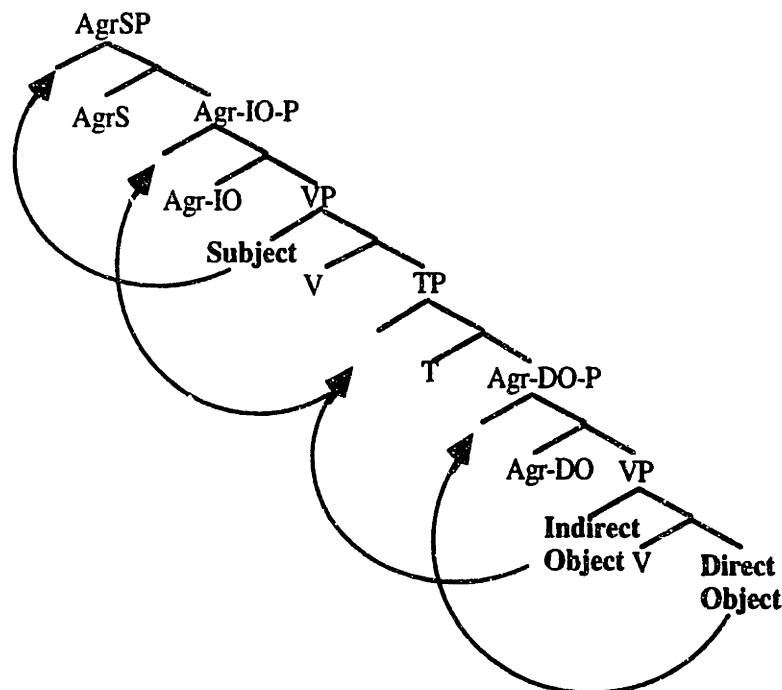
In this section, I introduce new data bearing on the issue of the position of floating quantifiers. In particular, I will show that the distribution of floating quantifiers in double object constructions in Icelandic poses a serious problem for Collins & Thráinsson's (1994) analysis, on their own assumptions. By extension, it is a problem for the leapfrogging hypotheses more generally, since it forces a paradox: there cannot be a subject trace lower than the shifted position of the direct object of a ditransitive for independent reasons, yet a floating quantifier, which by hypothesis marks the positions of subject traces, is legitimate in exactly this position. Since the contradiction follows directly from two assumptions – the possible leapfrogging accounts of double-object construction structures and the subject-trace view of floating quantifiers – one of these assumptions must be abandoned. In fact, the conclusion is slightly more subtle. The sole remaining argument in favour of the leapfrogging architecture is from the distribution of floating quantifiers; hence, even were we to decide that the subject trace view of floating quantifiers is incorrect in order not to abandon the leapfrogging architecture, we would be left with no argument in favour of it.

(ii) I gave the kids all chocolate and candy.

The architecture of double object constructions

Collins & Thráinsson 1993's proposal for the architecture of double object constructions was given slightly simplified above in (1b), repeated here as (49). Their structure adapts earlier proposals by Bures 1992 and Koizumi 1993 which are, for present purposes, not distinct from (49) in any relevant way.²⁹

(49)



What is important to note about the proposals of Bures 1992, Koizumi 1993, and Collins & Thráinsson 1994, is that the subject trace cannot be below the shifted position of the lower object (which we assume is the direct object). This conclusion is due to the nature of the equidistance clause in the definition of shortest move (see especially Bobaljik & Jonas 1994). This clause allows maximally one specifier position to be skipped by an instance of raising. The direct (i.e. lower) object cannot skip the base positions of both the indirect object and the subject. One intermediate projection (TP in (49), Koizumi's WP) permits the indirect object to skip the shifted direct object before raising over the base

²⁹ See Ura in prep. for more on double object constructions and an attempt to deal with the problem posed by the equidistance + shortest move constraints on movement.

position of the subject. The addition of this one extra position allows these authors to maintain a constrained system, and a concise account of what moves where.

As Bures 1992, 1993 has shown (Koizumi and Collins & Thráinsson discuss and adopt Bures's conclusions), relaxing the conditions on movement (as in Ura 1994) or adding extra projections in the style of Kayne 1995, leads to collapse of the account. By allowing the object to skip two arguments, nothing determines any longer which arguments raise to which specifier positions.

The union of this structure with the assumption that floating quantifiers mark the positions of subject traces leads to clear predictions for the distribution of floated *allur* in double object constructions. Recall Collins & Thráinsson's (and Bobaljik & Jonas 1994's) account of the data in (44-47). The subject-oriented quantifier *allur* is permitted to the right of a shifted object (the latter being in the specifier of AgrOP), but is prohibited from occurring to the right of VP-internal elements such as participles and unshifted objects, since the quantifier occurs in the position occupied by a subject trace, i.e. the specifier of VP. Extending this to double object constructions, Collins & Thráinsson's analysis predicts that the quantifier may occur between a (shifted) indirect object and a direct object in situ, since that position is the base position of the subject – on their account the specifier of the highest VP. This prediction is indeed borne out:

(50)

Í gær gáfu stúdentarnir kennaranum allir eplið.
 yesterday gave the.students the.teacher.DAT all an.apple
 'The students all gave the teacher the apple yesterday.'

(Icelandic)

Now, Collins & Thráinsson show that shift of the direct object across a VP-adverb is possible (though slightly degraded) even in double object constructions, subject to the

same conditions as the canonical instances of object shift in a simple transitive (verb raising, definiteness...). This they analyse as shift of the direct object from its base position to the specifier of the lowest Agr-P in (49).

(51)

- a. Ég lána Maríu ekki bækurnar/bækur
I lend Maria not the books/books
“I do not lend Maria the books/books.”
- b. ? Ég lána Maríu bækurnar ekki
I lend Maria the books not
 def.obj [VP *trace*]
“I do not lend Maria the books.”

(Icelandic, Collins & Thráinsson 1993)

Considering the structure in (49), just as clearly as they predict that (50) should be grammatical, they also predict that a floating quantifier can never surface to the right of a direct object in double object constructions, even if the object has shifted. That is, while there is a subject trace lower than the shifted position of the indirect object (specifier of AgrIO-P), there is no subject trace lower than the shifted position of the direct object (specifier of AgrDO-P). This prediction, however, is just as clearly false. Though (52) is slightly degraded, it is comparable to (51b), i.e. similar to other examples of object shift across an adverb at the left of the lowest VP.

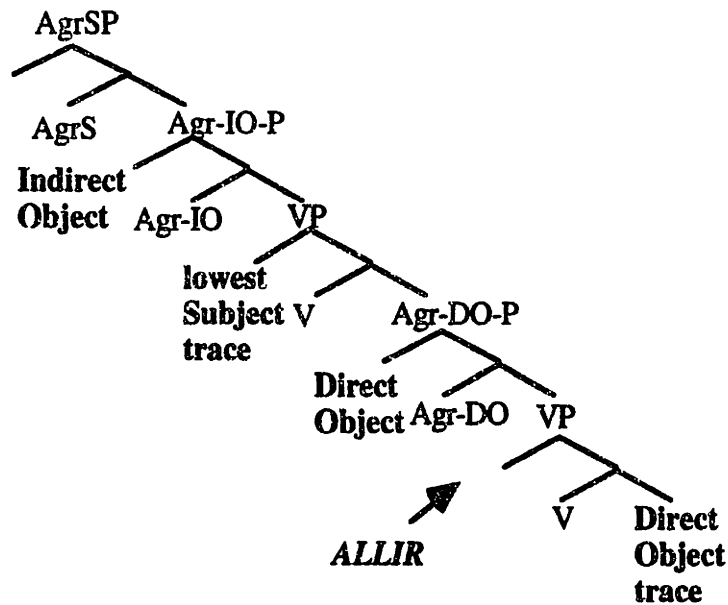
(52)

- ? Í gær gáfu stúdentarnir kennaranum eplið allir.
yesterday gave the.students the.teacher.DAT the.apple all
‘The students all gave the teacher the apple yesterday.’

(Icelandic)

The relevant structure is schematised in (53). Note in particular that the position of the lowest subject trace for Collins & Thráinsson is significantly higher than the attested position of the floated quantifier in (52).

(53)



Moreover, adjunction to the right of VP or extraposition are not available to explain away the incorrect prediction. Example (54) shows that the quantifier may follow only a shifted definite direct object and is ungrammatical following an indefinite direct object (a), and further, that the quantifier may not follow a participle or unshifted direct object (b).

(54)

a.

* Í gær gáfu stúdentarnir kennaranum epli allir.
 yesterday gave students.the teacher.the apple.indef all
 (Yesterday, the students all gave the teacher an apple.)

(Icelandic, 11/05/95:1)

b.

* Í gær hafa stúdentarnir gefið einhverjum kennara þessa epli úr garðinum sínum allir.
 yest. have the.students given some.dat teacher these ap. from garden their all
 (The students have all given a teacher these apples from their garden yesterday.)

(Icelandic)

In sum, the pattern in (52) through (54) mirrors exactly that of simple transitive structures. The floated quantifier may follow an object which has shifted to the left of its VP, but may not occur following any VP-internal material. Observationally, then, the generalization is that a floated quantifier may occur in some position on the left edge of a VP. For simple transitives, the position of the subject trace (specifier of VP) is one

position on the left edge of the VP, over which shifted objects move on the leapfrogging story. However, as the examples just considered have shown, on the same leapfrogging analysis, there is no subject trace position over which the direct object shifts in double object constructions. In (52) the direct object has shifted to the specifier of the lowest Agr-Phrase, across a floating quantifier. The fact that only a definite object and not an indefinite – (52) vs. (54a) – may appear in this position shows that the movement is indeed object shift. Floated *allir* may follow a shifted direct object, but not an unshifted one, marking the left edge of the lowest VP. But, unlike the simple transitives, in these ditransitive examples there is no subject trace position at the left edge of this lowest VP, as the specifier is the theta position of the indirect object; the base position of the subject is higher yet.

Thus, internal even to Collins & Thráinsson's analysis, and by extension other leapfrogging analyses which have a structure similar to (49) (including Bures 1992, Koizumi 1993) the assumption that floating quantifiers indicate the positions of subject traces cannot be maintained in the face of the data.³⁰

An alternative analysis, in fact the more traditional one, is that "floated" quantifiers are adjoined to (the left edge of, maximal projections of) predicates, for example, the left edge of VP, along with other adverbials.³¹ I will argue for this in Chapter IV. This view makes the correct predictions on both the leapfrogging and stacking hypotheses, and thus fails to choose between the two. In the basic cases, subject traces coincide essentially with

³⁰ There is another conclusion which could be drawn here. That is, one could in principle maintain the view that the floated quantifiers do mark subject trace positions, and abandon the second premise i.e. that ditransitives have a structure like that in (49). An alternative would be that there is a subject trace position lower than both indirect and direct objects in double object constructions (see Ura 1994 for one such approach). See the discussion above of Bures 1992, and following him Koizumi 1993 and Collins & Thráinsson 1994. These analyses have shown that such a view is logically excluded on the assumptions of the strict leapfrogging hypothesis (i.e. those invoking the notions "Shortest Move" and "Equidistance", following Chomsky 1993).

³¹ That floated quantifiers may adjoin to more than just VP is pointed out by Fiengo & Lasnik 1976:188 and Maling 1976:716. Thus, Fiengo & Lasnik suggest that a floated quantifier may occur immediately preceding an AP, NP or VP, to which list Maling adds PP.

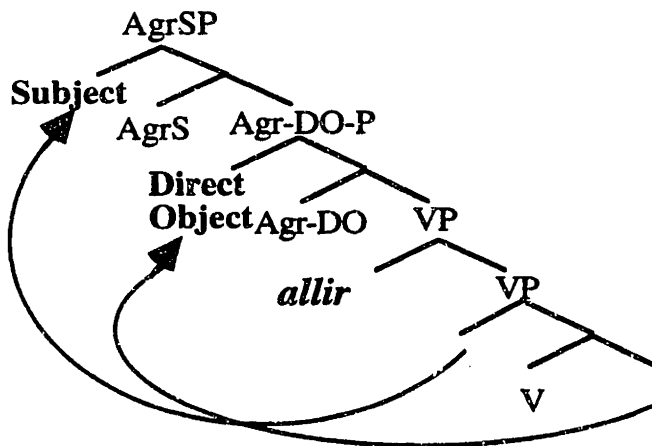
the left edge of the VP (i.e. whether the subject is in Spec,VP or the special, adjoined position advocated by Koopman & Sportiche 1991).

(55)

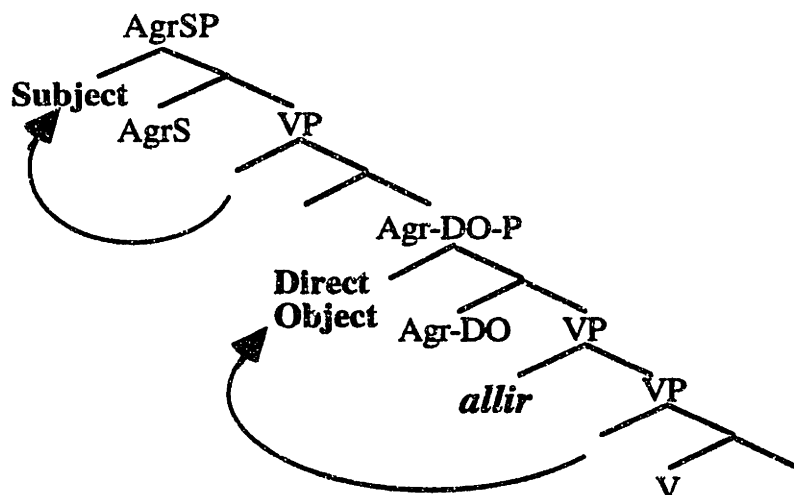
- a. The students have [vp all eaten their lunch.]
- b. Í gær máluðu strákarnir húsið [vp allir rautt].
 yesterday painted the.boys the.house all red
 'Yesterday all the boys painted the house red.'
 (Icelandic: =(44a))

In both of these examples, the floated quantifier occurs somewhere at the left edge of the VP, but it is impossible to tell in these examples whether that position is contained in VP (e.g. its specifier) or adjoined to it. On both the leapfrogging and the stacking hypotheses, under the predicate-adjoined theory of floating quantifiers, this is expected:

(56)a. Leapfrogging:



b. Stacking



On both approaches, the shifted position of the direct object precedes the floating quantifier (44a). The positions following the base position of the object, or between a participle and its complement, do not constitute either subject traces or the left edges of predicate XPs; hence floating quantifiers are excluded from these positions on either the leapfrogging or stacking analysis:³² Thus, a non-shifted object cannot precede a floating quantifier (47d).

(57)

- a. * Í fyrra máluðu stúdentarnir [vp einhver hús allir rauð.]
 last year painted the.students some houses all red
 ('Last year, all the students sometimes painted some houses red.')

(Icelandic: (46b))

- b. * Í gær hafa strákarirnir [vp málað allir húsið rautt.]
 yesterday have the.boys painted all the.house red
 ('Yesterday, the boys have all painted the house red.')

(Icelandic: (47b))

³² Thus, the floated quantifier cannot be adjoined to any NP. The NF examples in Fiengo & Lasnik 1976 and Maling 1976 all involve double-object constructions in English. There is undoubtedly another projection in these structures (see. e.g. Larson 1988, Marantz 1993). That the floating quantifier cannot adjoin to the NPs in the structures considered here is not surprising on my view since neither the resultative in (57a) nor the direct object (57b) constitutes an XP which is predicated of the subject. It will become clear below why these examples should pattern in this way.

One place where the left edge of the VP does not coincide with a subject trace is the case of the lower VP in (53), the VP-shell analysis of double object constructions. As we see, the left edge theory makes the correct predictions, while the subject-trace theory makes the wrong predictions.

The direct object may shift out of the VP under well known conditions. It must be definite and the verb must have raised overtly. Only when the object has shifted out of the VP may it precede the floated quantifier associated with the subject, hence the grammaticality of (44a) and the ungrammaticality of (47d). Similar facts also obtain for double-object constructions. Again, the leapfrogging and stacking hypotheses make the same predictions on the theory of floating quantifiers I will motivate in Chapter IV. A (subject-oriented) floating quantifier may follow a shifted direct object, but not an unshifted one. I repeat the examples from above which show that this prediction is borne out.

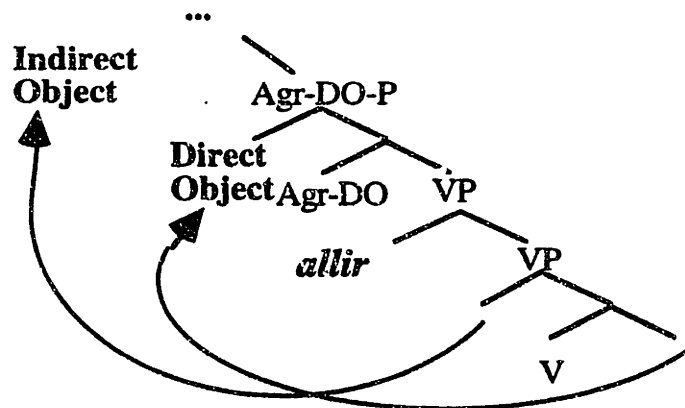
(52)

Í gær gáfu stúdentarnir kennaranum eplið allir.
 yesterday gave the.students the.teacher.DAT the.apple all
 'The students all gave the teacher the apple yesterday.'

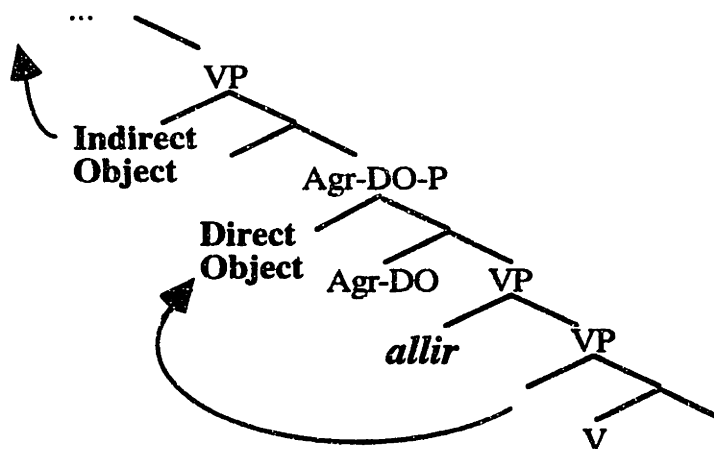
(54)

* Í gær hafa stúdentarnir gefið einhverjum kennara þessa epli úr garðinum sínum allir.
 yest. have the.students given some.dat teacher these ap. from garden their all
 'The students have all given a teacher these apples form their garden yesterday.'

(58)a. Leapfrogging:



b. Stacking



In Chapter IV, I will promote the analysis of floating quantifiers as adverbs, occurring in adjoined positions. This analysis has significantly greater empirical coverage than the trace-based analysis. Loose ends abound and it remains to be seen just how far it may be pushed. In the interests of succinctness, I will postpone further exploration of this topic to the next chapter. Let me now consider briefly some less clear observations, including a potential glitch, and then summarise the discussion of floating quantifiers, to move on to the next section of the chapter.

Presaging the conclusions of the next chapter, I adopt the theory of floating quantifiers as adverbs, rejecting the trace view of Sportiche 1988 and others. This theory, however, does not rely on – nor does it distinguish between – the two analyses of clause structure being compared here. In short, in adopting the adjunction theory of floating quantifiers, the fact that a floating quantifier can occur following a shifted object tells us nothing about the base position of the subject, since the quantifier is not marking subject trace positions.

2. And in this corner... Arguments for stacking.

Though stacking has, in some form or another, been proposed by a number of researchers recently, there are few direct empirical arguments adduced in its favour. In this section, I will offer two such arguments, introducing new data into the realm of consideration. The section will proceed as follows:

In the first section, I recapitulate an argument from Jonas 1992, Jonas & Bobaljik 1993, but with a different conclusion. Icelandic is well known for having two object positions, as we have seen above. One is the base, VP-internal position, to the right of negation and other adverbs, while the other is VP-external, to the left of these adverbs. The latter is the “shifted” position, the specifier of AgrOP. Similarly, Icelandic clearly has two positions which subjects may occupy in the overt syntax, delineated by sentential adverbs, and discussed above in Chapter I. The lower position, i.e., the position of the indefinite *in*, for example, transitive expletive constructions, has long been maintained to be VP-internal (since Ottósson 1989). Jonas & Bobaljik observe that the intersection of these two assumptions makes a clear prediction. On the leapfrogging hypothesis, if a definite, direct object may shift in a transitive expletive construction, then the (putatively VP-external) object should precede the (supposedly VP-internal) subject. This turns out to be

false. Even though there is clear evidence for two subject positions, and for two object positions, the lower subject position is higher than the higher, shifted object position. This is a major piece of evidence which Jonas & Bobaljik, and then Bobaljik & Jonas 1994 use to motivate the use of the specifier of TP as the lower subject position. However, the same data could be taken just as easily as support of the stacking hypothesis, the position I will take here.

In section 2.2, I turn to German, and make essentially the same argument from a different perspective. Diesing 1990,1992 has shown convincingly that adverb and particle placement delineate two surface positions for subjects in German. These positions correlate with stage and individual level differences, as well as with generic versus existential readings for bare plural subjects. For example, a bare plural subject which surfaces to the left of certain adverbials receives a generic interpretation; an existential reading is unavailable. By contrast, the same subject occurring to the right of the adverbial may easily have the existential reading. Extending the considerations to objects, we find that similar positional asymmetries obtain. While it is uncontroversial in the SVO languages, such as Icelandic, that there are two positions which objects may occupy in the overt syntax, it is less easy to demonstrate this to be the case in the SOV languages (German, Dutch, Afrikaans...), since such movement could well be string vacuous. Nevertheless, I show that a class of VP-manner adverbials in German delineates two object positions in the same way that the sentential adverbials discussed above do, with respect to the interpretation of bare plural NPs. Objects in the higher position are prohibited from being interpreted as existentials, while such a reading is clearly available in the lower position. The final stage, then, is to mix the results of the two sets of positions. Just as with Icelandic subjects and objects, we see in German that the higher position of the object is clearly lower than the lower position of the subject, evidence for the stacked VP hypothesis, and, in passing, for a cyclic version of the Mapping Hypothesis, such as that proposed by Tsai 1994.

As an aside at this point (section 2.3), it is worth reconsidering the arguments that the Mapping Hypothesis, or whatever derives its effects, does in fact point to positional differences for the arguments, and not the other logical possibility – that the arguments are in unique positions, but that the position of the adverbs varies with interpretation, a suggestion offered by Zwart 1993 (Chapter IV). The arguments are not as strong as they could be, but they are nonetheless difficult to refute.

Attention in sections 2.1 through 2.3 is restricted to transitive verbs, i.e., two-place predicates. In the subsequent sections (2.4-2.5) I turn to some data from ditransitives, involving interactions of indirect objects and direct objects, which I take to support the stacking hypothesis as well. Beginning with Icelandic (2.4), it would appear to be the case that indirect objects in ditransitives can shift as can direct objects in simple transitives, and further, that direct objects in ditransitives can undergo object shift, with the same restrictions as in transitive clauses. The arguments from sections 2.1 and 2.2 become relevant again here. Just as with subject / object interactions, the interactions of two objects show that a direct object can never shift across an indirect object. Considering the core cases, the surface order is always subject > indirect object > direct object, regardless of which are in shifted positions and which in their base positions. The same holds for the SOV languages as for SVO Scandinavian, cf. Haegeman 1992 for West Flemish, Zwart 1993 for Dutch. There are no crossing paths, as leapfrogging would have predicted.

Perhaps a more interesting argument can be constructed from Swedish to make the same point (§2.5). In Swedish, as in all the (modern) Scandinavian languages except Icelandic, only pronouns may undergo object shift. Full NPs may not do so. Nevertheless, an adverb may occur to the right of a full NP indirect object, between it and the direct object. On the leapfrogging hypothesis, as exemplified by Koizumi's (1993) and Collins & Thráinsson's (1994) structures, there is no possible attachment site for the

adverb. Clearly, the indirect object cannot have shifted, since NPs uniformly cannot shift in these languages. The leapfrogging analyses are thus at a loss to account for the data. On the stacking hypothesis though, there is an obvious attachment site for the adverb, i.e. the lowest VP projection. Thus it is only the stacking hypothesis which predicts the observed distribution of adverbs in these languages.

2.1 *Jonas & Bobaljik 1993*

In this section, I recapitulate part of an argument from Jonas 1992, Jonas & Bobaljik 1993, Bobaljik & Jonas 1994 showing that the lower of the two subject positions in Icelandic is nevertheless higher than the higher, i.e. shifted object position. That is, while the leapfroggers would predict that a VP-internal subject should occur to the right of, i.e. lower than, a VP-external, shifted object, the facts line up rather with the stacking view, where the object may shift out of its thematic VP, but the base position of the subject is higher still. This conclusion is actually somewhat at odds with that of Jonas & Bobaljik who take the data presented here as evidence of a third position for subjects (i.e. two positions above the shifted object position, and one below). Their conclusion was forced by the premise that the floated quantifier *allur* 'all' marks the lower position, beneath the shifted object. Section 1 of this Chapter and Chapter IV below argue that the floated quantifier does not mark the position of the subject trace, and hence Jonas & Bobaljik's observations can be taken as evidence for the stacking hypothesis.

We have seen at many points so far that Icelandic clearly has two positions which certain objects of transitive verbs may occupy, if various requirements have been met. That is, the objects may occur in their base, theta-position or in a derived position to the left of certain (VP-) adverbials such as *ekki* (negation), *aldrei* 'never,' *alveg* 'completely,' and others. The by-now familiar pair of examples in (59) shows this.

- (59)
- a. Jón las bækurnar ekki
John read the books not
"John did not read the books"
 - b. Jón las ekki bækurnar
John read not the books
"John did not read the books"

(Collins & Thráinsson 1993: 132)

It is an observation first due to Ottósson 1989 that the subject of a transitive expletive construction obligatorily follows a sentential adverb such as *sennilega* 'probably' or *kannski* 'perhaps' (60). Based on this, Ottósson proposed that these subjects were overtly in the specifier of VP. Similar proposals have been made by Kosmeijer 1991 and Sigurðsson 1991, among others, and indeed, the view has become standard, and an often cited piece of empirical evidence in favour of the VP-internal subject hypothesis.

- (60)a. Það hafa [VP sennilega [VP margir stúdentar lesið bókina.]]
there have probably many students read the.book
'Many students have probably read the book.'
(Bobaljik & Jonas 1994:23)

The argument is that the adverb *sennilega* 'probably' is adjoined to the (highest) VP projection, and since the adverb precedes the subject, it follows that the subject must be internal to the VP.

Taking (59) and (60) together, a clear prediction emerges, noted first by Jonas 1992, and extended in Jonas & Bobaljik 1993.³³ If the subject of a transitive expletive construction is VP-internal, and shifted objects are VP-external, then when object shift

³³ Vikner (1994a) and Vikner & Schwartz (1992) almost notice the prediction. That is, they raise points similar to the one raised here in to show that definite subjects (their examples have the proper name *Jón*) of simple declaratives are external to the VP, yet at the same time Vikner explicitly states (1994a n.8) that "it should be emphasised that [the arguments against VP-internal subjects do] not hold for indefinite constructions with *það*." Vikner does not discuss the relevant data with transitive expletive constructions, but as Jonas & Bobaljik have shown, there is no difference with respect to the relevant tests.

applies in a transitive expletive construction, the shifted object should precede the indefinite subject. This, as Jonas & Bobaljik are careful to show, is patently not the observed word order, rather the opposite:

- (61)a. það lauk **einhver_i** verkefninu_j [VP t_i alveg t_j .]
 there finished someone the.assignment completely
 ‘Someone completely finished the assignment.’
- b. *það lauk verkefninu_j [VP (alveg) **einhver t_i** .]
 there finished the.assignment (completely) someone
- (62)a. það borðuðu **margir strákar_i** bjúgun_j [VP ekki [VP t_i (öll) t_j .]]
 there ate many boys the.sausages not (all)
 ‘Many boys didn’t eat (all of) the sausages.’
- b. *það borðuðu bjúgun_j [VP ekki [VP **margir strákar (öll) t_j** .]]
 there ate the.sausages not many boys (all)
 (Icelandic: Bobaljik & Jonas: 25)

The same argument can be constructed from Dutch (Zwart 1992:489). He also claims for Dutch that the shifted object *dat boek* ‘the book’ in (63) must be VP-external and thus the subject of this transitive expletive construction must also be external to the VP. Agreeing with the analysis of Jonas & Bobaljik 1993, he proposes that the subject in (i) is in [Spec,TP].

- (63) ...dat er **veel mensen** dat boek [VP gisteren [VP gekocht hebben .]]
 that there many people the book yesterday bought have
 ‘that many people bought the book yesterday.’
 (Dutch - Zwart 1992:489)

Again, like Icelandic, the subject of the transitive expletive construction cannot occur to the right of the shifted object, i.e., the subject cannot occur in its base position internal to the VP at s-structure (before Spell Out), even in a transitive expletive construction.

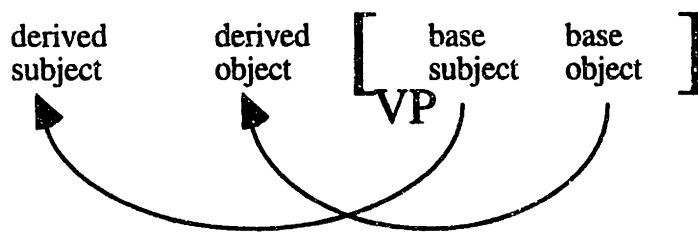
- (64) * ...dat er dat boek [VP veel mensen gekocht hebben .]
 that there the book many people bought have
 (as (63))

(Dutch, Bobaljik & Jonas 1994)

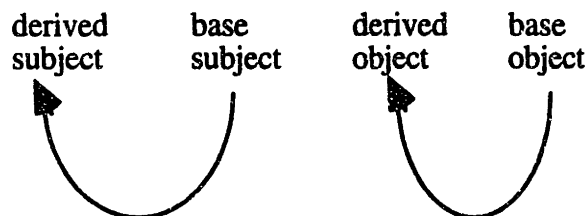
Similar examples are more difficult to construct in German, given that focus scrambling as in (13) above is a much less marked process in German than it is in Dutch. See Truckenbrodt 1995a,b for recent studies of the interaction of intonation and movement possibilities in German.

The relevance of these examples should be clear. The leapfrogging and stacking hypotheses both assume base and derived positions for subjects and objects. On the leapfrogging hypothesis, the base and derived positions are interleaved, as (65) shows, while on the stacking hypothesis (66), both base and derived positions of the subject are superior to the derived (and base) positions of the object.

- (65) *Leapfrogging:*



- (66) *Stacking:*



All else being equal, the data would lead us to prefer the stacking hypothesis. Indeed, the data as described is predicted by the stacking hypothesis with no additional assumptions. The facts are surprising on the leapfrogging hypothesis, but can be accounted for with additional stipulations. Jonas & Bobaljik 1993, Bobaljik & Jonas 1994 indeed argue that transitive subjects can never remain VP internal in overt syntax, or they will fail to raise at LF to their appropriate case positions. Their arguments are highly theory-internal, but coherent. We must thus look further to find more convincing evidence.

To conclude this section, we find that the data provides a weak argument in favour of stacking. The stacking hypothesis predicts the word order data directly from the structures independently assumed. By contrast, the data is surprising on the leapfrogging hypothesis, and requires postulation of additional projections and additional assumptions which force movement out of the lowest of three projections (i.e. movement at least to Spec,TP - the subject can never remain in Spec,VP).

2.2 *Evidence from Mapping*

A parallel argument can be made from the range of possible interpretations of bare plural NPs in German, extending Diesing's 1990,1992 analysis of subject positions to objects. Diesing has shown correlations between position relative to a fixed adverb and the availability of generic or existential readings for German subjects. Her examples are given in (67), and similar examples with more canonically transitive *essen* 'eat' are given in (68).³⁴

³⁴ To save space, and hopefully increase clarity, I am using the $\leq \geq$ "brackets" to indicate mutually exclusive positions. Thus, in (67), there are two examples conflated into one. If *Linguisten* 'linguists' is in the position preceding the adverb (the leftmost occurrence of the NP), then it is generic, while if it occurs in the rightmost position, following the adverb, then it has the existential reading. It obviously cannot surface simultaneously in both positions.

In the following examples, this is how the angled, demi-doubled brackets " \sphericalangle " should be interpreted.

(67) *Two subject positions in German*

... weil ≤Linguisten≥ ja doch ≤Linguisten≥ Kammermusik spielen.
 since Linguists indeed Linguists Chambermusic play
 GENERIC EXISTENTIAL

(German, Diesing 1992)

(68) ... weil ≤Kinder≥ ja doch ≤Kinder≥ Äpfel essen.
 since children “indeed” children apples eat.
 GENERIC EXISTENTIAL
 (or GENERIC)

Generic - ‘... since children indeed eat apples.’

Existential - ‘...since there are indeed (some) children eating apples.’

(German)

There are interpretive effects associated with the positional differences between subjects in these examples. In particular, the interpretive effects reflect a hierarchical asymmetry, such that the position which allows the existential interpretation is the lower of two positions on either side of a fixed adverbial. The same considerations apply to objects as well, as (69) shows.³⁵

(69) ... weil Kinder ≤Äpfel≥ sorgfältig ≤Äpfel≥ essen.
 since children apples carefully apples eat
 GENERIC EXISTENTIAL
 (or GENERIC)

Generic - ‘... since children (generally) eat apples carefully.’

Existential - ‘... since some children are eating some apples carefully’
 or ‘... since children eat some (kinds of) apples carefully’

(German)

Just as with the subjects, there is a contrast in available readings correlating with position relative to a fixed adverb for objects. The relevant adverbs for this contrast are not sentential adverbs and particles, like *ja doch* ‘indeed’, but rather VP-/manner adverbials such as *sorgfältig* ‘carefully’. Again, this reflects a hierarchical asymmetry; objects have two structural positions which they may occupy with predictable interpretive consequences.

³⁵ Kai von Fintel points out (personal communication) that the object NP *Äpfel* may also occur to the left of the particle *ja doch* in which case, unsurprisingly, it must have the generic interpretation:

(i) ... weil Kinder Äpfel ja doch gerne essen.
 since children apples indeed fain eat
 ‘... since indeed children fain eat apples.’ (both NPs generic)

(German, Kai von Fintel, pc)

We find another piece of evidence that the lower position of the subject is higher than the shifted, i.e. higher position of the object.

In passing, this data also provides strong support for a version of the Mapping Hypothesis slightly different from Diesing's original proposal. Assuming that quantificational structures at LF are tripartite (following Heim 1982, Kamp 1981), Diesing's suggestion was as follows:

(71) The Mapping Hypothesis

- i. Material from the VP is mapped into the nuclear scope.
- ii. Material from the IP, excluding VP is mapped into the restriction.

The data above shows that this is somewhat too simple a view of the grammar, though it seems certainly to be on the right track. Adger 1994, Runner 1994, and Tsai 1994 have offered proposals closely related to Diesing's, but which would allow the recalcitrant data. I will not discuss them here, beyond a simple statement of the relevant parts of the proposals.

Interpreting Adger's approach in a mapping manner, mapping (or its effects) is sensitive to syntactic position in more than the simple split that Diesing assumes. For Adger, material in the specifier of an Agr-Phrase (AgrS, AgrO...) is mapped to the restriction, and material in the specifiers of VP, TP etc.. is mapped into the nuclear scope. A related approach is taken in Runner 1994. Adger and Runner argue that the Agr phrases correspond to presupposed or specific information, respectively, and Runner attempts to

formulate specificity in terms of discourse factors: linked or not linked to the discourse.³⁶ The data presented above would fit nicely in this analysis. A variant of these two proposals suggested by Danny Fox, *pc*, without reference to mapping, *per se*, is that all predicate phrases, e.g., VP and TP, are closed by existential closure, while functional (Agr) phrases are supplied with a default generic operator. See Percus 1995 for strong arguments that some form of positionally-deterministic Mapping Hypothesis is needed, and that an interpretive rule which simply says “existentials are in the nuclear scope, generics in the restriction”, is insufficient.

Tsai’s 1994 Extended Mapping Hypothesis is of a similar nature. For Tsai, Diesing’s Mapping Hypothesis in (71) applies cyclically, for every predicate. Thus, starting at the most deeply embedded predicate, eg. the lower VP, material in this predicate is mapped to the nuclear scope of a quantifier where it is subject to existential closure. If there is material immediately external to the predicate, but dominated by a maximal projection which is not a new predicate (i.e. in a functional projection between the lower VP and the higher), it will be mapped to the restriction, hence should receive a generic interpretation if it is a bare plural NP. The process applies again at the next predicate, hence its cyclic nature. Again, the data presented here could be taken as support for such a view.

The matter is open for further research and discussion, though I will not pursue it in this thesis. I simply note that the data presented in this section are evidence a) for two distinct object positions, just as there are two distinct subject positions, relative to adverbs and correlating with interpretive effects, and b) for a more fine-grained version of Diesing’s Mapping Hypothesis, along the lines of any of the proposals just noted.

³⁶ In this, Runner’s approach suggests a connection with Pesetsky’s 1987 work on D-linking in questions and its effects on *wh*-movement.

2.3 *Object Shift in Modern Irish*

I will now make the same argument from yet another range of data. If the reader is already convinced that I am correct in claiming that the higher position of the object is lower than the lower position of the subject, then the reader may prefer to skip to the next section. I will now show that this is the case not only in the Germanic languages, but also in Modern Irish, another language for which it has been claimed that objects may shift to Spec,AgrOP.

Simple finite clauses in Modern Irish display a fairly rigid VSOX order.

(72) *Standard VSO order*

Leanann an t-ainmní an briathar (i nGaelige).

follows the subject the verb (in Irish)

VERB SUBJECT OBJECT

'The subject follows the verb (in Irish).'

(Irish, Bobaljik & Jonas 1993, Carnie 1995, ch2:1)

With little that can intervene between these principal elements, it is difficult to make arguments of the sort made in the Germanic languages for two subject or two object positions. However, there is one range of cases which are at least suggestive of two object positions in non-finite clauses.

Among the evidence for the now standard assumption that VSO order is derived from an underlying SVO order by verb movement (see Carnie 1995 for a history and discussion of relevant proposals) is the fact that in clauses with an inflected auxiliary and a non-finite form of the verb, the so-called verbal noun follows the subject. In certain cases, the object is postverbal.

(73) *SVO orders...*

- a. Progressives (see, eg. Noonan 1993)

Tá	sí	ag	scuabadh	an	urláir.
Be	she	PRT	sweep[-FIN]	the	floor
	SUBJ		VERB		OBJ

'She is sweeping the floor.'

(Bobaljik & Carnie 1994:10)

- b.
- Infinitives in Munster dialect*
- ³⁷

Ba	mhaith	liom	[CP	Seán	a	scríobh	na	habairte]
COP	good	with.me		Sean	PRT	write[-FIN]	the	sentence
				SUBJ		VERB		OBJECT

'I want Sean to write the sentence.'

(Bobaljik & Carnie 1994:9)

In other constructions, the object is preverbal. Compare especially (73b) with the following:

(74) *(S)OV orders...*

- a.
- Infinitive over subject.*

Ba	mhaith	liom	[CP	é	an	teach	a	thógáil]
COP	good	with.me		him	the	house	PRT	build
				SUBJ	OBJECT			VERB

'I want him to build the house.'

- b.
- Infinites, all dialects, PRO subject.*

Ba	mhaith	liom	[CP	an	abairt	a	scríobh]	
COP	good	with.me		PRO	the	sentence	PRT	write[-FIN]
					OBJECT			VERB

'I want to write the sentence.'

(Bobaljik & Carnie 1994:8-9)

These alternations have been taken as evidence for shift of direct objects in Modern Irish. The preverbal position is claimed to be the specifier of AgrO by Duffield 1991 and

³⁷ These constructions, as is well known are somewhat more restricted than the (S)OV order, and in particular cannot occur without a lexical subject. See Guilfoyle 1994, Carnie 1995 for discussion.

Noonan 1993, and the specifier of Asp(ect)P by Guilfoyle 1993, and others. Again, see Carnie 1995 for much discussion.

What is relevant for our purposes is that even when there is evidence for two object positions, the one base, the other derived, and further, that the derived position is structurally somewhere higher than the base position, likely external to VP, the subject occurs outside of, i.e. higher than, this shifted object position. That is, the higher object position is lower than the surface position of the subject.

Now, this is only an argument against the leapfrogging hypothesis if it can be shown that the subject is not in its higher position as well. Bobaljik & Carnie 1994, McCloskey 1994, Carnie, Pyatt and Harley 1994, Carnie 1995 among others, argue that the verb in Irish is not in C, but rather occupies the highest functional head in a split IP. If these authors are correct, then, as they observe, the subject cannot be in the specifier of the highest functional projection.

Thus, we have most of an argument. The subject in Modern Irish (if the authors just cited are correct), occupies the specifier of a projection which is lower than the highest projection in Infl (AgrS), but higher than the specifier position occupied by the shifted object. The final step of the argument turns on the VP-internal subject hypothesis. The authors just cited all assume that the subject in these constructions has raised from a VP-internal position to a medial specifier in IP, e.g. Spec,TP.³⁸ The question is ultimately

³⁸ McCloskey 1994 claims that Irish has AgrP as the lower phrase, with an unspecified functional projection above it, hinting that Irish may thus show evidence of a different order of projections than that proposed by Chomsky 1991. However, as far as I can tell, this is a quibble of notation. Ignoring the object position, Chomsky 1993 claims that it is the lower of the two subject specifiers (Spec,TP) which is the locus of nominative case assignment, yet that the higher position is the one occupied by expletives (effectively, see Jonas & Bobaljik 1993 for discussion). McCloskey claims to differ, though he basis this difference on the idea that the lower phrase must be Agr, since it is associated with Case, and that the higher projection is associated with expletives, explaining their absence in Irish by positing weak features here. Thus, Chomsky and McCloskey propose the same functions for the two phrases – expletives in the higher one, case in the lower one. As far as I can tell, they differ only in notation.

“How many functional projections are there?”. If there are two positions, a derived (Spec,Agr) and a base position for each argument, then the base position of the subject in Irish is higher than the shifted position of the object, as in stacking but not in leapfrogging. However, as we add functional projections (though with no apparent motivation for movement to the lower one), this argument weakens.

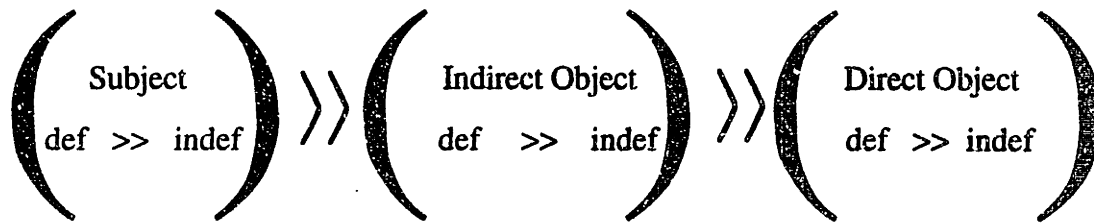
2.4 *The Indirect Object Always Comes First*

In sections 2.1 through 2.3, we have seen a range of converging evidence which shows that there are two subject positions and two object positions in languages like Icelandic, German and Irish. Moreover, we have seen that the lower subject position is higher than the higher object position. In considering the interaction of subjects and direct objects, there is a clear stacking effect. In this section, I will show that the same stacking effect occurs one node lower in the tree. In ditransitive, i.e. “double-object” constructions in Germanic³⁹, there is evidence for two structural positions for indirect objects, again showing Mapping-like interpretive effects or correlations between definiteness/specificity and position. Like subject / object interactions, the two positions for indirect objects are sandwiched beneath the lowest subject position and the highest direct object position. That is, the final descriptive observation is that, in their A-positions,⁴⁰ there is a fixed relative order among the principal arguments of the verb, as follows:

³⁹ Ditransitives are expressed by means of a PP goal argument in Irish (Andrew Carnie, pc), hence this section does not apply to Irish.

⁴⁰ That is, discounting processes such as topicalisation, V2, *wh*-movement, extraposition (incl. Heavy NP-Shift) and the like.

(4220)



The inflexibility of this order has been observed for the SOV languages as well as for Icelandic and Swedish. Illustrating with data from Dutch, we see that the descriptive generalization (4220) is maintained throughout. We will turn presently to the Scandinavian languages, and show not only that the order is rigidly observed, but more importantly that the leapfrogging hypothesis requires postulation of shift operations which are not otherwise attested in the languages under consideration.

The following paradigm is from Zwart 1993. He observes that, though the relative ordering of the arguments and the adverbs is rather free, indicating the possibilities of object shift, nonetheless the order of the arguments relative to each other is fixed.⁴¹

(75) *Subject >> Indirect Object >> Direct Object in Dutch.*

- a. ... dat Jan de kinderen het boek gaf
that J the children the book gave
'that Jan gave the children the book.'
- b. ??... dat Jan het boek de kinderen gaf
that J the book the children gave
- c. * ... dat de kinderen Jan het boek gaf
that the children J the book gave
- d. * ... dat de kinderen net boek Jan gaf
that the children the book J gave
- e. * ... dat het boek Jan de kinderen gaf
that the book J the children gave
- f. * ... dat het boek de kinderen Jan gaf
that the book the children J gave

(Dutch, Zwart 1993:303)

⁴¹ See Haegeman 1992 for a discussion of these facts with data from West Flemish.

Though the expanded possibilities of focus scrambling again make the paradigm in German harder to observe, Winnie Lechner (personal communication) observes that the leapfrogging and stacking hypotheses may differ in their predictions regarding VP-fronting. The examples in (76) show that a participle and direct object, or participle and both objects, may shift to the preverbal topic position in German:

(76) *VP-fronting*

- a. Ein Buch gegeben hat er der Maria.
 [vp a book given] has he the M.
 'Given (her) a book is what he has done to Maria.'
- b. Der Maria ein Buch gegeben hat er noch nicht.
 [vp the M. a book given] has he still not
 'Given a book to Maria, is what he has still not done.'
 (German, Winnie Lechner, pc)

On the leapfrogging structure, one might predict that the direct object could shift to the lower Spec,Agr-P and then the VP containing just the indirect object and participle could front, as schematized in (77a). However, this is ungrammatical ((77b)).⁴²

(77) *VP-fronting *IO - p participle*

- a. [CP [VP IO. participle] aux ... [AgrP Direct Object [VP trace]]]
-
- b. * Der Maria gegeben hat er ein Buch.
 [vp the M. given] has he a book
 (Given to Maria, is what he has done (to) a book.)
 (German, Winnie Lechner, pc)

⁴² Similar considerations obtain for unaccusative constructions which take a dative object:

- (i) Ein Fehler unterlaufen ist ihm noch nie.
 a mistake happen is to.him never
 'Mistakes never happen to him.' - 'He never makes mistakes.'
- (ii) * Dem Peter unetrlaufen ist ein Fehler noch nie.
 the.DAT P. happen is a mistake never
 (Peter never makes mistakes.)

(German, Winnie Lechner, pc)

If one assumes the leapfrogging structure (1) with indirect and direct objects as specifier and complement of a single VP , then one cannot appeal to the Proper Binding Condition to explain the ungrammaticality of (77). That is, it cannot be claimed that (77) is ungrammatical since the fronted constituent (the full VP) contains an unbound trace of the direct object. Appeal to the Proper Binding Condition in this way would also incorrectly rule out (76a). The analysis of (76a) assuming the leapfrogging structure (1) must involve raising of the indirect object out of the VP and subsequent fronting of the VP containing a trace of the indirect object. The sentence is grammatical. Similar considerations obtain with the subject trace under the VP-internal subject hypothesis. The fronted constituents on leapfrogging story will contain traces of higher arguments. The Proper Binding Condition cannot be appealed to and the ungrammaticality of (77) is unexplained. The potential problems though do not arise under the stacking structure. Assume that any VP (or Agr-P) may front. The ungrammatical cases involve fronting of non-constituents at all stages of the derivation. However, there are many variables to control for in examining the relevant German structures and it would be premature to draw strong conclusions from them in the absence of a general analysis of VP-fronting.

Therefore, we turn now to Icelandic, and consider in much greater detail the evidence for two indirect object positions, and the interactions of these positions with subject and direct object positions.

2.4.1 The higher IO Position is lower than the lowest subject position

Just as a direct objects may shift across a VP-adverb, an indirect object may also precede a VP-adjoined adverb such as sentential negation:

(78)

Ég lána Maríu ekki bækur.
I lend Maria not books.
'I do not lend Maria books.'

(Icelandic, =(51a))

In fact, an unstressed indirect object pronoun is strongly dispreferred in the post-adverbial position, just as an unstressed direct object pronoun is in simple transitive sentences, indicating that it is indeed object shift we are dealing with here.⁴³

(79)

Petur syndi **henni** oft bókina.
P. gives her often the.book
'Petur often gives her the book.'

* Petur syndi oft **henni** bókina. (*henni* unstressed)
P. gives often her the.book
(Icelandic, Holmberg 1986 cited in Williams 1994)

Ditransitive constructions may also have an expletive subject, *það*, in which case, the indefinite subject "associate" NP is in the lower position:

(80)

a. *það* gáfu einhverjir stúdentar Maríu bækur.
there gave some students Maria books
'Some students gave Maria books.'

(Icelandic)

b. *það* lánaði útlendingar Maríu þessa bók.
there lent foreigner Maria this book
'A foreigner lent Maria this book.'

(Icelandic)

⁴³ I.e., the grammaticality of (78) alone does not tell us that the indirect object may shift, since we know independently that the adverb may adjoin to the lower VP projection (51), above. However, the fact that a definite indirect object NP may occur apparently freely on either side of an adverb, though a weak pronoun is ungrammatical following the adverb, mirrors exactly the canonical object shift paradigm in Icelandic. From this, we conclude that indirect objects may, and if they are weak pronouns must, shift. Contrast (74) with the following, both acceptable:

- (i) Petur syndi Maríu oft bókina.
(ii) Petur syndi oft Maríu bókina.
P. gives M. often M book.the
'Petur often gives Maria the book.'

(Icelandic, Holmberg 1986 in Williams 1994:)

Holmberg 1986, Vikner 1992, Bures 1992, and Collins & Thráinsson 1993 all conclude from these and similar examples that some mechanism forces the indirect object to raise overtly if the direct object raises. Collins & Thráinsson 1993 appeal to constraints on the featural make-up of the two Agr phrases relative to one another. Thus, if the lower object Agr, i.e. Agr-DO, is of the type which requires objects to shift, then the higher object Agr, Agr-IO, must be as well. This rather *ad hoc* requirement will serve to force the data in (84) and (85). If the direct object raises, then the indirect must raise too.

There is a serious flaw to this line of reasoning. The data above have all involve definite NP indirect objects. Definite NPs in Icelandic shift, and hence the account which says that indirect objects must shift if the direct object does runs into no serious problem when the indirect object is definite. However, indefinite NPs do not shift in Icelandic. Nevertheless, the data given to support shift of the direct object (51) can be replicated when the indirect object is indefinite. There is, importantly, no contrast in acceptability between (86b) and (51b).

(86)

- a. Ég gaf einhverjum stúdent ekki bókina.
 I gave some student not the.book
 'I didn't give some student the book.'
- b. ?Ég gaf einhverjum stúdent bókina ekki.
 I gave some student the.book not
 ditto

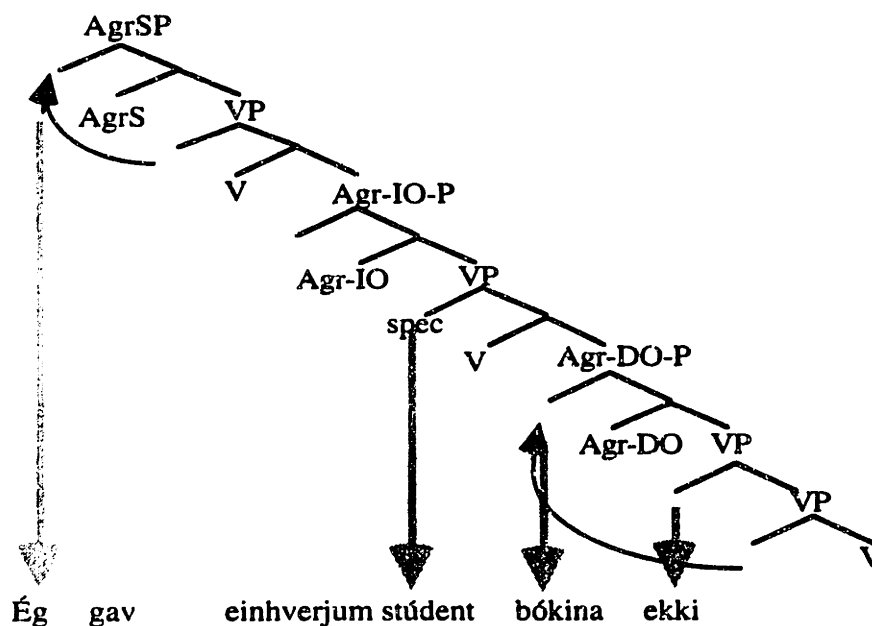
(Icelandic)

On the leapfrogging account, (51b) was supposed to show that the indirect object must shift if the direct object does, and an appeal would be made to likeness of the object Agr heads. It would follow by parity of reasoning that (86b) also involves shift of the indirect object. This would be a curious result, since object shift is independently known to be closely linked to definiteness / specificity / presupposition as discussed above and

below. Indefinite NPs like *einhverjum stúdent* in (86) are generally not shiftable elements.

The leapfrogging account is forced then to assume that indefinite objects may shift, and in fact must if the direct object shifts, even if the indirect object is an element which normally cannot shift, such as an indefinite NP.⁴⁶ The stacking hypothesis is not forced to this awkward assumption to account for shift of a direct object to a position lower than the lower indirect object position:

(87)



On the stacking view, we maintain the descriptive observation that only definite/specific NPs may undergo shift in Icelandic.⁴⁷ In (86b) the indefinite NP

⁴⁶ To be fair, a mechanism they could invoke, given their structures, is that suggested by Jonas & Bobaljik 1993, which forces subjects to raise overtly out of the VP, at least to Spec,TP. Thus, Jonas & Bobaljik have three positions for the subject, the higher and intermediate both being VP external and subjects never surfacing in the lowest. Likewise, Collins & Thráinsson have 3 positions for indirect objects, again two of them higher than the shifted position of the direct object. So, they sidestep the problems raised here - with the introduction of extra positions which are not clearly motivated. Of course, with enough extra positions and extra mechanisms, one can force an account of any word order, as Kayne 1994 demonstrates admirably, but it is not clear what the predictive power, if any, of such devices would be.

⁴⁷ The trigger for object shift really seems to be not definiteness but rather the contrast between new and old information (i.e. to the discourse), see the discussion of (14) and subsequent examples, above. Runner 1994 claims that this contrast is exactly what "specificity" is. If Pesetsky 1987 is correct in his

einhverjum stúdent ‘some student’ is in its lower, i.e., base position, like a well-behaved indefinite NP.

characterization of the varying behaviour of various *wh*-elements as being dependent on the feature [\pm discourse-linked] (see Chapter VI, below), then we have independent motivation for the distinction along these lines, and furthermore for the claim that this distinction is visible to (i.e. relevant for) a syntactic computational mechanism (though see Tsai 1994 for arguments that this distinction is either too weak, or is one of many features which play a role in the syntax, beyond what is standardly assumed).

Diesing 1994,1995 argues that movement follows from two considerations. In the case of quantified objects, she suggests that movement is necessary to resolve a type mismatch; quantified objects of type $\langle\langle e,t \rangle, t \rangle$ must move out of the VP since they cannot combine with the verb (type $\langle \langle e, t \rangle, t \rangle$) in the verb phrase (though I admit I do not understand exactly how this is a type mismatch). The second condition, she argues, involves scope. She proposes that NPs such as the bare plural *Lieder* ‘songs’ in (i) and (ii) moves or does not according to its relative scope with respect to the adverb *immer* ‘always’:

- (i) ... weil Elly *immer* *Lieder* singt.
 since E. always songs sings
 ‘...since Elly always sings songs.’

ALWAYS_t [time(t)] x song (x) & sing (Elly,x). i.e. ALWAYS >> (song)

- (ii) ... weil Elly *Lieder* *immer* singt.
 since E. songs always sings
 ‘...since, (generally) if it’s a song, Elly will sing it.’

ALWAYS_x [song(x)] sing (Elly,x)

(German, Diesing 1995:6)

While this may work for the interaction of plurals with scope taking (i.e. quantificational) adverbs, we have seen above that objects may shift with respect to non-quantificational adverbs, such as *sorgfältig* ‘carefully’ as in (69) above, repeated here as (iii) and (iv):

- (iii) ... weil Kinder *sorgfältig* *Äpfel* essen.
 since children carefully apples eat
 Existential - ‘... since some children are eating some apples carefully’
 or ‘... since children eat some (kinds of) apples carefully’
 also Generic: - ‘... since children (generally) eat apples carefully.’

- (iv) ... weil Kinder *Äpfel* *sorgfältig* essen.
 since children apples carefully eat
 Generic - ‘... since children (generally) eat apples carefully.’
 * Existential

(German, =69 above)

Here, there is no issue of scope with respect to the adverb, yet there is movement in any event. In this context, see Fox 1995a,b who argues specifically that scope-affecting operations are permitted only if they are non-vacuous. By this consideration, the movement in (iv) should be illicit. Finally, the movement cannot be simply to “escape” being bound under existential closure which is taken to apply at the VP level (after Heim 1982). This is clear since the generic reading is generally possible for NPs in the lower position (both subjects and objects), rather the effect of movement is only one-way: the existential interpretation is blocked from the higher position.

With no specific insight into how to implement the observation, we conclude that the true factor determining object shift is new versus old information (Zwart 1993), Pesetsky’s 1987 “D-linking”, Runner’s 1994 “specificity”. This seems to come nearest to accounting for the data, and is independently motivated as a syntactically relevant feature affecting movement operations (Pesetsky 1987.)

2.4.3 Swedish

The fact that the leapfrogging analysis will force elements to shift which ordinarily do not can apparently be made from Swedish as well.⁴⁸ Recall that in Swedish, only pronouns may undergo object shift (88a); full NPs never do (88b). Further, stressed pronouns behave like NPs; only unstressed pronouns may shift, and these must shift if the verb has raised. Example (88c), with the pronoun post-verbal is acceptable only with stress or emphasis on the pronoun, indicated by ALL CAPS.

(88)

- a. * Han såg Sara inte.
 he saw S. not
 (He didn't see Sara.)
- b. Han såg inte * henne / √ HENNE.
 he saw not her / her-stressed
 (He didn't see her.)
- cf. √ Han såg henne inte.
 he saw her not
 'He didn't see her.'

(Swedish)

Now, in this light, consider the following:⁴⁹

⁴⁸ I thank Marlyse Baptista-Morey for bringing Holmberg's data in the following section to my attention.

⁴⁹ There is some speaker variation in these constructions and in the parallel examples in Norwegian (Anders Holmberg, personal communication). Vikner 1991:307 marks Danish examples parallel to (89b) as ungrammatical. The judgements here are Holmberg's and shared by some, though not all of my informants. Holmberg also notes that these examples are fine for some speakers. Some speakers find the (b) examples in (89) and (90) to be as unacceptable as (88a). The discussion, then, is based on the judgements of those who accept (89b) and (90b). For speakers who find these ungrammatical, we note the difference in possible attachment sites of adverbs, and look for other facts which may correlate with and therefore substantiate this difference.

Anders Holmberg (personal communication) notes that these examples are significantly worse with indefinite indirect objects, a surprising fact given the account assumed in the text:

- (i) * Han gav en flicka inte boken.
 he gave a girl not book.the
 (He didn't give a girl the book.)
- (ii) * Jag visar en flicka gärna min skrivare.
 I show a girl gladly my printer
 (I gladly show a girl my printer.)

(Swedish)

(Swedish)

(89)

- a. Jag visar gärna barnen min skrivare.
I show gladly the.children my printer
'I gladly show the children my printer.'
- b. ? Jag visar barnen gärna min skrivare.
I show the.children gladly my printer
>same<

(Swedish)

(90)

- a. Han gav inte Sara boken.
he gave not S. the.book
'He didn't give Sara the book.'
- b. ? Han gav Sara inte boken.
he gave S. not the.book
>same<

(Swedish, Holmberg 1990)

The (b) examples are, for Holmberg, somewhat marked, just as (51b) was slightly marked in Icelandic. However, the adverb following both objects is definitely ungrammatical.

(91)

- * Han gav Sara boken inte.
he gave S. the.book not
'(He didn't give Sara the book.)'

(Swedish)

On the leapfrogging hypothesis, the (b) sentences in (89) and (90) entail an even more surprising version of the conclusion forced by the Icelandic facts in (86). That is, it must once again be claimed that things which do not habitually undergo object shift are permitted to undergo such shift if they are indirect objects. In Icelandic, the leapfrogging hypothesis forced the conclusion that indefinite NPs, which generally may not shift, must do so if the direct object has shifted. In Swedish, leapfrogging forces an even more unintuitive postulation, namely that indirect object full NPs may shift, even though full

I might be able to convince myself to believe there is a similar contrast in English, in as much as the indirect object is not contrastively stressed in the following pair, though I am neither convinced of the validity of the judgement nor able to think of a convincing account of either the Swedish or the English:

- (iii) He didn't give Sarah this book.
(iv) ? He didn't give a girl this book.

NPs in Swedish are otherwise prohibited from shifting. Moreover, while it was possible to claim in Icelandic that the unnatural instances of object shift were in some way forced by the shift of the direct object, the otherwise ungrammatical shift of full NPs in the Swedish examples is apparently optional; it is not forced by shift of the direct object since such shift is independently blocked.

On the stacking hypothesis, no such stipulative exceptions to otherwise well-motivated generalizations are required. The adverbs *inte* 'not' and *garna* 'gladly' in (89b) and (90b) are assumed to be adjoined to the lower VP projection, beneath the base, unshifted position of the indirect object, but higher than the position of the unshifted NP direct object.⁵⁰ This adjunction site, as we have seen, is motivated on either story in any event by the position of the adverb in (51), as noted by Collins & Thráinsson 1993.⁵¹

We find, yet again, that the leapfrogging account initially makes the wrong predictions. Furthermore, in the set of examples considered in this subsection, concerning the interaction of indirect object positions with direct objects and adverbs, not only does the stacking hypothesis make the correct predictions on no extra assumptions, but the

⁵⁰ The key test would be the interaction of pronouns and adverbs in this position. The prediction would be that, as in Icelandic, an unshifted NP indirect object should be able to precede an unstressed pronoun, which in turn precedes the adverb:

- (i) (*) *Han gav Sara det inte.*
 he gave S it not

(Swedish)

The sentence in (i), though, is not acceptable for an independent reason. Just as in English, an NP indirect object followed by a pronoun direct object is somehow quite awkward, and the alternative structure, with a PP goal argument is much preferred, even without negation.

- (ii) (*) *Han gav Sara/en man det.* preferred: (iii) *Han gav det till en man.*
 he gave S /a man it *he gave it to a man.*
 ('He gave Sara/a man it.') 'He gave it to a man.'

(notes S/28.3.95:1-2)

The same contrast obtains in English:

- (iv) (*) *He gave Sara/a man it.* ✓ *He gave it to Sara/a man.*

⁵¹ Note that both in Icelandic and apparently in Swedish, adjunction of the sentential adverb to this lowest VP appears to trigger some markedness for the sentence in question.

assumptions which must be made on the leapfrogging hypothesis are highly suspect – the leapfrogging hypothesis must posit shift of indirect objects when they are elements which otherwise may not undergo shift. Moreover, for the Swedish cases at least, this shift cannot even be suggested to have been forced by some interaction between indirect and direct object Agr heads, since whether or not the direct object shifts is irrelevant in these examples.

3 Conclusion

In the first part of this Chapter (§1), I examined in careful detail the arguments in favour of leapfrogging structures in the current literature.

The first argument was that the leapfrogging architecture, combined with the correct characterization of the principle of Shortest Move including the “equidistance” clause, provided an elegant account of what has come to be known as Holmberg’s generalization. The flaw in the argument is that Holmberg’s generalization is not as general as the proponents of this analysis must claim. While it is a valid description of the Scandinavian (SVO) Germanic languages (and vacuously of English), the generalisation is not valid of the SOV Germanic languages (eg, Afrikaans, Dutch, German), nor is it valid of Modern Irish, another language with relatively clear evidence of object shift, at least in non-finite clauses. The theoretical argument in favour of leapfrogging structures evaporated.

The second argument was also apparently straightforward. We saw that subject-oriented floating quantifiers may occur to the right of a shifted object in Icelandic. It follows from the premise that floating quantifiers mark the positions of subject traces that there is a subject trace beneath the position of shifted objects, i.e., that the leapfrogging architecture is correct. This argument was shown to be flawed as well, making the wrong predictions concerning the distribution of floating quantifiers in double-object

constructions. Moreover, in the next chapter I will point out that the crucial premise, i.e., that floating quantifiers mark the positions of subject traces, is itself untenable for a range of reasons. An alternative account, under which floating quantifiers are adjoined to projections of predicates, is at the very least plausible, if not superior. While this alternative view does a better job of accounting for the data, it not entail that there is a subject trace beneath the shifted object in accounting for the relevant structures. The second argument in favour of leapfrogging also vanishes.

In the second part of the chapter (§2), I turned to possible evidence for the stacking hypothesis. Again, there was very little direct evidence in favour of the hypothesis. In sections 2.1-2.3 I considered a number of arguments which showed that, accepting the evidence for two distinct positions for each of subject and object, we nonetheless find that the lower positions of the subject are higher than the higher positions of the object, as predicted by stacking. For the leapfrogging theory, this requires the postulation of additional positions and additional machinery, which have little if any independent motivation. Section 2.4 extended these observations to indirect object positions in double object constructions. In this section, it was shown that the leapfrogging hypothesis actually makes the wrong predictions in double-object constructions involving adverbs adjoined to the lower VP projection. The additional assumptions required to avoid the problem created by the data presented there are quite surprising, and not obviously plausible.

As always, it is possible to maintain virtually any analysis with extra assumptions. However, in the present case, Occam's Razor is applicable. The stacking and leapfrogging hypotheses can be made to account for the same range of empirical observations. However, the stacking hypothesis does so on a proper subset of the assumptions required by the leapfrogging hypothesis. That is, both hypotheses posit base and derived positions

for subjects and objects in part in order to account for the range of phenomena falling under the rubric of object shift in the Germanic and Celtic languages. Further, adopting split VPs, both accounts must accept that certain adverbs, especially those which serve as diagnostic tools for object shift phenomena, must be allowed to adjoin to VP projections other than the highest VP (i.e. the projection containing the subject trace). For the stacking hypothesis, this is all that need be said to explain all the data in the present paper. For the leapfrogging hypothesis, the following extra assumptions are needed:

(92) Extra assumptions for leapfrogging

- (i) subjects and indirect objects have three positions each, not two, of which the middle position is Diesing's lower position.
- (ii) subjects and indirect objects can never surface in their base positions.
i.e. there will never be direct evidence for (i)
- (iii) indirect objects may/must shift in Icelandic even if they are indefinite even though indefinite NPs normally can't shift.
- (iv) indirect object NPs shift optionally in Swedish, even though shift in Swedish is otherwise never optional and NPs can normally never shift.

Stacking requires no assumptions which leapfrogging does not, but leapfrogging requires a number of assumptions not required by stacking, and not independently motivated. There is thus, to my knowledge, no reason at all to maintain the leapfrogging view of clausal architecture.

Chapter four

Floating quantifiers are adverbs

In this chapter,¹ I sketch the rough shape of an alternative to the view advocated by Sportiche 1988 and others that floating quantifiers mark the positions of DP traces. I have in mind the proposal that has surfaced in various forms in the literature, namely that floating quantifiers behave essentially like adverbs adjoined to certain maximal projections. I argue that the floating quantifiers are adverb-like, occurring in standard adverb positions adjoined to the left edge of certain XPs (or perhaps X'), in particular predicates. In terms of construal, I suggest – adapting a proposal of Dowty & Brodie 1984 – that floating

¹ This chapter owes a great deal to Kai von Stechow, Danny Fox, Heidi Harley and Uli Sauerland for discussions of floating quantifiers and their semantics, and from written comments on earlier versions.

quantifiers like *all* do not directly modify an DP, but rather modify the predicate in a predictable manner with respect to some DP. Restricting the range of elements which may modify the predicate, I will suggest the following:

(1) *Quantifier-Floating Construal (QFC)*

Adverbial *all* adjoined to a predicate causes that predicate to be *maximal* with respect to a group (or mass) argument of that predicate which is in an A-position and which c-commands the adverb.

Below, I will make clear what I mean by “maximal”, and will refine the notions of argument and predicate. I will henceforth refer to my proposal as the “adverb” view, and to the family of proposals related to Sportiche 1988 as the “trace” view of floating quantifiers.

In the previous chapter (ch. III, §1.1.1), I showed that floating quantifiers are licensed only by A-movement – drawing on and extending observations of Déprez 1989. I will not repeat the arguments in this chapter, though they will come up again in §4. This observation is not directly relevant to distinguishing the two theories of floating quantifiers, and so I will focus instead here on the range of configurations in which the two theories make different predictions. As should be obvious, if specifiers are to the left of their heads and at the top of their projections, then the trace view and adverb view will make the same predictions about the linear distribution of floating quantifiers relative to other elements in most cases, at least as far as subject-oriented floating quantifiers are concerned. The cases where the two theories do diverge fall into two classes. On the one hand are those positions in which a DP trace is motivated by independent considerations, but where there is no predicate projection to which the quantifier could plausibly adjoin; in such cases, we will see that floating quantifiers are not permitted. The other class of differing predictions are those cases in which – although there is clearly the projection of a predicate – there is no

reason to posit a DP trace. I will consider relaxing the trace view enough to allow PRO to serve as an appropriate host for the quantifier, but will show that even this revision is not sufficient to account for all the relevant data.

The conceptual (and as far as I know, the only) argument in favour of the trace view of floating quantifiers, i.e. as opposed to the adverbial view, has the following form:

(2) *The conceptual argument for the trace view.*

- i. We have independent reasons to posit VP-internal traces of DP arguments.
- ii. We know independently that *all* can occur as a part of a DP:
e.g.: [DP *all the students*].

Given these two observations, it is supposedly superfluous not only to posit that *all* can occur in positions other than those of traces (such as I have claimed), but also to introduce interpretive rules such as (14) into the grammar, in addition to those necessary to interpret *all* as a part of the DP which it modifies.

What I hope to show here are the following:

(3)

- i. *All* cannot occur in positions where there is no left edge of a predicate XP, but in which we have independent reason to posit an DP trace (§2.1),
- ii. *All* can and does occur in positions other than those in which we posit subject traces (though these positions are all left edges of maximal projections of predicates) (§§2.2-2.4),
- iii. Floated *all* can be associated with DPs with which it cannot have formed a single constituent at any level of representation (§2.5),
- iv. Floating quantifiers like *all* behave like adverbs in terms of precedence relations (§3.1) and weak-island inducing properties (§3.2),
- v. Independently of the distribution of *all* we need interpretive rules of the form in (14) for subject-oriented adverbs with meanings similar to *all* (§3.3).

To the extent that I can demonstrate these points, we have strong evidence that the adverbial view is correct.

1. On *all* and similar things.

Until the mid-80's, there were two principal competing views of floating quantifiers, i.e. "Q-float". One view holds that "floating" quantifiers are base-generated, like adverbs, in VP- (also XP-, X'-, etc...) adjoined positions and associated with some DP through an interpretive rule. This view was promoted by, for example, Klein 1976, Williams 1981² and Dowty & Brodie 1984 . The second view (exemplified by Postal 1974, Kayne 1975, Fiengo & Lasnik 1976, Maling 1976, Baltin 1978, 1982, and others) has the quantifiers "floating" away from some DP; that is, the quantifier is base-generated as a part of the DP with which it is construed, and then moves to a position adjoined to some phrase. With the advent of the VP-internal subject hypothesis in the mid-1980s, a new family of analyses was made possible, more or less a variation of the second proposal. Sportiche 1988 suggested that a floating quantifier is base-generated as a part of a DP, but rather than the quantifier floating away from its DP host, it is the DP itself that moves, stranding the quantifier. This last view makes a very strong claim about the distribution of floating quantifiers: they may occur only in positions through which the DP they are construed with has passed in the course of its movement. In what follows, I will abbreviate the mouthful "the DP which the floating quantifier is construed with" as simply "the antecedent" or "the antecedent DP". (This label is intended solely for convenience, and is not necessarily intended to have theoretical implications.) Despite their differences, all three approaches regard the possible surface positions of *all* in (4) as denoting the left periphery of some VP projection:

(4) *All in the left edge of some VP:*

The children will (all) [_{VP} have been stacking their VPs by the time they are three].
 The children will have (all) [_{VP} been stacking their VPs by the time they are three].
 The children will have been (all) [_{VP} stacking their VPs by the time they are three].

In this chapter, I will attempt to show that the first of these views is correct; specifically, that floating quantifiers behave as adverbs; that they occur in positions which cannot plausibly be associated with a trace; that they can occur in positions where no trace is plausible; and that they may take as an antecedent a DP with which they could not form a single constituent at any level of representation. In such cases, the quantifiers could not have floated away from the DP, nor could the DP have stranded the quantifier. The main point of the chapter, then, is to demonstrate that the floating quantifier-as-trace view is untenable. This chapter thus provides the missing argument in the previous chapter, reinforcing the claim that there is an abundant lack of evidence for the leapfrogging view of clause structure.

Before proceeding, I will flesh out a rough semantics of *all* so that we have a concrete proposal to base the following discussion on. For present purposes, it should suffice to modify somewhat Dowty's 1986 proposal from the family of adjunction analyses:

(5) *Dowty's semantics of all*

"Hypothesis: the effect of *all* on a collective predicate is to fully distribute the predicate's sub-entailments to every member of the group argument: Instead of merely holding of some (proper) subset of those members, as required by the predicate itself, *all* requires that these sub-entailments hold of every member of the group."

(Dowty 1986:102)

By "sub-entailments" here, Dowty does not mean that the predicate need be true of every member of the group argument, i.e. it does not entail distributivity. Rather, the

notion seems to be simply a restatement of the *maximalizing* effect of *all*, noted earlier by Dowty & Brodie 1984, and attributed by them to rules of conversational implicature. That *all* does not enforce distributivity is clearly seen by the compatibility of *all* floating or otherwise, with truly collective predicates, such as *gather* (which cannot be true of each of the individuals), or those involving an additional collective modifier such as *together*, incompatible with true distributive readings.

(6) *Distributivity versus maximality*

- a. The students *all* gathered in the hall.
 $\neq \forall x$ (student (x) \rightarrow gathered in the hall (x))
 i.e. cannot mean [gathered in the hall] is true of each student individually
- b. * The students each gathered in the hall.
- c. The students built this house together.
 (collective reading only)

As an illustration of this *maximalizing* effect, consider the difference in meaning between (7a) and (7b), or more saliently that in (8) (a) versus (b) (the former pair based on examples in Dowty 1986, the latter after Link):

- (7)
 - a. The reporters harangued the candidate.
 - b. The reporters *all* harangued the candidate.
- (8)
 - a. The Romans built this bridge.
 - b. The Romans *all* built this bridge.

For Dowty (and for me), the (a) examples may be true in situations where the (b) sentences are false. Taking Dowty's examples (7), at press conferences it is very rare that every reporter present asks a question, but this rare situation is the only one in which (b) is true. That is, (7a) means roughly that there was haranguing of the candidate, and that this haranguing was done by (a subset of the group of) reporters. By contrast, the *all* in the (b) example has the effect of forcing a maximal reading for the predicate with respect to the

members of the group denoted by the subject. Every reporter in the contextually relevant group must harangue the candidate for (b) to be true – this even though the predicate itself is happy to allow the collective reading, as in (7a).

Here in particular, we can see again the difference between *maximality* and *distributivity*. Thus, there is a subtle contrast between (7b), and (9a) with a truly distributive quantifier, *each*. This is brought out more saliently by adding a further adjunct which is clearly incompatible with a distributive reading such as *together* or *in one voice*.

(9) *Distributivity versus maximality.*

- a. The reporters each harangued the candidate.
- b. The reporters **all** harangued the candidate $\left\{ \begin{array}{l} \text{together} \\ \text{in one voice} \end{array} \right\}$.
- c. The reporters * **each** harangued the candidate $\left\{ \begin{array}{l} \text{together} \\ \text{in one voice} \end{array} \right\}$.

From these examples, we see that floated *all* does not, in fact, enforce distributivity of the predicate, which we can see by its compatibility with collective adjuncts. In this sense, the relevant notion does indeed seem to be maximality and not distributivity. With floated *all*, the sentence (7b) is true if and only if it is true of every member of the group [the reporters], however, it need not be true of each one as a separate event, as it must be in the case of a distributive quantifier such as *each*. In (9a), the reading which is at least strongly preferred is one in which there was a separate event of haranguing of the candidate for each reporter. Floated *all* is not incompatible with a distributive reading of the predicate, as *each* is incompatible with a non-distributive reading, but *all* does not force this reading.²

² Commenting on earlier drafts of this chapter, Uli Sauerland and Danny Fox have (each) suggested to me (personal communication) that perhaps looking at *all* as adding a meaning to the predicate is perhaps not the way to best understand it. Perhaps, they suggest, it is rather the case that the function of *all* is to disallow the weakening of the predicate which is possible in (7a). For that example to be true, in natural usage, it need not be the case at all that [harangued the candidate] be true of every member of the group [the reporters], but only of some subset, not even necessarily true of most. This is in some sense a weakening of the predicate, which the addition of *all* as in (7b) does not tolerate. For present purposes, I believe this

A final point, small, but important in terms of completeness, is that floated *all* can maximalize predicates not only with respect to group arguments, but may also do so with respect to mass noun arguments, such as *water* and *data*, and arguments referring to spaces, such as *sky*, *Lake Ontario*.

(10) *Floating all can modify mass nouns.*

- a. The cat has spilled [*all* the water].
- b. The water might *all* have been spilled.
- c. This data has *all* been invented by the author.
- d. The sky might *all* have clouded over.
- e. Lake Ontario might *all* have been polluted by the government.

In such examples, the maximalizing effect of *all* is quite clear, while mass nouns are consistently incompatible with a true distributive operator, such as *each*.

(11) *Each incompatible with mass nouns and spaces.*

- a. * The cat has spilled [*each (of)* the water.]
- b. * The water might *each* have been spilled.
- c. * This data has *each* been invented by the author.
- d. * The sky might *each* have clouded over.
- e. * Lake Ontario might *each* have been polluted by the government.

Returning to the group-denoting subjects, let us consider one of Dowty's more complex cases such as (12a) on the one hand versus (12b,c) on the other.

can be considered an implementation of what it means to have a "maximalizing" effect on a predicate, a sort of strengthening.

Note that "maximal" *all* must be distinguished from "completive" *all*, as in:

- (i) This house is *all* mauve.
- (ii) My homework is *all* done.
- (iii) Hubert lives *all* alone.

This latter *all* cannot float, and is consistent with singular subject DPs:

- (iv) * This house might *all* have been mauve.

I will return to "completive" *all* in section 3, below.

- (12) [In the last elections...]
- | | | | | |
|----|-------------------|------|-----|---------------------|
| a. | The Canadians | have | | voted for Chrétien. |
| b. | The Canadians | have | all | voted for Chrétien. |
| c. | All the Canadians | have | | voted for Chrétien. |

Again I share Dowty's intuitions, and most of the speakers I consulted agree, along the following lines.³ The (a) example reports on the results of the 1993 election, in which Jean Chrétien was victorious. Radically oversimplifying Canadian electoral law, we assume that a candidate wins if more than fifty percent of votes cast are in favour of that candidate's party. Thus, reporting on the 1993 elections, (12a) is true, even though the predicate need only be true of fifty-one percent of the group denoted by the subject DP.⁴ That is, while the predicate [voted for Chrétien] may be false of forty-nine percent of the group denoted by [DP the Canadians], the sentence is nonetheless true. This contrasts with (12b,c) which are true if and only if the predicate [voted for Chrétien] is true of every member of the group [the Canadians], i.e. a unanimous victory. We return to some further subtleties below.

³ David Pesetsky (personal communication) disagrees with a number of the judgments reported here, noting that for him, (12b) has the same truth conditions as (12a); that is, (12b) can be true, even if the predicate is not true of the group [the Canadians], contrasting only with (12c). For a speculation on why this may be the case, see note 24 below. For me, the judgments become extremely clear if one stresses *all*:

- (i) The Canadians have **ALL** voted for Chrétien.

With destressed *all* and stress on the VP, I can almost get Pesetsky's reading:

- (ii) The Canadians have **all** VOTED FOR CHRÉTIEN.

In a colloquial register, in my idiolect or dialect of English, *all* seems to be possible as a sort of intensifier, as in *he's all upset* to mean 'he's very upset'. To me, this seems quite consistent with the suggestion of Fox and Sauerland which I have noted in the text. On such a view, the "maximalizing" effect is rather a form of strengthening, reducing the predicate's tolerance to weakening in the manner of the sentences with reporters, above. Such weakening is rather a vague notion, and inter-idiolectal and inter-register variation is not unexpected.

⁴ It should go without saying that we assume some form of restriction from discourse, so [the Canadians] in (5) is restricted to those Canadians who voted, just as [every student] in a sentence like *Every student passed the exam* obviously does not refer to every past, present and hypothetical student, but rather just those who took the exam in question.

Let us assume that the maximizing effect noted by Dowty and Brodie 1984 is on the right track in describing the semantic effect of adding *all* to a predicate, even though we are far from a formalization of it. For ease of exposition, let us summarize the above few paragraphs as: “*all* makes a predicate *maximal* with respect to a group or mass argument of that predicate.” Presaging a part of the discussion below, I propose the following informal statement of the semantics of *all*.

(13) *Quantifier-Floating Construal (QFC) - all*

Adverbial *all* adjoined to a predicate causes that predicate to be maximal distributive with respect to a group (or mass) argument of that predicate, if

that argument is in an A-position
and that argument c-commands *all*.

Adapting Dowty & Brodie’s 1984 formalism, I suggest (14) as an approximate formalization of the meaning of *all*, as characterized in (1):⁵

$$(14) \quad [[\text{all}]] = f : D_{\langle e,t \rangle} \rightarrow D_{\langle e,t \rangle}$$

for all $a \in D_e, g \in D_{\langle e,t \rangle}$
 $[[\text{all}]](g)(a) = g_{\max}(a)$

conditions: a c-commands g
 a is in an argument position

David Pesetsky has pointed out (personal communication) that the definitions of predicate and argument that I will need are essentially those which Reinhart & Reuland 1993 require for their analysis of reflexivity:⁶

⁵ Note that this formal semantic description differs slightly from the informal syntactic definition. In particular, in order to account for A-movement which strands a floated quantifier, as in Chapter III, we would need a theory of movement which takes a movement to involve lambda-abstraction such that, though an object (type $\langle e \rangle$) would saturate a predicate such as the verb (type $\langle e,t \rangle$), A-movement of that object introduces an abstraction on the saturated predicate, in effect de-saturating it. Thus, the shifted object could count as (a) in (14). Such an approach is discussed in Heim & Kratzer (class notes 1994), for instance.

⁶ See also Williams 1983, 1994:25ff notion of an *argument complex*, yet another instantiation of the same notion.

(15) *Predicates and arguments*

- a. The *syntactic predicate* formed of a head P is P, all its arguments, and an external argument of P (subject).
- b. The *syntactic arguments* of P are the projections assigned θ -roles or case by P.

(Reinhart & Reuland 1993:678)

What we need is a definition of predicate which will allow projections of auxiliaries, modals and raising verbs to be sort of extensions of the main predicate,⁷ and hence serve as suitable adjunction sites for a floating quantifier, which can modify, for instance, the subject DP *the linguists* in (16).

(16) *Extended predicates:*

- a. The linguists have [_{VP} all left.]
- b. The linguists may [_{VP} all have left.]
- c. The linguists may [_{VP} all seem to have left.]

Admittedly, these are rather loose notions of argument and predicate. That such notions are independently required for Reinhart & Reuland's analysis of reflexivity (and for Williams's theory of predication) suggests that there is a valid generalization to be found in this: a notion of relatedness to a predicate. Thus, [_{VP} *leave*], [_{VP} *left*], [_{VP} *have left*] and [_{VP} *seem to have left*] are all in some sense projections of the predicate P of which the subject *the linguists* is predicated. This contrasts with, for instance, [*does Sam respect (x)*] or [*my sister really respects (x)*], as in the A'-movement contrasts in (17):⁸

⁷ A sort of Grimshavian *extended projection* of the predicate (Grimshaw 1991).

⁸ Sportiche 1988 does note, in passing, the fact that *wh*-traces in English cannot be possible sites for floating quantifiers (p.444), but offers no explanation. In Chapter III above, we saw that A'-movement generally does not license floating quantifiers, but that this is masked in French by the possibility of local leftwards movement of *tous*, an observation and argument due to Déprez 1989. This is another important argument against the subject-trace view, though the A versus A'-distinction is not obviously relevant on the adjunction theory either.

(17) *C'*, *IP* are not predicates.

- a. Which linguists_{*i*} [*C'* does Sam respect *trace_i*] ?
(*wh*-movement)
- b. These linguists_{*i*} [*IP* my sister really respects *trace_i*]
(topicalization)

Intuitively, the VPs in (16) are predicated of the subject, while the constituents bracketed in (17) are not predicated of the initial constituent in the same way. The definitions of *argument* and *predicate* in (15) are intended to express this difference.

At this point, I have spelled out my analysis. We turn now to the data which I believe support the view I am adopting.

2. The Distribution of Floating Quantifiers

In this section, I will consider a range of cases where the empirical predictions of the trace and adverbial views of floating quantifiers differ. I begin (§2.1) with a discussion of positions in which traces are well-motivated but which do not correspond to the left edge of any predicate, especially the postverbal positions in passives and unaccusatives. As Sportiche 1988 himself noted, the sharp ungrammaticality of floating quantifiers in these positions is a serious problem for the trace analysis. Sportiche offered a solution which has subsequently been challenged on a number of grounds, and I will not repeat the arguments here, though I will add a new set of observations which I think also show that Sportiche's analysis of passives and unaccusatives cannot be maintained. I next (§2.2) turn to another set of constructions where the trace and adverbial analyses of floating quantifiers make different predictions. This time, I investigate positions where a trace is implausible, but which constitute the left edges of predicates, independently well-motivated adjunction sites for adverbs. Here, as shown by Fiengo & Lasnik 1976 and Maling 1976,

floating quantifiers are grammatical. A possibility in order to maintain something like the trace view of floating quantifiers would be to extend this view in such a way that floating quantifiers may mark both DP traces and PRO. However, I will show that there are a number of significant problems with this view as well (§§2.3-2.4). The conclusion will be that the distributional evidence points strongly against the view that floating quantifiers mark the positions of traces (and PRO). Finally, a major appeal of the trace theory of floating quantifiers was that the quantifiers may appear as part of the DP as well as in their floating positions. From this, the simpler proposal was that they are the same element in either position but when floated are simply dissociated from the DP. In section 2.5 I will give examples where a floating quantifier is possible, but where the quantifier could not be a part of the DP.

2.1 *DP trace, not left edge of predicate = *FQ*

The basis for the trace view is the assumption that all subjects are base-generated internal to the VP. There is a long-standing debate concerning the motivation for these traces.⁹ A substantially more firmly established set of VP-internal traces of surface subjects are those in the complement-of-V position in unaccusatives and passives, the positions exemplified in (18):

(18) *VP-internal traces of the subject DP:*

- a. The magicians_i have arrived *trace*_i.
- b. The votes_i have been counted *trace*_i.

⁹ See Williams 1994 for counter-arguments to the standardly assumed motivations for the VP-internal subject hypothesis, then see Harley 1995 for arguments against Williams's arguments against arguments for VP-internal subject hypothesis, and additional arguments in favour of a form of the VP-internal subject hypothesis.

Strikingly, floating quantifiers (at least in English) are systematically excluded from the positions of these traces. Such examples are remarkably ungrammatical:¹⁰

- (19) **FQ in passive/unaccusative trace position.*
- a. * The magicians have arrived all.
 - b. * The votes have been counted all.

The trace analysis of floating quantifiers is of dubious merit here; the positions of subject traces which have the strongest motivation are exactly those in which the quantifiers cannot occur. Those hypothetical VP-internal subject positions which are less clearly motivated, e.g., the traces of external arguments, are the positions which may host a floating quantifier – but in every case these are coextensive with the left edges of predicates.

Sportiche 1988 notes this problem and bites the bullet, opting for the stance that passives and unaccusatives do not involve raising from complement position, at least not in English.¹¹ Nonetheless, on the trace story there must be some traces of the subjects of passives, as the following examples illustrate:¹²

- (20) *All sorts of places for all in passives*
- a. The magicians (all) should (all) have (all) arrived before the show begins.
 - b. The votes (all) will (all) have (all) been counted by midnight.

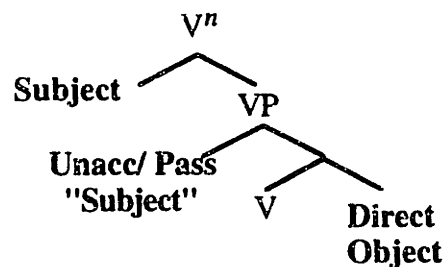
¹⁰ Miyagawa 1989 extends Sportiche's analysis to apparently floated numeral classifiers in Japanese. These, as Miyagawa shows, can in fact mark the position of traces in passives and unaccusatives. I will thus not discuss the numeral classifiers here. They are a different kettle of fish from the Germanic and Romance floated quantifiers, and just how different remains to be seen. Koizumi 1993 uses the position of these elements in Japanese to argue for the clause structure which I argued for in the previous chapter.

¹¹ See below for discussion and criticism of Sportiche's French passive and unaccusative examples.

¹² It is worth noting in passing that current assumptions, in particular Chomsky's 1993 principle of Greed, or Lasnik's 1995 Enlightened Self-Interest, would require that every auxiliary has some feature which must be checked against the subject DP, otherwise, the subject should not be permitted to move through that position. This was not a problem on assumptions current at the time of Sportiche 1988, but is a potential problem now, in that it is not at all apparent what independent motivation there could be for this claim.

Sportiche's suggestion (p. 144) is that the derived subject in passives and unaccusatives originates not in the complement position (where objects are base-generated), nor in the subject (i.e. external argument) position (adjoined to VP), but rather in between the two positions, in the specifier of the VP. The full schematic structure of a VP, then – though it should not show all arguments in any one VP – is as in (21):

(21) *Sportiche's VP.*



This proposal, however, also makes the wrong predictions about the positions in which floating quantifiers may appear, at least in English.¹³ This is not superficially obvious though, and a brief aside is warranted in order to exclude a potentially complicating factor. In particular, it would appear that there are two adverbial elements *all* in English. In addition to floated *all*, with the maximalizing effect we have been discussing, there is also what I will call “completive” *all*, with a meaning like ‘entirely’, which is illustrated in the following:

(22) *Completive all.*

- | | | |
|-----|---------------------|-------------------------|
| a. | Sam will be | all alone. |
| b. | Your dog is | all wet. |
| c. | The carpet has been | all dusted. |
| cf. | The carpet has been | entirely dusted. |

¹³ See Baltin 1995 for independent arguments against this analysis of passives and unaccusatives, based on the theory of argument structure developed by Levin & Rappaport-Hovav 1995.

The meaning of this *all* is clearly completive (compare the paraphrase in (22b)). More importantly, unlike true floated *all*, it is compatible with singular, count noun subjects. Finally, this completive *all* appears before the adjective or participle, but cannot appear in the other well-attested positions of floating quantifiers:¹⁴

(23) *Completive all can't float.*

- a. * Sam will **all** be alone.
- b. * Your dog might **all** be wet.
- c. * The carpet has **all** been dusted.

I will return to this completive *all* in section 2, below. For the moment, it suffices to note its existence, and to be aware of it in considering the following examples.

Returning to Sportiche's VP in (21), in a simple passive, where *be* is inflected, floated *all* can occur between the verb *be* and the passive participle:

(24)

- a. The carpets were **all** dusted.
- b. The children were **all** scolded.
- c. The dogs were **all** petted.

¹⁴ Similar facts obtain in French, with more leftward freedom of the *tout* meaning "completely", as observed by Kayne 1975:56, undoubtedly another instance of *L-tous*. There is a reasonably clear dependence on the meaning of the predicate here, but no incompatibility with singular subjects:

- (i) La tarte a **toute** été mangée par les enfants.
the pie has **all** been eaten by the children
'The pie has been completely eaten by the children.'
- (ii) * La pièce a **toute** été vue par les enfants.
the play has **all** been seen by the children
(The play has been completely seen by the children.)

(French, Kayne 1975:56)

This contrast is especially telling. The quantifier *toute* 'all' in these constructions is clearly adverbial in nature, with the meaning "completely". Its distribution is unlike that of floated quantifiers, showing a clear sensitivity to the lexical choice of verb stem, a choice which does not obtain with true, floated quantifier *tous*. Nonetheless, the quantifier shows agreement with the DP subject, as can be seen by the fact that it is obligatorily feminine, agreeing with the feminine DP subjects in these examples.

However, in environments where *be* is not the inflected auxiliary (for instance, when it is embedded under a modal or auxiliary *have*), floated *all* is quite marked (to my ear) between the verb *be* and a passive participle or predicate adjective, to the extent that we can rule out the “completive” reading just noted. That is, real floated *all* can occur more or less anywhere in a string of auxiliaries preceding *be*, and it may intervene between *be* and an active (-*ing*) participle, (25), but when *all* occurs between *be* and the passive participle, it forces the completive reading just noted. Thus, sentences containing predicates which shun the completive reading, as can be seen by the markedness of (26a-b) with single subjects, seem awkward also with floated *all* between *be* and the participle (c-d).

(25) *Where floated all can be.*

- a. The dogs (all) should (all) have (all) been petted.
- b. The proletarians (all) would (all) have (all) been (?all) working.
(cf. Baltin 1982:6)

(26) *Where floated all can't be.*

- a. # This dog has been **all** petted / scolded.
- b. # This dog has been **entirely** petted / scolded.
- c. # The dogs have been **all** petted.
- d. # The children have been **all** scolded.

This position is exactly the one which Sportiche suggests is the base position of the derived subjects in (21), yet floated (i.e. “maximally distributive”) *all* is significantly degraded in this position; only “completive” *all* is permissible there, hence the markedness of the string with predicates that do not easily allow completive modification.¹⁵

While this is also surprising on the adverbial analysis of floating quantifiers (i.e. why can an adverb not appear in this position), I believe it is not as problematic as it is for

¹⁵ Baltin 1995 fails to distinguish between the two types of *all* in English, lumping them both together as floated quantifiers. Certainly, the *all* in (22) cannot be the same as floated *all*, and hence care must be taken in delineating the positions in which floated *all* may appear as these are a subset of the positions in which the word *all* may occur in English. I return to this below.

the trace theory. Thus, the data here leads to the conclusion that an adjective or passive participle is not a predicate in and of itself, but only in conjunction with the verb *be*. Adjunction of a floating quantifier to the XP headed by a passive participle is ungrammatical (25c-d), but adjunction to the complex [*be participle*] is acceptable (25a). The grammaticality of (24) in contrast to these sentences could then be taken as evidence for raising of auxiliary *be* to Infi from a lower (VP ?) projection, a familiar proposal since Emonds 1970, though one for which concrete evidence has begun to dissolve as assumptions have changed since then.

Returning to passives and unaccusatives, Sportiche 1988 offers the following to suggest that floating quantifiers may be licit in the passive/unaccusative trace position in French:

- (27)
- a. Les enfants ont été vus ?tous / presque tous.
the children have been seen all almost all
'The children have (almost) all been seen.'
 - b. Les enfants sont venus ?tous / presque tous.
the children are came all almost all
'The children have (almost) all arrived.'
- (French, Sportiche 1988:437)

Here again there are problems. First, as Sportiche himself notes (p. 437), the unaccusative in (27b), with a post-verbal trace, does not contrast with an unergative verb as in (28), with no post-verbal trace:

- (28)
- Les enfants ont dormi ?tous / presque tous.
the children have slept all almost all
'The children have (almost) all slept.'
- (French, Sportiche 1988:437)

More seriously, it is doubtful that these quantifiers mark trace positions at all. As has been described at least since Kayne 1975, Jaeggli 1982 as well as in Sportiche 1988,

quantifiers may appear sentence-finally in French, unlike English. Thus, Bowers 1993:625 objects to Sportiche's analysis since alongside (27)-(28) we find:¹⁶

(29)

- a. Les enfants ont vu ce film ?tous / presque tous.
the children have seen this movie all almost all
'The children have (almost) all seen this movie.'
- b. Les enfants verront ce film ?tous / presque tous.
the children will see this movie all almost all
'The children will (almost) all see this movie.'

(French, Sportiche 1988: 427)

Furthermore, the effect of heaviness on clause-final position is exactly that noted independently for adverbs generally, as noted by Jaeggli 1982:65:

(30)

- a. Il aime bien Marie.
he likes well M.
'He likes Marie a lot.'
- b. * Il aime Marie bien.
he likes M well
(He likes Marie well)
- c. Il aime Marie vraiment bien.
he likes M. really well
'He likes Marie really well.'

(French, Jaeggli 1982:65)

While we cannot exclude entirely the possibility that the floating quantifiers are in the post-verbal trace positions in (27), this seems implausible. The quantifiers show exactly the same sensitivity to heaviness as phrase-final quantifiers generally. Furthermore, the bare floating quantifier *tous* is not marked in the positions in the left edge of VP, though it is sentence finally. There should therefore be a contrast between those sentence-final environments which coincide with a trace (passive, unaccusative (27)), and

¹⁶ For both these examples, Sportiche initially gives the sentences with *tous* sentence finally, and with no question mark. Immediately afterwards in the text, he notes that "this is less natural for a bare Q than ... for example, *presque tous* 'almost all.'" (p. 427). The effect of heaviness on the acceptability of sentence-final quantifiers is made by Jaeggli 1982:64-65, and the connection noted below in the text to adverbs is drawn.

those which do not (unergative, transitive (28),(29)). Again as Bowers 1993 points out, there is no such contrast. The unergative and unaccusative examples do not vary in acceptability.

Further, if there is a PP following the predicted trace position, then we rule out the effects of the possibility of sentence-final (*presque*) *tous* ‘(almost) all.’ Thus, a sentence like (31) requires a pause between *invités* ‘invited’ and *tous* ‘all.’ Recalling Kayne’s earlier observation, *tous* here is only licit to the extent that it can be construed – semantically and prosodically – as a part of the following PP. The sentence is ungrammatical with no pause before the quantifier, indicating that the quantifier is not in the postverbal trace position.

(31)

Les enfants ont été invités * (,) *tous* par mon oncle.
 the children have been invited <pause> all by my uncle
 ‘The children have all been invited by my uncle.’

(French)

I will not pursue this any further here. We have in this data a very strong strike against the subject-trace hypothesis.¹⁷ Floating quantifiers are not permitted in positions which have very well-motivated traces of the subjects such as passives and unaccusatives. More concretely, passives and unaccusatives are one range of data where the trace and adverbial proposals make different predictions. The post-verbal position in passive and

¹⁷ One possibility (pointed out by David Pesetsky), which we must exclude, is that the examples in (4128) are excluded for some prosodic reason, for example, that floated *all* cannot occur in sentence/phrase-final position in English. This does not go through, though, as examples like the following, with material following the trace in complement of V, show (with thanks to Danny Fox for help constructing the relevant cases):

- (i) * The men were told **all trace** [that John left.] [passive]
- (ii) * The teachers were given **all trace** this apple.
- (iii) * The books were put **all trace** on this table.
- (iv) * I thought [that the men arrived **all trace**] until I found out differently. [unacc.]
- (v) * The magicians have reappeared **all trace** [pp (each) in a different place.]
 cf. The magicians have all reappeared (each) in a different place.
 [the relevant reading being that the magicians reappear as a group in a different place from where they start]

This is in most cases obscured for the reasons discussed in the next section.

unaccusative constructions is a well-motivated site of a DP trace, but it is not an appropriate position for left-adjoined adverbs, including floated *all*. The predictions of the subject-trace analysis are wrong on all counts, while those of the predicate-adjoined analysis are clearly borne out.

2.2 *Left edge of predicate, no DP trace = \sqrt{FQ}*

Another potential problem with the trace view of floated *all* comes from data originally noted by Fiengo & Lasnik 1976 and Maling 1976.¹⁸ Maling in particular observed that floated *all* cannot occur in the right periphery of the VP unless there is a PP or secondary predicate or the like following the VP. That is, *all* seems to be able to “float” to the left edge of constituents other than VP (Maling 1976:708), positions where a (subject) trace would not be posited. However, float is possible only to the left edge of these constituents.

This is another place where the two approaches to floating quantifiers differ. The trace analysis would predict that floating quantifiers are ungrammatical in positions with no traces, while the left-edge adverbial hypothesis would predict grammaticality if the positions with no traces correspond to the left edges of predicates. In these cases, floated *all* is licit. Consider the following:

(32)

- a. Larry, Darryl and Darryl came into the café * *all*.
- b. Larry, Darryl and Darryl came into the café $\sqrt{\text{all}}$ [_{PP} at the same time.]
- c. Larry, Darryl and Darryl came into the café $\sqrt{\text{all}}$ [_{TP} very tired.]

Similar observations can be made from passives and unaccusatives:

¹⁸ Actually Maling’s examples were somewhat different, and in a slightly different context, though the point to be made from them is made by the examples here.

(33)

- a. The magicians disappeared **all** [pp at the same time.]
- b. The voters arrived **all** [pp exactly at six.]
- c. The votes were cast **all** [pp in alphabetical order.]

An account of this is of course trivial on the XP-adjoined view. The quantifier can only adjoin to the left edge of a predicate XP. Any PP or secondary predicate will do, but in the absence of such a predicate XP (32a), there is no maximal projection for *all* to adjoin to. Prosodically as well, this approach seems to make sense. Kayne 1975:49 suggests for a similar restriction in French that the acceptability of such constructions depends on the possibility of the quantifier and phrase following it being “felt as a unit, at least with respect to intonation”. This seems to be valid of English as well, as expected on the view that the floating quantifier is adjoined to the following predicate. The paradigm from PP fronting also bears this out:

(34)

- a. **All** at the same time, the magicians began to appear.
- b. * At the same time, the magicians began to appear **all**.

The requirement certainly also seems to have a semantic component as Maling observes (p716). Thus, the floating quantifier is licit on the left edge of an XP “only if the [XP] can be reasonably associated semantically with the DP that the quantifier [modifies].”

On the trace view, an account of these distributional facts is less obvious. The ungrammaticality of (32a) is clearly predicted. For the grammatical cases, a subject trace is highly implausible. The alternative, as suggested by Bowers 1993, is that the secondary predicates, such as [?p very tired] in (32), and PP adjuncts, such as [pp exactly at six] and

the like, have a PRO in their specifier position.¹⁹ For true secondary predicates, such as *drunk*, or for gerundive adjuncts as in (35a,b), this is not implausible, as these may stand alone as predicates of the DP (i.e. they can be complements of *be*) (35c,d). That is, they clearly assign a theta-role to their subject positions, but no case – the standard position for PRO (e.g. Chomsky 1986).

(35) *PRO in predicate-initial position*

- a. The three friends came into the café [all PRO very drunk.]
- b. The three friends came into the café [all PRO wearing red hats.]
- c. The three friends were very drunk.
- d. The three friends were wearing red hats.

This proposal is more curious for PPs such as temporal expressions [*exactly at six*] or [*on Sunday*] as in (32b), (33a,b) and (36a). As (36b) shows, the theta role assigned by these predicates is incompatible with the subject DP, i.e. the supposed PRO.²⁰

(36) *Temporal adjuncts*

- a. The three friends arrived [all PRO punctually at six o'clock.]
- b. # The three friends were (punctually) at six o'clock.

Even ignoring the problem posed by (36) and other temporal adjuncts, the hypothetical ability of PRO to serve as a host for floated *all* requires that the trace theory allow floating quantifiers as part of [DP PRO] as well as being stranded parts of traces. Sportiche 1988 considers related cases and posits an empty category in the “subject positions” of the adjuncts (p.439), though he does not comment on the character of this empty category. Clearly, it is not case-marked, though it would appear to be theta-marked,

¹⁹ For Bowers 1993, the PRO occurs in the specifier of a Pr(edicate) Phrase which dominates all phrases which are to be interpreted predicatively. Whether there is another phrase as Bowers suggests, or not, does not play a large role here.

²⁰ Below, (§2.3) I will claim that *all* in these examples is modifying the predicate denoted by the PP with respect to the event argument of the matrix clause. To maintain this, and salvage the trace or PRO view, one would have to assert that PRO can be controlled by an event argument as well as the more canonical DP arguments of the verb. This would require a substantial modification of the PRO theorem (Chomsky 1986) or its descendants where PRO is standardly taken to be a theta-marked argument with no (or “null” case).

hence I assume he intends something like PRO. Nevertheless, I believe this move substantially weakens one of the supposed conceptual arguments in favour of the trace theory of floating quantifiers.²¹ This argument was that *all* was independently known to be able to form a part of the DP it modifies, as in [DP *all (of) the students*]. This formed the basis for the claim that the quantifier “floats” away from the DP (Postal 1974), and is translated into Sportiche’s trace theory by the idea that *all* is simply a part of the DP which is simply stranded when the DP raises.²² Expanding the trace theory to allow *all* to modify PRO as well requires a substantial modification of this theory such that parallel to the DP in (37a), we have that in (37b), again a point noted by Bowers 1993:²³

- (37)
- a. [DP *all the students*]
 - b. [DP *all PRO*]

This modification is possibly problematic on analyses where PRO receives “null case” (Chomsky 1993) or is caseless, since it would entail that *all* is marked for null case or is caseless. However, in languages which show overt agreement on the quantifier, the quantifier which should be receiving null or no case in (37), agrees with the subject DP.

²¹ See Sigurðsson 1991 for evidence that PRO may serve as an antecedent to a floating quantifier in Icelandic, supporting at least the possibility of this line of reasoning. Note that for Sigurðsson, PRO is the antecedent of the floated quantifier, while the quantifier itself is “adjoined” to the trace of PRO.

²² Curiously, no attempt has been made in the literature, that I am aware of, to reconcile this view with the fact that extraction out of DPs stranding a determiner in the environments posited for Q-float is generally quite ungrammatical (i), even though such extraction is possible in some cases, such as topicalization (ii):

(i) * Of these children, (there) seemed many/some to be enjoying themselves.

(ii) Of these children, many / some seem to be enjoying themselves.

²³ In many languages, the determiner (and floated) *all, each, etc...* may stand alone, in which case they mean *everyone, everything, ...*:

(i) Все курят траву.
vse kurjat travu.
all-pl smoke grass
'Everyone is smoking grass.'

(Russian)

(ii) Tout va bien
all-masc goes good
'Everything is going fine.'

(French)

This is clearly distinct from (37b), since these structures involve, if anything, pro, i.e. a case-marked category, and not PRO which by definition occurs in non-case marked positions.

(38)

- a. Strákarnir hafa komið [**allir** með sömu bókina].
 boys.the.nom have come all.m.pl.nom with same book.the
 ‘The boys have arrived, all with the same book.’
- b. Strákunum hafa leiðst [**öllum** í sömu timunum].
 boys.the.dat have been.bored all.pl.dat in same class
 ‘The boys were bored, all in the same class.’

(Icelandic)

(39)

- a. Il vaudrait mieux mettre ces crayons [**tous** dans un seul tiroir].
 it wants better put these pencils(m) all.m.pl in one lone drawer
 ‘It would be better to put those pencils all into one drawer.’
- b. Il ne fallait pas mettre les pommes [**toutes** dans le même panier].
 it neg must not put the apples(f) all.f.pl in the same basket
 ‘It wasn’t necessary to put the apples all into the same basket.’

(French: Kayne 1975:48)

I restate the point, since it is important. In examples like (39), just as in the previous examples in this chapter, there is no plausible subject trace at the position of the floating quantifier. A theory could be envisaged which would posit PRO in the specifier (or subject position) of XP adjuncts, such as the PPs in these examples. This theory, would then maintain that *all* could modify PRO, as well as *trace*, viz., the structure in (37b). The morphological form of floating quantifiers in such positions speaks loudly against such a proposal. The benefit of the PRO proposal is that these positions are *not* case-positions (though they could plausibly be theta-positions), and so [DP PRO] is expected to bear null or no case. The form of *all* is that of the subject, agreeing in both agreement features and case. The default form is not licit in these constructions (see also the next section below). Further, as we shall see, there are other problems with the claim that a floating quantifier may be adjoined to PRO. I turn to these now.

2.3 *PRO and event modification.*

Following Maling 1976, I noted above that floated *all* may appear to the right of objects and other verbal arguments if there is some predicate to the left edge of which it may adjoin. How could it be interpreted in such a position ?

Recall the preliminary version of the semantic-interpretive rule I proposed above for *all*:

(1) *Quantifier-Floating Construal (QFC)*

Adverbial *all* adjoined to a predicate causes that predicate to be maximally distributive w.r.t. a group (or mass) argument of that predicate which is in an A-position and which c-commands the adverb.

All the cases we have been discussing so far have involved subject-orientation of the quantifier. This should be entirely unspectacular with respect to the VP or auxiliaries. The subject is an argument of the predicate denoted by the V, or the VP, or the phrase [auxiliary plus VP]. Our semantic-interpretive rule will combine with either VP, and modify the predicate accordingly, with respect to the c-commanding argument, i.e. the subject.

It has been argued at least since Davidson 1967 that predicates take not only DP (i.e. individual <e>) arguments, but also take an event argument <s> in order to form a sentence with a truth value (type <t>). VPs are therefore more accurately of type <e,<s,t>. Consider now the case of the PP adjuncts, especially spatio-temporal ones, such as in (40):

(40)

The linguists cleaned their apartments [all on { the same day }
Sunday]].

In this example, it is not entirely clear exactly what *all* forces the predicate *on Sunday/ on the same day* to be maximally distributive with respect to. I suggest, following Parsons 1990 among others, that such adjuncts have an unsaturated event argument. That is, a representation of a temporal adjunct such as [pp on Sunday] would be that it introduces a conjunct to the logical form, modifying the event. An abbreviated logical form of (40) (without the quantifier) would then be something like (here \underline{s} is an event):

- (41) (\underline{s}) such that PAST (\underline{s}) & clean (apartments) (linguists) (\underline{s}) & on Sunday (\underline{s})

Our rule would predict then, that *all* should combine with the predicate *on Sunday* to modify its unique unsaturated argument, i.e. the event contributed by the matrix Infl node. The prediction is that the maximal effect of *all* here should not be forced on either the group denoted by [the linguists] nor on that denoted by [their apartments] but rather on the group of events which are [linguists cleaning their apartments]. The reading is that all of these events took place on Sunday. Any implicatures concerning linguists or apartments should be derivative of this basic meaning of event modification. The judgments are murky; it is quite difficult to distinguish between the two in most cases.²⁴

²⁴ Saliency of modification of the event argument may provide the key to some of the differences in judgments noted above between myself and Pesetsky. Thus, in (12b), repeated here as (i), the definition in the text would allow *all* to modify the predicate with respect to either the subject group [the Canadians] or the group of events, as in (i):

(i) The Canadians *all* voted for Chrétien.

Perhaps the reading which Pesetsky allows, is one in which *all* enforces maximal distributivity over the events of Canadians voting, entailing that all such events were in favour of Chrétien (or his party). This reading may be consistent with a non-maximally distributive interpretation of the group denoted by the Canadians, with respect to the predicate [vote for Chrétien] as in (12a), i.e. (ii):

(ii) The Canadians voted for Chrétien.

I have yet to devise or have suggested to me a clever test to tease apart these various possibilities.

However, allowing direct modification of the event argument seems too powerful. That is, in the case of the adjuncts considered, especially the Icelandic case below, it is quite clearly the event argument which is at stake. But if *all* could modify an event argument of a main clause directly, then something like (iii) should be permitted, with multiple events, but a single subject and object. This example is ungrammatical; *all* cannot be construed with the event argument.

(iii) * Ayumi has *all* read this book over and over / many times.

Certainly, modification of the event argument in such cases is at least possible. The test case involves multiple events, with all other arguments single. Thus, take a hypothetical situation in which Danny lives in a collective living arrangement and each member has a set of prescribed chores. The chores are performed more than once over a span of time, let us say eight times per semester. Now, the following example:

(42) Danny has cleaned the bathroom eight times this semester, all on one day.

The sentence, for me, and for (most of) those I consulted is perfectly acceptable from a grammatical standpoint, if not from the standpoint of social obligations. The meaning is that he cleaned the bathroom eight times on one day, trying to fulfill the obligation for the whole semester, but with minimal effort.²⁵

Here, there are no plural arguments in the clause, and *all* obviously modifies the event argument. I maintain that this is also the case in other examples discussed above where *all* is adjoined to the left-edge of an event modifying predicate.

Though there are no plural arguments in (42), there is a plural DP *eight times*, which also modifies the event. One could suggest that the floating quantifier *all* is licensed by that DP. Evidence from languages with obligatory agreement of quantifiers with the DPs they are associated with indicates against this. In Icelandic, the quantifier *allur* obligatorily agrees in gender, case and number with the DP it modifies (see also §2.2, above). In Icelandic the equivalent of (42) is also possible with *allur* modifying the temporal adjunct *á einum degi* 'on one day', though it must occur in the neuter nominative

(iv) * Ayumi has *all* cooked dinner every night this month. *

²⁵ Obeying, e.g. Richards 1995's *Principle of Minimal Compliance*.

(43a). The plural DP *8 sinnum* ‘eight times’ is neuter, plural, dative, but agreement with this by the quantifier is ungrammatical (43b). The neuter, nominative form is the default, indicating that the quantifier is modifying the unsaturated argument of the predicate, i.e. the event argument of the clause, and not the DP *8 sinnum* ‘eight times.’²⁶

(43) *Event modification in Icelandic*

a. Konan þvoði bílinn 8 sinnum [*allt* á einum degi].
 the.woman washed the.car 8 times all on one day
 neut.pl.dat neut.sg
 ‘The woman washed the car 8 times, all on one day.’

b. * Konan þvoði bílinn 8 sinnum [*öllum* á einum degi].
 neut.pl.dat pl.dat

(Icelandic.)

Modification of the event argument is a problem for the trace theories of floating quantifiers, such as Sportiche 1988. In §2.2, I suggested that the trace theory would have to be extended to allow *all* to modify PRO, as well as traces, abandoning the stranding account of the association. Event modification may be a problem for even this extended view, since it entails that, not only can PRO be controlled by (true) arguments in the matrix clause (subject, object, etc...) and perhaps receive an arbitrary reading, but in addition, the discussion of this section would force the proponents of the trace + PRO theory to posit PRO controlled by the matrix event. This is quite a serious departure from standard assumptions, about theta-theory, argumenthood and PRO, and I will therefore hold event-oriented *all* as a problem for the trace-based theory of floating quantifiers.

²⁶ Intriguingly, the corresponding use of *vsjo* ‘all’ (neut,sg,nom) in Russian is not fully grammatical.

(i) * Она это сделала 8 раз, всё в один день.
 ona èto sdelala 8 raz, vsjo v odin den’
 she this did 8 times, all in one day
 ‘She did this 8 times, all on one day.’

(Maria Babyonyshev, pc.)

2.4 Another problem for [*all* PRO]: case mismatch

In order to account for the wealth of examples which involve a floating quantifier occurring at the left edge of some adjunct or secondary predicate, including Maling's 1976 examples, it was suggested that the trace theory could have recourse to PRO. Thus, the analysis of (38) repeated here as (44) would be analysed as indicated with PRO in the specifier of the adjunct, coindexed with the subject.

(44) =(38) repeated

- a. Strákarnir_i hafa komið [*allir* PRO_i með sömu bókina].
 boys.the.nom have come all.m.pl.nom with same book.the
 'The boys have arrived, all with the same book.'
- b. Strákunum_i hafa leiðst [öllum PRO_i í sömu timunum].
 boys.the.dat have been.bored all.pl.dat in same class
 'The boys were bored, all in the same class.'

(Icelandic, 11/05/95:2)

Above, I noted one problem for such an approach, namely that the PRO theory would have to be expanded to allow PRO to be controlled by the event argument of the matrix clause in cases like:

(45)

- a. Danny has cleaned the bathroom eight times, all last Sunday.
- b. Konan þvoði bílinn 8 sinnum [*allt* á einum degi].
 the.woman washed the.car 8 times all on one day
 neut.pl.dat neut.sg
 'The woman washed the car 8 times, all on one day.'

In the examples in (44) we see that the floating quantifier in the adjunct phrase agrees obligatorily in person, number and case with the subject of the matrix clause. Especially on a theory involving "null" case (Chomsky 1993), or case-free PRO (Chomsky 1981), this poses an initial problem since *all* would be taken to be inside the DP [_{DP} all PRO]. Hence, we have a potential case-mismatch problem. But the problem is

much deeper than this. Sigurðsson 1991 has shown that elements which typically show agreement with the subject of a clause (participles, predicate adjectives and floated *all*) show the case and agreement morphology which would be associated with the finite subject of a clause, even when that subject is PRO. The examples in (44) show that the subject of *leiðast* ‘to be bored’ is quirkily marked dative. When a clause with *leiðast* ‘to be bored’ as the main verb is non-finite, elements such as floating quantifiers still show dative agreement, as if PRO were marked with the case that it should bear in a finite clause. Similarly with other verbs assigning quirky genitive or accusative to their subjects. Following Sigurðsson, I indicate in the gloss under PRO the case that the embedded subject would have were the clause finite.

(46) *agreement with PRO in embedded, non-finite clauses*

- a. Strákarnir vonast til [IP að PRO komast **allir** í skóla].
 boys.the hope for to (nom) get all.m.pl.nom to school
 ‘The boys hope to all get to school.’
- b. Strákarnir vonast til [IP að PRO leiðast ekki öllum í skóla].
 boys.the hope for to (dat) be.bored not all.pl.dat in school
 ‘The boys hope to not be all bored in school.’
- c. Strákarnir vonast til [IP að PRO vanta ekki **alla** í skólann].
 boys.the hope for to (acc) lack not all.acc in school
 ‘The boys hope to not all be absent from school.’
- d. Strákarnir vonast til [IP að PRO veðra **allra** getið í ræðunni].
 boys.the hope for to (gen) be all.gen mentioned in speech.the
 ‘The boys hope to all be mentioned in the speech.’
 (Icelandic, Sigurðsson 1991:331-2)

The case forms of the floating quantifiers are those which would agree with the finite subjects of the predicates, quirky or otherwise (i.e. the first one is nominative). Sigurðsson concludes from this that PRO does in fact bear or check case. But here we are in a paradox, if we accept that the floating quantifiers are part of PRO. The floating quantifiers in the embedded clauses in (46) have their case and agreement controlled locally, by the predicate to which they are adjoined and/or the features of PRO. Note that

the matrix subject is nominative in all four examples. In (44), the form of the quantifier is controlled by the matrix subject. If it were controlled by local elements in the adjunct phrase, then there should be no variation in case for the floating quantifiers in (44) dependent on the matrix subject. From this, we have another reason to reject the theory which would have the floating quantifier as a part of [DP PRO]. In Icelandic, a floating quantifier adjoined to a predicate agrees with the subject of that predicate, or with what would be the subject if the clause was finite. If there is a mismatch in case features between the PRO subject of the local environment and the subject of the matrix clause (the controller of PRO), then (46) shows quite clearly that the mismatch is always resolved in favour of the local features. The conclusion is that the floating quantifiers on the left edge of predicate adjuncts as in (44) and elsewhere in this chapter are being controlled directly by an argument of the matrix clause and without the mediation of PRO.

Note finally that I do not necessarily exclude a theory in which there is a PRO in the adjunct (i.e. the predication theory of Baltin 1995) or in which there is an invisible functional projection licensing the adjunct and containing PRO (i.e. the predication theory of Bowers 1993). The considerations above are compatible with those theories, if it is allowed that floated *all* be adjoined somewhere above the PRO. If it were adjoined below PRO, then it should agree with it, just as floated *all* agrees with its local PRO in (46).

2.5 *All can't always be a part of the trace.*

The second supposed conceptual argument in favour of the subject-trace view ((ii) of (3)) is that “we know independently that *all* can occur as part of an DP” as in [DP *all the students*]. Thus, Sportiche’s analysis and related proposals assume that the DP raises, stranding the quantifier. In 2.2, I noted one problem with this approach,

namely that floating quantifiers would have to be allowed in positions occupied by PRO as well, though there is no movement out of such positions, to strand the quantifier, and further, that there is a case/agreement mismatch in languages which show agreement on floating quantifiers. There is, I believe, another reason to question the validity of this conceptual argument. In particular, I suggest that there are DPs which cannot have *all* as a part of them, but which nonetheless may serve as the antecedent for floated *all*.

In (47a), *all* is supposed to have been a part of the DP [DP all the students] as in (47b):

- (47)
- a. The students might *all* have left in one car.
 - b. [DP All the students] might have left in one car.

Intriguingly, floated *all* seems possible (for me, and most of those with whom I consulted) in (48a), though, as (48b) shows, it could not be a part of the DP which antecedes it.

- (48)
- a. Some (of the) students might *all* have left in one car.
 - b. * All (of) some (of the) students might have left in one car.

The (a) sentence is grammatical, with the partitive reading of *some*, i.e. there exists a group of students, every member of which group crammed together into a single car and drove off. This reading is not unexpected under the semantics of *all* proposed above. The subject DP *some (of the) students* denotes a group, and the adverbial *all* enforces “maximal distributivity” of that predicate with respect to the group. However, in the case of specifier *all* as in (48), though the intended reading can be forced, it is quite sharply degraded. On the approach which takes *all* to be a part of the DP at some level, the contrast in (48) is unexplained.

A similar contrast is observed with conjoined DPs, as Heidi Harley has pointed out (personal communication). In the following examples, there is a clear interpretive contrast between the examples with *all* as a part of the conjoined DP, in which case it has a quantificational force, and *all* in its floated position. Similar examples obtain with *both*.

(49) *Floating quantifiers and conjoined DPs*

- a. All (the) students and professors came to the show.
• quantifies over students or students and professors.
- b. Students, professors and clowns *all* came to the show.
- c. Students and professors *both* came to the show.

The interpretation of the (b) and (c) examples are quite curious here. It is certainly not the case that the (b) example has the same entailments or truth conditions as the (a) example. Rather, the preferred meaning for me is with existential quantification for the bare plural DPs: there were students who came to the show, and there were professors who did, and there were clowns who did. On the theory I am advocating, the force of *all* is redundant in (b), admittedly a potential problem unless *all* really is redundant in that position. On the trace theory, though, the force of *all* in (b) should be the same as in (a), since in both cases it is a quantifier quantifying over the subject DP. A similar effect obtains with proper names, as noted by Danny Fox (personal communication):

(50) *All with personal names*

- a. ?? All (of) Seth, Pilar and Diana have left in one car.
- b. Seth, Pilar and Diana have (all) left in one car.

The (b) sentence is certainly quite natural, whereas the (a) sentence is not at all so. Again, on the trace theory, these facts are at best quite surprising, as they point to instances in which the DP from which *all* is floated is not a legitimate host for non-floated *all*, and further, the interpretations of the sentences are strikingly different.

A final observation along these lines concerns again the adjuncts which above I suggested could be analysed on the trace theory as containing PRO (Sportiche, recall, analyses them as containing $[_{NP} FQ e]$, i.e. Fiengo & Lasnik's 1976 and Maling's 1976 observations. Consider the following sentence:

(51) The magicians have *all* reappeared, *each* at a different spot on the stage.

As *all* and *each* are incompatible with a single DP, there clearly cannot be a subject trace which *each* is modifying in (51). There are too many ways to analyse this sentence for it to tell us much, though.

3. The adverbial nature of floating quantifiers

Having now seen a number of ways in which the trace view of floating quantifiers is substantially inadequate, I will move to a range of phenomena where floating quantifiers display behavior characteristic of adverbs, but which would be quite unexplained if they were to be taken as indicating traces of DP arguments. In particular, the interaction of floated *all* with other adverbs is considered (§3.1) and we see that, making a distinction between *all* as floating quantifier and “completive” *all*, both elements show quite similar ordering restrictions to other adverbs. Floated *all* is a modal adverb and completive *all* is a preverb. The interactions with other adverbs are quite typical. Additionally (§3.2), I note evidence from Déprez 1994 which shows that at least some floating quantifiers in French trigger semantic/syntactic effects typical of adverbs, which the same lexical elements do not induce as part of a DP. In the case of French *chacun* ‘each’, the effect is that of weak islandhood. Finally (§3.3), I will counter the possible objection from the trace camp, noted above as a conceptual argument in its favour. That is, it has been suggested that the introduction of interpretive rules for floating quantifiers in addition to those necessary to

interpret the quantifier as part of DP is the addition of extra machinery, and hence should be dispreferred. The logic of this argument is sound, however its premise is flawed; I will demonstrate that interpretive rules which construe an adverb with some other argument are independently necessary in English and thus the interpretive rules introduced for *all* in section 1 are at worst wrong, but not necessarily superfluous.

3.1 *Floating quantifier ~ adverb interactions*

The interaction of floating quantifiers with other adverbs, especially in terms of permissible orders, is another source of information which should help us distinguish among differing proposals. Here, though, we are in somewhat of a quandary, lacking a well-worked out theory of adverb placement and its interaction with structures in the current model.

However, there are some generalizations which emerge, and these are, I believe, instructive. In the first place, in order to control for effects of *have/be* raising and the vacuous projections on the IP/VP boundary, I will use many examples involving a string of auxiliaries, nesting the floating quantifier between the auxiliaries.

Before considering the data, a word is necessary to bring to mind what I am trying to show. It is well known that there are reasonably fixed orderings among different kinds of adverbs in English, and which serve to disambiguate different possible readings of the same adverb (see Jackendoff 1972, Travis 1988 among others in the generative literature). For example, preverbal manner adverbs such as *carefully* precede preverbal completive adverbs such as *entirely*, as seen in (52). Postverbally, the preferred order is reversed.

(52) *Partial orderings of adverbs in English:*

- a. Tony has carefully entirely eaten the sandwich.
- b. * Tony has entirely carefully eaten the sandwich.
- c. * Tony has eaten the sandwich carefully entirely.
- d. ? Tony has eaten the sandwich entirely carefully.

Especially given the fact that the order of adverbs in inverted post-verbally,²⁷ it seems unreasonable to assume that grammars admit of explicit statements of precedence relations. Rather, structural relations seem to be at stake. It seems to be that adverbs enjoy relatively fixed positions in the structure, correlating with their interpretive properties. Assuming this to be the case, the trace theory and adverbial theory of floating quantifiers make once again different predictions. Assuming that trace positions are hierarchically fixed, floating quantifiers should have a consistent position among adverbs no the trace theory. For instance, if subject-traces are in Spec,VP then subject-oriented *all* should follow VP-adjoined adverbs but precede V'-adjoined adverbs. Greater freedom might be expected on the adverbial view. While the various classes of adverbs are ordered with respect to one another, within each class of adverbs, ordering is relatively free. Thus, the adverbial view predicts that floating quantifiers should fall into one or another class of adverbs, varying freely in order with other with that class, but with a fixed order relative to other classes. The latter prediction turns out to be correct: floating quantifiers pattern with modal adverbs. Note that the distinction between floated *all* and what I have called completive *all* above becomes important again here, since completive *all* is not a modal adverb but rather a completive adverb. The two *all* elements thus show not only different distributional properties with respect to the possibility of a singular, count antecedent (as discussed above), and interpretive differences, but also quite regular differences in word order interactions with other classes of adverbs.²⁸

²⁷ See, for instance, Andrews 1983.

²⁸ In addition, note the order of adverbs and *all* in PP and adverbial adjuncts:

(i) From every direction, the students converged [pp all exactly at six o'clock.]

David Pesetsky (personal communication) observes the following facts about the interaction of floated *all* and adverbs with more than one possible reading.²⁹ Consider (53).

(53) The thief could have *easily* opened the safe.

Easily in (53) is ambiguous between a manner reading ('The thief could have opened the safe without any difficulty') and a modal reading ('It is quite plausible that the thief could have opened the safe'). But as Pesetsky observes, this ambiguity is lost if *easily* occurs higher in the phrase. Only the modal reading is available for the sentences in (54).

- (54)
- a. The thief could *easily* have opened the safe.
 - b. The thief *easily* could have opened the safe.

Adding floated *all* into the equation, we find that both orders of *all* and *equally* are possible in the position between *have* and *opened* (53).

- (55) *Manner and modal readings:*
- a. These thieves could have *all easily* opened the safe.
 - b. These thieves could have *easily all* opened the safe.

In the (b) example, the manner reading of *easily* is precluded, only the modal reading is available, just as in (54). This is relatively unsurprising on the subject-trace

(ii) *[pp exactly all at six o'clock.]

The order is fixed: [*all* - adverb - predicate]. There are many ways to derive this order, but the union of two common hypotheses: subjects are in specifiers and adverbs adjoin only to maximal projections, makes exactly the wrong predictions on the subject-trace hypothesis.

²⁹ Exx (53) - (56) are drawn from notes which David Pesetsky kindly lent me. I have adapted his examples, and report here on much of his discussion. My conclusion, though, is at odds with his.

view, if manner adverbs are adjoined between the subject trace and the verb. If the subject (trace) is in Spec,VP, then manner adverbs must adjoin to V'. The lack of a manner reading in (55b) is straightforward – if *easily* is to the left of the floating quantifier, then it cannot be V'-adjoined and must receive the modal interpretation. The floating quantifier cannot intervene between a manner adverb and the verb.

As Pesetsky further observes (attributing the observation to Carol Tenny), there is an ordering restriction such that completive adverbs must occur inside even manner adverbs (see Jackendoff 1972, Travis 1988 for discussion):

(56) *Modal, Manner > Completive:*

- a. This thief can *easily completely* crack a safe in 5 minutes flat.
- b. * This thief can *completely easily* crack a safe in 5 minutes flat.

Adding *all* into the equation once again, the floating quantifier unsurprisingly must occur outside the completive adverbs:

(57) *All > Completive adverb:*

- a. These thieves could *all completely* crack this safe in 5 minutes flat.
- b. * These thieves could *completely all* crack this safe in 5 minutes flat.

Thus far, we observe the following ordering restrictions:

(58) *Adverb ordering in English, left edge of VP:*

$$\left\{ \begin{array}{l} \text{Floating Quantifier} \\ \text{Modal Adverb} \end{array} \right\} \gg \text{Manner Adverb} \gg \text{Completive Adverb}$$

The ordering of floating quantifiers is thus determined relative to the other two types of adverbs, but it is not ordered relative to modal adverbs. Either order is possible, even relative to a single projection.

(59) *All ^ Modal Adverb (Freely ordered):*

- a. The thieves could *all easily* have opened the safe.
- b. The thieves could *easily all* have opened the safe.

There are two points to be made here. The first is that, as (56) shows very clearly, any theory must accept relative ordering constraints on adverbs of different types adjoined to a single projection, e.g. VP. More importantly, if these ordering constraints are stated in terms of projections to which adverbs may attach, then elements in a subject trace position should show a fixed order relative to adverbs. While *all* must precede manner and completive adverbs, in this it behaves like a modal adverb. Furthermore, just as there are no ordering restrictions within a single class of adverbs, *all* seems to be freely ordered with respect to modal adverbs. We saw this in (59), and further examples are given in (60):

(60) *All ^ Sentential Adverb (Freely ordered):*

- a. The thieves might *all suddenly* have got scared and left.
- b. The thieves might *suddenly all* have got scared and left.
- c. The thieves have *all certainly* been apprehended.
- d. The thieves have *certainly all* been apprehended.

In terms of ordering restrictions then, floating quantifiers behave like adverbs, and in particular like modal adverbs for the most part, though there are some subtleties. At this point, what I called the “completive” *all* above (22) becomes relevant again. Consider the pair in (61).

(61) *Completive all.*

- a. The carpet has been **all** dusted.
- b. The carpet has been **entirely** dusted.

(from (22))

cf. *all done, all finished, all gone, all alone, all wet ...*

Recall that some adverbs are ambiguous between more than one type, as illustrated with *easily*, above, which allowed a modal or a manner reading. The innermost class of

adverbs was what I called “completive” adverbs, which seems to accord well with the meaning of this “completive” *all*. Thus, we have a prediction. If *all* is an adverb and, in addition to its modal use, it may be used as a completive adverb, then it should be freely ordered with respect to other completive adverbs, but must occur inside of manner and modal adverbs. This prediction seems to be borne out. The (b) and (c) sentences sound awkward to me, but only to the extent that (d) does as well, i.e. that they introduce a redundancy. These three contrast radically with violations of the ordering constraint as in (63).

(62) *Completive all ~ completive adverbs:*

- a. This thesis will (soon) be *all* finished.
- b. This thesis will (soon) be *all entirely* finished.
- c. This thesis will (soon) be *entirely all* finished.
- d. This thesis will (soon) be *entirely completely* finished.

(63) *Manner adverbs > completive all.*

- a. This thesis will be *easily all* finished by Monday.
- b. * This thesis will be *all easily* finished by Monday.
- c. This thesis will be *surely all* finished by Monday.
- d. * This thesis will be *all surely* finished by Monday.

A final subtlety. Completive adverbs appear very awkwardly above the first projection of the predicate they modify, and quite markedly if at all between the subject DP and the finite auxiliary. Thus, completive *all* should be awkward there, too. Care must be taken to distinguish completive *all* from *all* floated off a morphologically singular mass noun, though. I believe the judgments support the predictions of my theory:

(64) *Positions of completive adverbs:*

- a. This meeting will have been *completely* wrapped up in an hour.
- b. ?* This meeting will have *completely* been wrapped up in an hour.
- c. * This meeting will *completely* have been wrapped up in an hour.
- d. * This meeting *completely* will have been wrapped up in an hour.

(65) *Positions of completive all:*

- a. This meeting will have been *all* wrapped up in an hour.
- b. ?? This meeting will have *all* been wrapped up in an hour.
- c. * This meeting will *all* have been wrapped up in an hour.
- d. * This meeting *all* will have been wrapped up in an hour.

Note that the count versus mass distinction, if that is the appropriate one, is quite hard to make in terms of many nouns. Thus, for me, *agenda* has a different feel if it is being *written*, in which case it is a count noun, or being *discussed*, in which case it has mass-noun like qualities. Compare also *bottle* (singular, count) versus *wine* (mass):

(66) *Mass or space readings and all:*

- a. ?* This agenda has *all* been written by me.
- b. ? This agenda has *all* been discussed before.

(67) *Mass versus count nouns and all:*

- a. This bottle has (**all*) been (*all*) drunk by Susi.
- b. This wine has (*all*) been (*all*) drunk by Susi.

In the (a) examples, the noun is a singular count noun and therefore is compatible only with completive *all*, which must occur innermost and adjoined to VP. In the (b) examples, the noun, though morphologically singular, is a mass noun and thus may license floated, manner *all* as well as completive *all*. A final test to distinguish between floated and completive *all*, as pointed out by Danny Fox, is compatibility with an inherently non-completive adjunct, such as *to some extent*. Completive adverbs, including *all* are semantically incompatible with this adjunct, whereas floated *all* is of course compatible with it:

(68) *Completive all and non-completive adjunct.*

- a. # This box has been $\left\{ \begin{array}{c} all \\ entirely \end{array} \right\}$ painted to some extent. (completive)
- b. # This dog has been $\left\{ \begin{array}{c} all \\ entirely \end{array} \right\}$ petted to some extent. (completive)
- c. These carpets have *all* been dusted to some extent. (floated)
- d. These books have *all* been written in to some extent. (floated)

In sum, to the extent that the judgments have been clear in the past section, floating quantifiers pattern quite regularly with adverbs in terms of the admittedly poorly understood ordering restrictions of English. This is, of course, quite difficult to explain if one wishes to maintain the floating quantifiers mark the positions of traces and perhaps of PRO.

A common objection to the view that floating quantifiers are adverbs is that in many Indo-European languages, they, unlike the more canonical adverbs agree obligatorily in features like gender, number and case with the DPs with which they are associated. One could take a weak position and suggest that some floating quantifiers marked subject traces, while others are adverbs, and the two happen to have the same morphological shape in English. The “completive” *all* in (27) - (28) has the most adverb like properties. However, Kayne 1975 has shown that French also has exactly this completive *tous* ‘all’, and that as expected it is subject to semantic compatibility restrictions with the predicate. Thus, it is compatible with an accomplishment like *eat* which can be completed, but is much more marked with an activity like *watch*, which is much less easily compatible with the meaning of *entirely*, or *completely*.

(69) *Completive all in French:*

a. La tarte a toute été mangée par les enfants.
 the pie has all been eaten by the children
 'The pie has been completely eaten by the children.'

b. * La pièce a toute été vue par les enfants.
 the play has all been seen by the children
 (The play has been completely seen by the children.)

(French, Kayne 1975:56)

3.2 *Floated and prenominal chacun 'each'.*

There is potentially another source of an argument that floating quantifiers are not merely pieces of subjects, left behind in the trace position. This comes from the behaviour of at least one such element, floated *chacun* 'each' in French. Though there is debate over some aspects of the data, a surprising fact seems to be that floated *chacun*, like many other adverbials, but unlike determiner *chacun*, creates a weak island for extraction (Déprez 1994). Further, prenominal *chacun*, but not floated *chacun*, induces the same pseudo-opacity effect as other quantificational elements, while adverbs do not induce this effect (Tellier & Valois 1993). Though I merely scratch the surface of the literature on this, there would appear to be converging evidence from two domains that the *chacun* which occurs within a DP (prenominal *chacun*) and floated *chacun* are structurally different, and in particular that floated *chacun* is an adverb.

Taking the weak-island inducing property first, Déprez 1994, citing Szabolcsi 1992, notes that certain adverbs in French induce a weak island, blocking extraction of elements such as adjunct *comment* 'how':

(70) *Adverbs induce weak islandhood:*

* Comment n'as tu jamais résolu de problèmes ?
 how not-have you never solved of problems
 lit. 'How did you never solve problems ?'

(Szabolcsi 1992, cited in Déprez 1994:fn5)

A standard test for extraction differences in French involves fronting of *combien* 'how many' out of a DP, leaving the remainder of the DP behind (Déprez 1994, and references therein). As Déprez demonstrates, prenominal, determiner-like *chacun* and floated *chacun* behave differently. In (71), we see that, in the (a) example, where *chacun* 'each' is a determiner-like element, at the left edge of the group DP, "split" *combien* 'how many' extraction is possible. However, when *chacun* is floated, as in the (b) example, such split extraction is not possible.

(71) *Chacun induces a weak island.*

- a. Combien est-ce que tu crois que [DP *chacun* de ces enfants] enverra de cartes postales a ses parents?
 how many do you believe that each of these children will send of postcards to their parents
 'How many postcards do you believe each of these children will send to their parents?'
- b. * Combien est-ce que tu crois que ces enfants enverront *chacun* de cartes postales a ses parents?
 how many do you believe that these children will send each of postcards to their parents
 'How many postcards do you believe that these children will each send to their parents?'
 (French, Déprez 1994:6)

This fact alone is quite surprising on the subject-trace view. There is no clear reason why *chacun* when it is part of an DP as in (71a) should not create an inner island, while when it is stranded by the DP, but in the same structural configuration, as in (71b) the islandhood surfaces.

There is another range of differences which distinguish floated and determiner-like *chacun* one from the other. Tellier & Valois 1993 note a range of constructions which pattern distinctly from (71), in which the prenominal quantifier *chacun* blocks extraction of *combien* 'how many', while floated *chacun* – which Tellier and Valois analyse as an adverb (p. 577f) – does not block extraction, patterning thus with other adverbs. Consider first the relevant contrast between quantificational elements and adverbs. Obenauer 1984 noted that the prenominal quantificational element *beaucoup* blocks extraction of *combien*,

whereas, as Tellier & Valois observe, adverbs do not generally trigger this pseudo-opacity effect.

(72) *Pseudo-opacity:*

- a. * *Combien_j as-tu beaucoup consulté t_j de livres?*
 how.many have-you very.much consulted of books
- b. *Combien_j as-tu attentivement lu t_j de livres?*
 how.many have-you carefully read of books
 ‘How many books did you read carefully?’
 (French, Tellier & Valois 1993:580-1)

Once again, there is a difference in behaviour between the prenominal *chacun* and floating *chacun*. The former, but not the latter, also triggers this pseudo-opacity effect, as (73) shows.

(73) *Pseudo-opacity with floated chacun:*

- a. * *Combien_j les professeurs ont-ils lu chacun t_j de livres?*
 how.many the professors have-they read each of books
- b. *Combien_j les professeurs ont-ils chacun lu t_j de livres?*
 how.many the professors have-they each read of books
 ‘How many books each did the professors read?’
 (French, Tellier & Valois 1993:576)

Once again, we see a range of data in which floating quantifiers behave like adverbs, and unlike stranded determiner-like things. However, the caveat must be made that there is no consensus on why the effects discussed here arise. In the absence of a consensus on a theory of the causes of weak islands or of pseudo-opacity effects, we must take this conclusion with some caution. The point, though, is that on two independent counts, floated *chacun* ‘each’ behaves like an adverb, patterning distinctly from the DP-internal quantificational element.

3.3 *Adverbial interpretive rules, all together...*

In the section above, we considered some interpretive consequences of the trace view of floating quantifiers. In particular, I pointed out a number of instances in which the interpretation of the quantifier in floating position was different from, or even incompatible with the possibility of having the quantifier as a part of the DP it is associated with. This was one type of empirical argument against the claim that an interpretive rule for floating quantifiers separate from that for quantifiers which are part of a DP is superfluous. There is another domain from which the necessity of adverbial interpretive rules of exactly the sort I have proposed for *all* in §1 can be demonstrated.

The first observation, pointed out by Kai von Stechow (personal communication), is that there are a number of elements which form a rough class with *all* in terms of the nature of the modification they engender. One such element is *each*, which also floats, as is well known (though it's distribution is somewhat wider than *all*):

(74) *Floated each:*

The horses (each) have (each) eaten a ton of hay (each).

Another such element is the adverbial *together*. This latter is much more interesting for present concerns. Consider the following:

(75) *Together:*

- a. The children built this sandcastle.
- b. The children *all* built this sandcastle.
- c. The children built a sandcastle *together*.

As Dowty 1984 notes, the meaning of *all* here is not readily formalized, though it is intuitively quite similar to the maximality effect we have seen throughout this chapter.³⁰ Just as in the cases of the Canadians voting or the reporters asking questions, the simple sentence (75a) is true even in situations where the predicate is not true of each member of the group denoted by the subject, but the sentence with the floating quantifier is true only if the predicate is in some sense true of every member of that group. Here, however, with predicates that denote collaborative effort such as [build this house], the predicate seems to be true of an individual in case that individual was a participant in the action, but does not exclude the possibility of other participants.³¹ So far, we are not in new territory. Consider now (75c), with *together*.

Here, I have switched to the indefinite object *a sandcastle* since the indefinite in general allows a distributive reading of the predicate.³² That reading is blocked by *together*, which forces the collective/collaborative reading. In this way, it seems to fall in with *all* (maximally distributive) and *each* (truly distributive) in that all three modify the subject or the predicate with respect to the subject along the collective/distributive dimension. *Together*, however, clearly cannot be in a subject trace position in (75c). Though it can appear marginally in pre-verbal position (76a), it is generally most acceptable in the VP-final position in (75c). Further, it cannot occur as a part of an DP, hence we have no reason to associate it with DP-trace (76b).

(76) *Together is not a floating quantifier:*

? The children *together* built a sandcastle.

* I saw [_{DP} together the children].

³⁰ The single definite object is important here. An indefinite induces the potential of true distributivity with each child building a different sandcastle.

³¹ Relevant in this regard may be (i), though discussion is way beyond the scope of the present discussion:

(i) The children have all built this sandcastle with help from their parents.

³² Cf. The children each built a sandcastle.

Now, for *together* at least, we obviously and inescapably require a semantic-interpretive rule which says something like:

(77) *Togetherness*:

together applied to a predicate
entails that the predicate is *collective*
with respect to some argument.

Thus, semantic-interpretive rules which modify predicates with respect to the external argument, relative to the *collective/distributive* property are independently motivated. This removes that objection to the adjunction hypothesis.

Note that a similar argument can be made from subject-oriented adverbs, and in fact has been made. Sportiche 1988:428ff's sole argument against analysing *all* as a VP-adjoined modifier develops an earlier argument by Jackendoff. Sportiche supposes a principle which says that modifiers, including adverbs, must be sisters to whatever semantic type they modify (or sister to a head).³³ Since floating quantifiers modify simultaneously both *subject* and proposition (i.e. VP), they must be sister to both, which is, he claims, only possible on a structure in which the floating quantifier occupies the position of the subject trace, sister to VP (or equivalently specifier of VP).

On the same page, in a footnote, Sportiche makes the following observation:

“... It seems to me rather plausible to claim that subject orientation has nothing to do with subjects. It might be a case of an adverb modifying V[^{max}] ..., where the appearance of subject modification is derivative: if John's answering the question was clever, the agent of answering is clever. This would explain why ... a manner adverbial in a subject-oriented adverb slot can qualify the actor or agent and not the subject. A passive sentence like *Jean a intelligemment été surveillé* can be paraphrased as 'It was

³³ See Travis 1988 for a proposal in which adverbs may be adjoined to heads.

intelligent (of whoever) to keep close tabs on John' but not 'It was intelligent of John to be kept close tabs on.'..."

(Sportiche 1988:fn11)

This view is of course, entirely consistent with the view of *together* and more importantly that of *all* which I have been promoting.

Williams 1994:ch4 makes the same argument from adverbs like *jointly/separately* which have semantic effects very similar to *all* and *together*. Thus, he gives the following examples as strong evidence for the claim that we need some kind of interpretive rule which modifies the predicate along the lines of collective/distributive readings with respect to some external group argument, and that we need this rule for VP-adjoined adverbs independent of the status of *all*.

(78) *Collective / distributive adverbs:*

- a. They have *jointly/separately* carried out the order.
- b. They have carried out the order *jointly/separately*.

(based on Williams 1994:149)

We now have three sets of arguments that interpretive rules of the type advanced in (14) for adverbial elements. They are needed for *together*, as Kai von Stechow pointed out to me, for subject-oriented adverbs like *intelligemment* 'intelligently' as Sportiche himself observed, and for collective/distributive adverbs like *jointly*, *collectively*, as Williams has noted.

We conclude this discussion by noting that just as distributional arguments in favour of the subject-trace view are curiously lacking, so the principal conceptual argument against the alternative view is also unfounded.

The empirical evidence supports the adjunction view, and the necessary semantic apparatus is independently necessary. In the next sections of this interminable discussion of floating quantifiers, I suggest that the semantic apparatus necessary for the discussion of floating quantifiers is not only necessary, but provides a superior account of the semantics of these constructions when one looks beyond subject-oriented *all*.

4. Conclusion: some final remarks on c-command and agreement.

In this chapter, I have presented a number of arguments to support the view that “floating quantifiers” are adverbs or adverb-like creatures. In the first place, distributionally they do not surface in positions where one would posit DP traces, except when those positions are coextensive with independently motivated adverb positions. Thus, the post-verbal position which is the trace of derived (passive, unaccusative) subjects is not a possible position for floating quantifiers. Furthermore, floating quantifiers surface in a healthy array of positions in which one would not wish to posit a subject trace, though these are clearly potential sites for adverbs. These include the left edges of most adjuncts which are predicated of some c-commanding argument. An alternative is to have PRO occupy these positions and allow floating quantifiers to modify PRO. This, too, is insupportable for two reasons. First, one must then posit that PRO, rather than being caseless or bearing a special case restricted to the subjects of infinitivals, can inherit case from its controller. But this cannot be either. In Icelandic, we find that *allir* ‘all’ in the position where Baltin would posit PRO does indeed agree for person, number and case with the DP it (indirectly) modifies. However, as Sigurðsson 1991 has shown, PRO itself may be an antecedent for a floating quantifier in an embedded clause, and in such cases, the floating quantifier bears the case features that would be assigned to PRO were it in a tensed clause. This indicates that the local environment determines the case on PRO, while a floating quantifier has its agreement features determined by other means.

Thus far, I have not developed a theory of what determines the features that a floating quantifier bears, i.e. what determines the range of possible antecedents for a floating quantifier in an adverbial position. I will not do so now, for reasons primarily of space, but I will detail some of the observations in order to provide what I believe is the relevant description of the appropriate environment. I leave it to future research to answer the question “why this environment?”

4.1 *Antecedent must be an A-position.*

In Chapter III, I extended work by Déprez and others, noting that floating quantifiers were, loosely speaking, licensed by A-movement but not by A'-movement.³⁴ Taking English as perhaps the clearest case, DPs which have undergone passive or raising may be antecedents for a floating quantifier adjoined to a projection which they c-command, while DPs which have undergone A'-movement may not do so (although an A-trace may antecede the floating quantifier). This was one of the primary tests for the A-movement status of object shift in the SOV Germanic languages in that chapter. I repeat the relevant English examples from Chapter III (79)-(80):

(79) *A-movement licenses floating quantifiers.*

- a. The children have *all* been invited to this party.
- b. The children *all* seem to have understood Orin's instructions.

³⁴ *Modulo* the local *L-tous* operation in French which obscures this somewhat. See Chapter III.

(80) *A'-movement does not license floating quantifiers.*

- a. * [NP the professors who Taylor will have *all* met before the end of term]
(relativization)
- b. * These professors, Taylor will have *all* met before the end of term.
(topicalization)
- c. * Which professors will Taylor have *all* met before the end of term?
(*wh*-question)

Thus, one condition on the distribution of floating quantifiers is that the antecedent DP be in an A-position (or have a trace in an A-position).

4.2 *Antecedent must precede or c-command FQ.*

Another condition on the relation between a floating quantifier and its antecedent DP seems to be c-command or linear precedence, an observation due originally, I believe, to Baltin 1978. I repeat his English examples here, rounding the paradigm out somewhat with the (c) example:

(81) *Floating quantifiers must be preceded by antecedent.*

- a. (The) portraits by Picasso *all* hung on the mantelpiece.
- b. There hung on the mantelpiece *all* the portraits by Picasso.
- c. There hung on the mantelpiece portraits by Picasso,
all from different periods.
- d. * There *all* hung on the mantelpiece, portraits by Picasso.
(Baltin 1978:26)

In addition to *there*-insertion contexts, the same point may be made from locative inversion structures:

(82)

- a. In today's mail, **some new linguistics texts** might have *all* arrived with their covers torn.
- b. In today's mail, there might have arrived **some new linguistics texts** *all* with their covers torn.
- c. * In today's mail, there might *all* have arrived **some new linguistics texts** with their covers torn.

(83)

- a. ? On my desk today **three assignments** have *each* appeared at a different time.
- b. On my desk today there have appeared **three assignments**, *each* at a different time.
- c. * On my desk there have *each* appeared **three assignments** at a different time.

The subject, in English, almost always c-commands an element at the left edge of VP. The one notable exception is in locative inversion and there-insertion contexts. However, these contexts are generally restricted to indefinites and existential subjects, which make poor group arguments for floating quantifiers such as *all*. Nonetheless, the contrasts between the (a) and (c) examples in (82) and (83) indicate the relevance of the c-command condition. When the subject does not c-command the floating quantifier (at s-structure, if the subject raises to the expletive at LF), the sentences are utterly ungrammatical.

As Baltin observed, the c-command or precedence requirement seems to hold well beyond English. Baltin gives additional examples from Romanian, French and Persian to support this claim. Jaeggli 1982 observes that Baltin's precedence rule holds for Spanish as well. "Inverted" subjects are incompatible with a floating quantifier in an IP-adjoined position:³⁵

³⁵ Virtually the same paradigm appears to hold of Italian, brought to my attention by Pilar Barbosa. A floated quantifier *tutti* in Italian can be associated with a preverbal subject, but is ungrammatical with a post-verbal subject. This paradigm is taken from Cardinaletti 1994, who in turn cites a 1987 workshop presentation by Luigi Rizzi which I have been unable to obtain.

(84) *Spanish floating quantifiers:*

- a. *Todos* los estudiantes llegaron muy tarde.
all the students arrived very late
'All the students arrived very late.'
- b. Los estudiantes llegaron *todos* muy tarde.
the students arrived all very late
'The students all arrived very late.'
- c. *Llegaron *todos* muy tarde los estudiantes.
arrived all very late the students
(The students all arrived very late.)

(Spanish, Jaeggli 1982:84)

Further the effect obtains in Icelandic and the other object shift languages:

(85) *C-command or precedence in object shift:*

- a. Á barnum drakk stúdentinn bjórin stundum (?)*allan*.
In bar.the drank students.the beer.the sometimes all
'In the bar, the student sometimes drank all the beer.'
- b. * Á barnum hefur stúdentinn *allan* drukkið bjórin.
In bar.the has student.the all drunk beer.the
(In the bar, the student has sometimes drunk all the beer.)
- c. * Á barnum drakk stúdentinn *allan* stundum bjórin.
In bar.the drank student all sometimes beer.the
(In the bar, the student sometimes drank all the beer.)

(Icelandic)

These paradigms illustrate an important observation. The licensing condition on floating quantifiers obtains in the cases just considered for the output string. That is, it is either precedence which is relevant or if c-command, then c-command at s-structure or some equivalent level. Covert operations have been posited in the literature which would raise the postverbal subject in English to the position of the expletive or the canonical

-
- (i) **I soldati** sono **tutti** andati via.
(ii) * Sono **tutti** andati via **i soldati**.
the soldiers have all gone away the soldiers
'The soldiers have all gone away.'

(Italian: Cardinaletti 1994:64)

Pending further testing, this observation must be taken as pure speculation on my part.

subject position in examples (81)-(83). The result of these operations is that the subject NP does c-command the floating quantifier at LF, but the ungrammaticality of the examples shows that this covert movement is not sufficient to establish the required relation between the floating quantifier and its antecedent. Similar considerations obtain for the object shift cases; there may well be a covert operation raising overtly unshifted objects to the derived object position (see Chapter VI). Like English covert raising of postverbal subjects, this is also not sufficient to license a floating quantifier overtly preceding the antecedent.

Precedence alone, however, is not sufficient to block floating quantifiers in certain positions, as the following English examples of adjunct topicalization and Heavy NP Shift illustrate:³⁶

(86) *Precedence alone does not suffice to determine FQ distribution.*

- a. **All** in the one Volkswagen Bug, **the 18 clowns** became quite friendly.
- b. Yesterday, I saw, **all** in the same VW Bug, **18 clowns** with big red noses.

At this point, I leave the conditions on floating quantifiers as underdetermined. There seems to be a tension between relations of c-command and those of precedence, as well as an A-versus-A' distinction. I believe I have delineated some of the relevant factors in determining the distribution of these elements, but leave the remainder of the topic for future research.

³⁶ For a very recent approach to mismatches between hierarchical structure and word order, and an implementation of the idea that conditions on precedence may interact with conditions on hierarchy, see Bresnan 1995.

4.3 Predicted ambiguity of antecedents.

Under the partial characterization of the distribution of floating quantifiers sketched above, we expect to find cases of ambiguity. That is, we expect cases in which there is more than one DP in A-positions which c-command or precede the floating quantifier, and expect that the quantifier should be ambiguous in such cases.³⁷ This gives rise to the type of ambiguity in adjunct construal illustrated by the following, and preserved with a floating quantifier:

- (87) I shot an elephant this morning in my pyjamas.
(example due to Groucho Marx)³⁸

Predictably, addition of plural arguments and *all* modifying the predicate introduced by the adjunct retains the ambiguity. A subject-interpretation is not forced:

- (88) The hunters shot many elephants today, *all* in their pyjamas.

Our second expectation is that floating quantifiers in object shift constructions should be ambiguous between subject and (shifted-) object orientation. This is indeed the case:

- (89) Die Männer haben die Würste nicht *alle* probiert.
the men have the sausages not all tried.
'The people have not all eaten the sausages.'
or
'The people have not eaten all the sausages.'
(German: Uli Sauerland, p.c.)

³⁷ Recall that floating quantifiers, as adverbs, modify a predicate with respect to some argument of that predicate (§1). Thus, arguments of higher predicates which precede / c-command the floating quantifier from A-positions related to the higher predicate are irrelevant:

(i) * The students thought that Rob said that Paul thinks that Norvin has *all* left.

In this example, *the students* is not an argument of the predicate [*vp* leave], which *all* modifies, hence this construal is impossible.

³⁸ Actually, his writer, as David Pesetsky correctly points out. I have not been diligent enough to track down the name of the writer yet... xx S.J. Perleman ??

In Icelandic, this prediction cannot be directly tested, since the floating quantifier, as discussed above, agrees obligatorily in number, gender and case with its antecedent, disambiguating between them even in object shift contexts. However, we observe that both subject-oriented and shifted object-oriented floating quantifiers are licit adjoined to the left edge of the VP:

(90)

- a. Í gær máluðu strákar hús [VP allir rautt].
 yesterday painted the.boys the.house all.m.pl.nom red
 'Yesterday all the boys painted the house red.'
 (Icelandic: =(44a))
- b. Það borðuðu margir strákar bjúgunj [VP ekki öll [VP tj]].
 there ate many boys the.sausages(f) not all (fem.acc)
 'Many boys didn't eat (all of) the sausages.'
 (Icelandic: Bobaljik & Jonas 1994:20)

Obviously, we may state the condition on the morphological form of the quantifier in terms of c-command (with event-orientation triggering default agreement §2). A floating quantifier agrees with the DP argument that c-commands it from an A-position.

Part three

Morphosyntax revisited

Chapter five

The free-agr parameter: NP positions, morphology and verb movement

We come now to a turning point in this thesis. The morphosyntactic analysis of Chapter I presupposed the syntactic analysis of Bobaljik & Jonas 1994. That analysis relied on the leapfrogging structure, which we have now abandoned (Chapter III). Further, I have thus far neglected the phenomena associated with verb raising in finite clauses, a process which clearly interacts with topics already considered. I intend to show now that the generalisations for which the Spec,TP Parameter provided an account and the patterns of verb raising in the Germanic languages have a common source. To this end, I will introduce the *Free Agr Parameter* and show how this simple parameter accounts for a wider range of data than previous accounts. The account will require one assumption about

the characterization of checking configurations which is a departure from Chomsky 1991 *et seq.* I will propose, contra Chomsky, that all local relations to a head are potential checking relations with that head. In particular, I claim that both specifier,head and head,complement are potential checking relations. This departure is justified to the extent that it allows an account with greater empirical coverage than previous accounts, but I will attempt to show that this departure is also justified independently.

In the first section of this Chapter, I show that the generalisations subsumed under the Spec,TP Parameter may equally be accounted for if the languages are taken to vary as to whether or not they have Agr-phrases, in essence the proposal of Thráinsson 1994b. Below, I will introduce this as the *Free Agr Parameter*. Languages which have Agr phrases have two surface positions for subjects (Spec,AgrS-P and Spec,IP), two for objects (Spec,AgrO-P and complement of V), and two for indirect objects. This accounts quite straightforwardly for Bures's correlation (Chapter I). Languages which do not have Agr phrases (such as English) show only one surface position for each argument. That is, the proposed parameter allows for languages with many Agrs (one per argument), or none, but not for variation for each Agr phrase. The morphological facts considered in Chapter I also follow to some degree. If a language has only one IP position, then it is not surprising that in such a language only one inflectional affix may appear on a finite verb. In this revised view, the morphology does not act as a filter on syntactic derivations, as in Chapter I, but is simply a reflex of the syntactic representation. This view is more consistent with traditional approaches and also with the claims of Distributed Morphology and related proposals concerning the morphology-syntax connection (especially Baker's 1985 *Mirror Principle* and the work of Pesetsky 1985).

Section 2, which makes up by far the bulk of the chapter, is devoted to showing that the same parameter, the Free Agr Parameter, predicts quite straightforwardly the

distribution of verb raising in the Germanic languages considered most fully in Rohrbacher 1994 and for Scandinavian by Jonas 1995a.¹ It is well known that all of these languages, save English, are verb second (V2) in main clauses and in some embedded environments. In non-V2 environments, the languages differ as to whether or not the finite verb raises to Infl, or remains *in situ* in the VP. Jonas 1995a notes further that this distinction overlaps within Scandinavian with what in our terms is now the Free Agr Parameter (extending an observation of Vikner 1991). The fact that the verb raising patterns covary with the other effects of the Free Agr Parameter will be seen to follow from the union of two assumptions. First, I assume that the head-complement relation, like the specifier-head relation, is a checking relationship, contra Chomsky 1995, forthcoming. Secondly, with Chomsky, I assume that the features of a projection (i.e. a non-terminal node) are, loosely speaking, those of its head.

In a nutshell, the analysis is as follows. Given that VP is the complement of Infl, there is no syntactic motivation for verb raising in non-V2 environments in languages without Agr-phrases. The head Infl (more accurately, its features) are in a checking relationship with (a projection of) the verb, just as the (features of the) head Infl are in a checking relation with (a projection of) D in subject position. Raising and adjunction of the verb to Infl in this configuration is blocked by *last resort*, and the verb remains in V° in such configurations. If, however, there is some head above Infl which must check features with the verb, be it the V2-triggering head or Agr, then raising of the verb is necessary to check these features. In the languages without Agr-phrases, the verb must raise in V2 environments, but has no motivation to raise out of the VP in non-V2 environments. In languages with Agr phrases, the verb must raise out of the VP in both V2 and non-V2 environments, due to the presence of this additional inflectional head.² This well known

¹ See also Johnson 1990, Roberts 1992, Falk 1993, Platzack & Holmberg 1989, and many of the papers in Lightfoot & Hornstein 1994 for alternative analyses.

² Or rather, due to the presence of any additional inflectional heads. In transitive constructions, as Colin Phillips points out (pc) either AgrO or AgrS will suffice to force verb raising if AgrO intervenes between

pattern of verb raising receives a straightforward account in terms of the Free Agr Parameter, encompassing as well Jonas's generalization.

The account of Holmberg's generalization in Chapter II – the fact that Object Shift in the VO languages is possible only when the verb has raised – remains essentially unchanged. The theory developed in the present chapter is a theory of the distribution of verb movement in the Germanic languages. In the VO languages, when the verb does not raise overtly for reasons of feature checking, then object shift is barred for exactly the same reason as in Chapter II. If the verb does not raise out of the VP, then a shifted object will disrupt the adjacency relation between the inflectional (or participial) affix and the verb stem, blocking inflection of the verb via *morphological merger* under adjacency. If the verb raises, either to Agr or to C, then object shift is possible – obligatory for DPs denoting old information, and barred for those introducing new information. Object shift is dependent on verb raising in the VO languages but not in the OV languages just as it was in Chapter II. Importantly, the dependency between verb raising and object shift is one-way; verb raising is in no way dependent on object shift. This can be seen with indefinite, non-specific objects (new information). These may never shift, yet the placement of the verb is the same as with objects which can, in principle, shift. In a language like Icelandic, the verb raises out of the VP in all finite environments – V2 or otherwise – regardless of whether or not there is object shift.

Sections 3 through 5 follow up loose ends of the account in section 2. Thus, in section 3, I discuss and dismiss two alternative motivations for movement. On the one hand, I consider the possibility that raising may be to satisfy affixal properties. Drawing

the VP and IP. On the split VP hypothesis adopted in Chapter III (after Travis 1992, Koizumi 1995), there is an open question about the interactions of the various V heads. The most appealing answer to this question from one perspective is that the verb raises to the highest V projection, or rather, that the verb is essentially a composite of the various V heads which instantiate its transitivity. I leave the matter open here.

on a discussion in Koopman 1984, I show that the notion of “affix” required to motivate syntactic raising must be dissociated with the morphophonological notion of “affix”. If [affix] is a purely syntactic feature, then it may be checked without raising, as are other features. Otherwise, the content of the notion “affix” in the syntax, is simply “something which triggers raising”. While descriptively adequate, citing this as a cause for raising is uninformative. Next, I consider the possibility that verb raising to Infl may be triggered by a requirement that the verb check features with some element other than Infl. This I will exclude on the grounds of the *last resort* character of movement. The discussion will necessitate an excursus on checking configurations, including what I feel is motivation for the departure which I make in section 2 from Chomsky’s assumptions. Section 4 considers the technical details of the movement of the various heads involved when the verb does raise out of the VP. Though there are many possible analyses of the head movement involved – and the choice among them is not clearly decided by the assumptions of this thesis – I will sketch one analysis which appears promising. I propose that movement should be defined as *attraction* following Murasugi 1992 and adopting the term from Chomsky, forthcoming. Furthermore, the correct characterization of this process and the nature of feature checking will force the topmost head to attract all the inflectional heads in turn, down to the verb. Section 5 provides little insight into the nature of English auxiliaries, a class of elements which is recalcitrant under the account developed here.

1. The Free Agr Parameter

In Chapter III, I compared two views of the architecture of clauses, the “stacked” structure akin to that proposed by Travis 1992 (and others) and the “leapfrogging” structure proposed in Chomsky 1991. Under the stacking view, the derived position of the object (e.g. the specifier of AgrOP) is lower than the base position of the subject (the specifier of

a VP shell, or perhaps even of IP).³ The conclusion of that chapter was that the stacking structure was to be preferred over leapfrogging. The main argument was Occam's Razor: leapfrogging adds a significant level of complexity to the computation, especially in the form of the *equidistance* clause of the definition of *shortest move*. Further, the arguments that have been offered in favour of leapfrogging were seen to be inconclusive. In addition, the leapfrogging hypothesis made the wrong predictions about word order in a variety of cases. Extra assumptions were required to obviate these false predictions. Finally, a small range of data was adduced in support of the stacking hypothesis. The data was suggestive, but not conclusive.

Having adopted the stacking hypothesis, we lose the accounts of Bures's correlation offered in Bures 1993 and Bobaljik & Jonas 1994 (and related work). In particular, the Spec,TP Parameter relied crucially on the analysis in which the subject crossed the shifted object (in Spec,AgrO) to explain the correlation. The presence of an object in Spec,AgrO forced the subject to move to/through Spec,TP in the course of the derivation. If a language didn't license Spec,TP then the subject would not be able to get past a shifted object and the derivation would crash. In addition, Spec,TP was suggested by Bobaljik & Jonas 1994 as a second subject position – the position of the indefinite subject in transitive expletive and other constructions. If a language didn't license Spec,TP then there would be only one subject position (Spec,AgrS) and derivations requiring two positions would be impossible. Thus, Bures's correlation: the availability of two subject

³ As noted in Chapter III, the "VP"-shell here is called Pr(edicate)-P by Bowers 1993, VoiceP by Kratzer 1994, and (effectively) $\bar{y}P$ by Chomsky forthcoming. This seems to be a quibble of notation as there are no strong arguments in favour of any one of these over any other, as far as I can see. There also seem to be surprisingly few arguments in favour of this position being anything other than IP at all. For recent discussion and summary of earlier proposals, see Williams 1994 for the view that the subject is in Spec,IP from the start and Harley 1995 for a defense of the hypothesis that the subject is in some VP-shell. As far as I can tell, the nature of this position will play no major role in the remainder of this thesis. I will generally indicate subjects as base-generated in the specifier of IP from this point on, unless this has any effect on the discussion at hand, though see §3.2, below.

positions, and the possibility of object shift of full NPs covary in the Germanic languages since both rely on the licensing of Spec,TP as a subject position.⁴

This account is no longer available to us. If the subject does not cross the shifted object, then there is no reason for object shift to force the subject to do anything, and in particular, there is no reason for object shift to force a second subject position, given a cross-linguistically invariant clause structure. But what if clause structure were not entirely rigid among languages? Thráinsson 1994b, taking the bull by the horns, has proposed that whether or not the inflectional projections (IP, broadly construed) are separate (AgrS-P, TP, AgrO-P) or a single projection (IP) is a point of parametric variation among languages. Related ideas have surfaced in work by Peggy Speas (see especially Speas 1991). I would like to adopt Thráinsson's suggestion, and adapt it to fit the assumptions of this thesis (since Thráinsson 1994b assumes the leapfrogging architecture). I propose that the existence of Agr-phrases is a point of parametric variation within the Germanic languages. Some languages require a functional projection above IP and VP. For the sake of familiarity, let us call this element, Agr. Again, since the position is a familiar one, I will

⁴ Recall from Chapter I that, descriptively, Bures's correlation relies on the assumption that the leftwards movement of pronouns is of a different character or to a different position than the leftward movement of NP objects. That is, all the Germanic languages except English show "pronoun shift", independent of the subject-position effects. Bures's account and that of Bobaljik & Jonas 1994 both rely on this characterization, noting similarities between pronoun shift and cliticization (for this view, see also Déprez 1989, 1991, Mahajan 1990, Josefsson 1992, Bures 1993, Bobaljik & Jonas 1994, Jonas 1995a, and others). For these accounts, pronoun shift cannot be movement to Spec,AgrO-P. If it were, it should pattern with NP object shift. In particular, it should require the subject to raise through Spec,TP and there would be no Spec,TP Parameter and no Bures's Correlation.

One property which pronoun movement does share with NP-movement to Spec,AgrO-P is that it obeys Holmberg's Generalization. Thus, we can tell that pronoun shift is movement of the pronoun to some structural position between IP and VP (i.e. as opposed to adjunction), since it disrupts adjacency in the same way as other structural elements: NPs and English *not*, *n't*, *so* and *too*.

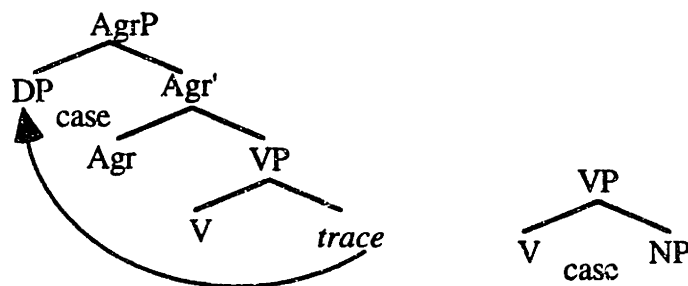
The cliticization account for pronoun shift seems to be the most promising at present, however it is not without its problems. For instance, in the languages with more familiar cases of cliticization (Romance, Slavic etc) clitics surface as part of a phonological unit with the verb (or some other element in the case of second-position clitics). In the languages under consideration, the pronoun need not be in any local relation with the verb in the morphophonology. Thus, when the verb has raised further to C as in V2 environments or questions, the subject (at least) intervenes between the verb (in C) and the clitic/pronoun (at the left periphery of the VP). The landing site of shifted pronouns remains a mystery: it is not Spec,AgrO-P, since if it were the otherwise robust clustering of properties in the Germanic languages breaks down, nor is it some clitic position hosted by V, since the pronoun need not surface next to the verb.

assume for now that this head / projection is implicated in case assignment / checking. Nothing beyond the exposition at the moment actually hinges on this characterization of Agr, and I will revise this view in Chapter VI.⁵ In such languages, phrases associated with the case-assignment process (Infl/T, V, perhaps P...) will be immediately dominated by an Agr-phrase as in (1a). I call these languages “Free Agr” languages, since Agr heads its own projection. Other languages do not make use of this element / projection for case relations. These languages have no Agr-phrases, case being checked internal to the phrase (in specifier, head or head, complement relations; see below) as illustrated in (1b). As these latter languages have no Agr phrase, they could be called “Agr-free” languages. To avoid the potential confusion these labels could engender, I will only use the term “Free Agr” languages in what follows.⁶

(1) *The Free-Agr / Agr-Free Parameter*

a. Free Agr languages

b. Agr-free languages



similarly for IP, perhaps PP, etc...

⁵ There, I will suggest that Agr phrase has semantic / interpretive ramifications. It is associated with something like specificity (Runner 1994, Diesing 1995), presupposition (Adger 1994), referentiality (de Hoop 1992, Meinunger 1993) or indexicality and thus only elements which have these semantic characteristics raise. Again, nothing in this section hinges on the difference in opinion concerning the role of Agr, as far as I can see.

⁶ In terms of Chomsky (1994 class notes, forthcoming) this would be closest to parameterization of multiple specifiers. However, the extra head afforded by the free Agr version has implications for the account of verb raising which constitutes the bulk of this chapter. Further, the morphological correlations which appear to fit well in the theory which invokes an extra head when there is an extra specifier would be mysterious if the parameter were to do with multiple specifiers. Why should the possibility of multiple specifiers correlate with the possibility of multiple inflectional morphemes? I will return to these questions at the end of section 2.

I assume that the choice of (a) versus (b) ranges over languages, and not constructions or projections – a language either has Agr-phrases or it doesn't. Ultimately, we would hope that a parameter of this sort might be derivable from some other property of the languages in question, but I have no clearly articulated thoughts on the matter at this moment and leave the question open.

The *Free Agr Parameter* (1) in a very straightforward manner unifies the same range of data as the *Spec,TP Parameter* (Bures 1993, Bobaljik & Jonas 1994, and subsequent work), and Thráinsson's 1994b *Split Infl Parameter* (on which my parameter is based). First off, the Free Agr Parameter and the Split Infl Parameter almost trivially derive Bures's correlation between object shift of NPs (movement to Spec,AgrO) and the availability of two subject positions (Spec,AgrS and Spec,IP). If a language does not have Agr phrases, then it does not have Spec,Agr positions either dominating VP (necessary for object shift of NPs) or dominating IP (the second subject position). Thus, for the range of facts considered by Bures 1992,1993 and Bobaljik & Jonas 1993,1994, the Free Agr Parameter (or Thráinsson's) are equally adequate in their empirical coverage.⁷

The shift of pronouns in the Mainland Scandinavian languages remains a potential problem on the present account, one which I do not intend to solve. Recall from Chapter I and references therein that Bures's Correlation concerns the distribution of object shift of *full NPs* among the Germanic languages. All of the languages, with the exception of English, display pronoun shift. The correlation is between object shift of NPs and two

⁷ Of course, this is not entirely true if one accepts the VP-internal subject hypothesis. That is, a VP-internal position for the subject allows an extra position for the subject, so this would predict two subject positions in languages without Agr phrases, and three positions for languages with Agr-phrases. In simple transitives and unergatives, this seems to be incorrect. There is one position for agentive subjects in English, and two for passive and unaccusative subjects. An agentive subject may never surface in its VP-internal position. As Jonas & Bobaljik 1993 have shown, the same considerations hold for what I am calling Free Agr languages. Thus, in Icelandic, there are exactly two subject positions for agentive subjects, and exactly one more for truly derived subjects, i.e. of passives and unaccusatives. See Jonas & Bobaljik 1993 for more discussion of the relevant data.

subject positions: there are no parallel correlations with pronoun shift. For Bures 1993, for Bobaljik & Jonas 1994, and for the account in Chapter I, pronoun shift in the Mainland Scandinavian (i.e. [-Spec,TP]) languages could not be analysed as movement of the pronoun to Spec,AgrO-P. This view does not change under the Free Agr Parameter. The languages without Agr phrases have only one subject position (Spec,IP) and they similarly lack the position which is the target of object shift of full NPs, namely Spec,AgrO-P. With Déprez 1989, 1991, Mahajan 1990, Josefsson 1992, Bures 1993, Bobaljik & Jonas 1994, Jonas 1995a and Chapter I of the present work, I maintain the analysis under which pronoun shift is not shift to Spec,AgrO-P but rather a distinct process involving a distinct process, likely akin to cliticization (see also note 4, above). The Mainland Scandinavian languages permit this process, independently of the presence or absence of Agr-phrases.

In Chapter I, I proposed that the Spec,TP Parameter may be derived from morphological considerations. The specific account I proposed, relying on different head-movement configurations being available in different languages, ultimately for reasons of overt morphology, must be abandoned. I do not see how it translates into the present framework. However, the descriptive generalization is still as valid as it was in Chapter I (rephrased in terms of Free Agr):

(2) *The morphological grounding statement. (from Chapter I)*

If tense morphology blocks the appearance of agreement morphology,
then the language is not a Free Agr language, i.e. it does not have Agr phrases.

Here, the obvious account may well suffice. A traditional view which has recently resurfaced in work of Marantz (1995 class lectures) is that there is no *fusion* (the process discussed in Chapter I). Assuming this to be so, then there should be a rough one-to-one correspondence between syntactic terminal nodes (heads) and vocabulary items (morphemes), much in line with the assumptions underlying Baker 1985 and Pesetsky

1985. This correspondence is “rough” in the sense that null morphemes must be admitted, hence in many environments a syntactic head will correspond to no overt piece of inflection.⁸ The account, on this view would be as follows:

If a language does not have an Agr phrase, then there is only one inflectional node (Infl). If there are two sets of morphemes, (i.e. vocabulary items) which could be inserted in this node, then they are in competition. The fact that tense wins out over agreement could be a language specific fact or it could follow from universal feature hierarchies of the type explored in Noyer 1992 and Harley 1993. Alternatively, it could simply follow from the fact that tense is an interpretable feature, having semantic import, in contrast to agreement which generally redundantly expresses information contained elsewhere in the clause. Hence, if only one of tense and agreement is to be expressed, then it will be the interpretable one, i.e. tense.⁹ If a language has more than one node (i.e. Infl + Agr) then it should allow up to two inflectional morphemes to be inserted after the verb stem (or up to three if there is object agreement morphology).¹⁰

⁸ Fission may also be necessary, i.e. the process whereby the features of one node are split and realized in more than one place (Noyer 1992). McGinnis 1994 argues that fission should be seen as movement of features from one head to another. If she is correct, then fission is only superficially an exception to the one-to-one correspondence of X' nodes to vocabulary items.

⁹ This last possibility was suggested by Noam Chomsky, personal communication. See Chomsky, forthcoming, and Chapter III for a discussion of the difference between interpreted and non-interpreted features and suggestions of how these may differ in their syntactic import. See also Chapter I, fn. 16, for discussion.

¹⁰ Note that I do not consider participle agreement to be object agreement (see Bobaljik 1992, §4). Bobaljik 1992, Branigan 1992:46f, Siloni & Freidemann 1993, Carstens 1994, and others have observed that many languages use auxiliary *be* for transitive clauses. In such cases, the perfective participle generally shows agreement with the subject and not with the object. The following example is from Serbo-Croatian:

- | | | | |
|-------|--|------|---|
| (i) | unaccusative | (ii) | unergative |
| | Marija je doš-la.
M.(fem) is come-fem.sg
'Maria came.' | | Marija je trča-la
M.(fem) is run-fem.sg
'Maria ran.' |
| (iii) | transitive | (iv) | transitive |
| | Marija je vide-la / * vide-o Ivana.
M.(fem) is see-fem.sg / *-mas.sg I.(mas)
'Maria saw Ivan.' | | Mi smo čita-li / * čita-la knjigu.
we are read-mas.pl / *fem.sg book.fem
'We have read a/the book.' |

Most of the discussion of Chapter I carries over, or can be reformulated in these terms. As long as (2) is stated as the presence of tense blocking agreement, Afrikaans (a Free Agr language with no overt inflectional morphology) is no more of a problem than it was in Chapter I. Importantly, Faroese inflection is still ambiguous between two possible analyses. This looseness in the formulation of the morphological correlation is at exactly the right place since Faroese splits into two dialects on the diagnostics of the Free Agr parameter, including verb placement as we shall see presently.

These are the facts which followed from the Spec,TP Parameter on a certain collection of assumptions. In abandoning those assumptions we do not jeopardize the possibility of an account of these facts, as I have just shown, since they may be captured by the Free Agr Parameter. I will now show that the Free Agr Parameter makes predictions beyond those which it shared with the Spec,TP Parameter, in particular deriving a range of facts and generalizations in the realm of verb raising.

(Serbo-Croatian, Bobaljik 1992: §4, p5)

A more accurate generalization within Romance, Germanic and Slavic at least is that the participle agrees with the subject of auxiliary *be*, but a (preposed) object of auxiliary 'have'. This appears to conflate with "object agreement" in languages like French since in French only subjects which are derived from underlying objects (passives and unaccusatives) occur with auxiliary *être* 'be'. Constructions with agentive subjects use auxiliary *avoir* 'have.' In Serbo-Croatian as in (i)-(iv), the auxiliary *biti* 'be' is used with agentive and non-agentive predicates alike and the participle always agrees with the subject even when there is an accusative direct object.

Even this generalization is only a tendency, at best. Brown 1989 and other papers in Benincá, ed. 1989 show that most conceivable variations on the relation between auxiliary selection, grammatical role and triggering agreement are attested. The generalization regarding *be* and not that concerning grammatical role seems to be the most common. Hence, participle agreement should not be taken to be object agreement.

In addition, participle agreement in the Indo-European languages patterns with adjectival agreement (i.e. "concord") in the features it is sensitive to – a rather unsurprising fact given the close morphological and syntactic parallels between participles and adjectives. Thus, verbal agreement in French is for person (and number) while adjective agreement is for gender (and number). Number is expressed quite differently in the two types of agreement. This contrasts sharply with languages that show true object agreement (consider the examples from Basque and Yup'ik in Chapter II), where the two generally show the same range of features, or the object agreement features are a subset of the subject agreement features (Murasugi 1994).

Note also that the account of Holmberg's Generalization remains intact from Chapter II. While it is unclear what structural position shifted pronouns occupy (recall from Chapter I and above that it is not Spec,AgrO-P), this position nonetheless intervenes between an affix in Infl and the verb stem in V. It is important to keep clear from the outset that the dependency between verb raising and object shift is asymmetrical. Object shift is dependent upon verb raising in the VO Germanic languages – object shift (of NPs and pronouns) is blocked if the verb does not raise (Holmberg's Generalization). The reverse is not true – verb raising is not dependent on object shift. That is, there are ample cases of verb raising without object shift. In all the languages, the finite verb raises to C in verb second environments. Though this creates a configuration which allows object shift, the verb raises even if the object does not shift or if there is no object to shift. In what I am calling Free Agr languages, such as Icelandic, the verb raises to Agr even in non-V2 environments. Again, this raising creates the environment which allows object shift, but the verb raising is not contingent upon object shift: if there is no object, or if the object does not shift, the verb raises anyway. The account of the following section is an account of when the verb does and does not raise. This raising is entirely independent of object shift. Whether or not the object shift (NP or pronoun) subsequently shifts depends on whether or not the adjacency requirement between the inflectional affix and the verb stem is met. The account of Holmberg's generalization in Chapter II (to be revised in Chapter VI) is dependent upon the account offered below, and not the other way round.

2. Verb raising. An account.

2.1 The assumptions.

Before proceeding to the analysis, it is necessary to make clear two assumptions on which the analysis rests. These are stated briefly in (3) and I then discuss them in a little more detail.

(3) Assumptions

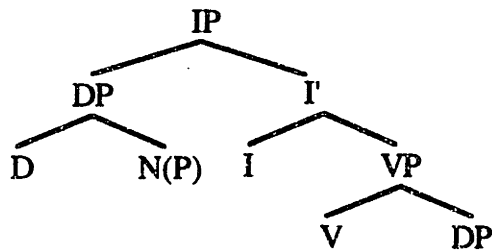
1. All local relations to a head H are potentially checking relations with H.
2. The features of a projection are those of its head.

First, I propose that checking of formal features with a head H may occur in any local relation to H, where “local relation to a head” is taken to include the specifier and complement of H, as well as the relation borne by other heads adjoined to H, i.e. “sub-terms” of H (see §3.2 for a definition of local relation in terms of *merge*). Effectively, I am claiming that the specifier versus complement distinction is irrelevant for the purposes of feature-checking theory, though it may well be relevant in other domains, such as theta-theory or predication theory. In this I differ from Chomsky 1995 and Chomsky forthcoming, where it is assumed that the configurations which license checking relationships (i.e. the “checking domain”) with respect to a head H exclude the complement of H. I will postpone discussion of the motivation of this difference until section 3.2, below. In the remainder of this section I will simply demonstrate how the analysis works, given this assumption.

Next, I assume that the features of a projection, i.e. the product of merger of two constituents, are the features of the head of that projection as far as checking theory is concerned. For example, a V and its object *merge* to form a new thing, γ . The syntactic

(i.e. formal) properties of this new thing γ (i.e. a “VP” in terms of X'-theory), are assumed to be exactly those of the verb, the *head* of γ (Chomsky 1995:396). To illustrate, consider the case of a DP subject in Spec,IP:

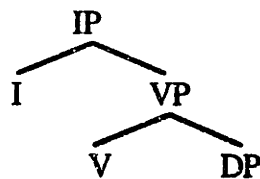
(4)



I assume that the DP is occupying Spec,IP in order to check the formal (D) features of the head Infl, in the local relation of specifier,head. Note that the head D is not in the specifier,head relationship to Infl, but rather it is the DP which is in that relationship. If the features of DP are those of D, then there is no question – these features check the formal D features of Infl in the specifier,head configuration, a checking relationship. In this, I believe I do not differ from Chomsky 1995 (cf. the discussion pp. 396ff).

Taking the two assumptions together, this means that merger of Infl and VP, as in (5), establishes the configuration (head,complement) under which the features of (the head of) VP check the formal (V) features of Infl, in the same way that the features of (the head of) DP check the formal (D) features of Infl above:

(5)

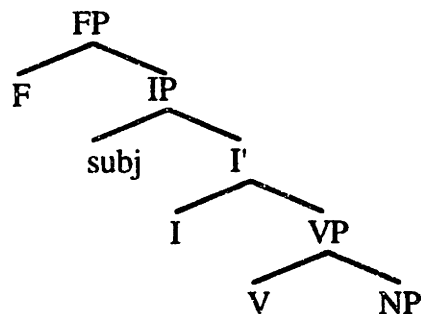


In my view, (4) and (5) are two sides of the same coin. In both cases, the features which enter into the relationships specifier,head and head,complement are the features of the heads of DP and VP. Again, I suggest that both specifier,head and complement,head are checking relationships, and therefore there is no difference between (4) and (5) for the purposes of feature checking.¹¹

If movement is driven by checking of formal features, then it follows that there is no syntactic motivation for (overt) movement of V to Infl in the structure in (5). If head,complement is a checking relationship involving the features of the head Infl and those of its complement V(P), then movement of V to Infl is movement from one position to another both of which are checking relationships with the same elements, namely Infl and V. No new checking relationships between these two heads are created by this movement.¹² If movement is indeed of a *last resort* character – i.e. solely for the purposes of feature checking – then it should in fact be prohibited in (5) for this reason.

The theory becomes more interesting if there is an additional head (F) dominating Infl which also must check features with the verb. In such a case, a different picture emerges:

(6)



¹¹ This could be expressed in terms of covert feature movement (Chomsky, forthcoming). Local relations on this view would be those structural configurations in which a feature could legitimately move to adjoin to a feature of the head H.

¹² This observation, and its relevance for the theory of head movement, were first pointed out to me by Alec Marantz, to whom thanks are thus due.

In (6), the head F must, by hypothesis, check features with the V.¹³ However, unlike Infl and V, the head F in (6) is not in a local relation with (any projection of) V and thus the two are not in a checking relationship. Movement of V to some checking relationship with F is forced by the requirements of feature checking. For the remainder of section 2, I will not discuss the technical aspects of the movement. From what I have said, it would appear that V should move to F, skipping I. In section 4 I will offer a sketchy mechanical solution to this problem. Since it adds complications, and especially since there are a number of different ways of resolving the technical question of the role of Infl in the raising of V to F in (6), I will postpone this discussion until section 4.

This, in a nutshell, is the analysis I will propose for the distribution of verb raising in the Germanic languages, laying aside the problematic case of English auxiliaries. If a language has only one head (immediately) above the VP which has V-features, then the verb should surface in VP. Since Infl and VP are in a local relationship in (5) there is no motivation for raising from the requirements of feature checking. If a language has two (or more) heads above the VP both of which have V-features, then checking is not satisfied without movement; the verb will have to raise to the highest of these heads.

Assume that the (C) head which triggers V2 has V-features. The theory thus far predicts that in the non-Free-Agr languages the finite verb should surface in C in V2 environments, but should remain in V in non-V2 environments. That is, in non-V2 environments there is no F to attract the verb, and Infl and V are already in a checking relationship. If a language has only Infl – and sometimes C – dominating the VP, then the

¹³ That is, the interesting case is the one in which F must check features with the verb. If we took F', a head which does not have to check features with the verb, then no question arises and we have the case in (5).

finite verb should never surface in Infl. I claim this is an accurate description of the non-Free Agr languages: Danish, English, Faroese II, Norwegian and Swedish.

The interesting question then is the nature of the head Agr. If Agr has no V-features, then the Free-Agr languages should pattern with the non-Free-Agr languages. The verb would raise to C in V2 environments, but would remain in the VP in non-V2 environments. Just as in the languages which lack Agr, if Agr has no V-features, there would be no motivation for raising of the verb to Infl since the two are in a local – i.e. checking – relation. If, on the other hand, Agr has V-features, then the theory makes a different prediction. If Agr has V-features, then it will behave as F in (6) triggering movement. Even in non-V2 environments, there would be two heads with V-features above the VP, namely Agr and Infl. Thus, the verb in Free-Agr languages should always raise out of the VP, in V2 and non-V2 environments alike. In V2 environments, it would raise to C, whereas in non-V2 environments it would raise to Agr.

Summing up, the prediction is that, in the non-Free-Agr languages, the verb should never surface in Infl. If Infl is the only head with V-features dominating the VP, then the verb will remain in the VP. If there is another head (e.g. C_{V2}) above Infl also with V-features, then the verb will raise to that head. For Free Agr languages, we predict either exactly the same behaviour, if Agr does not have V-features, or more interestingly that the verb will never remain in the VP, i.e. if Agr has V-features.

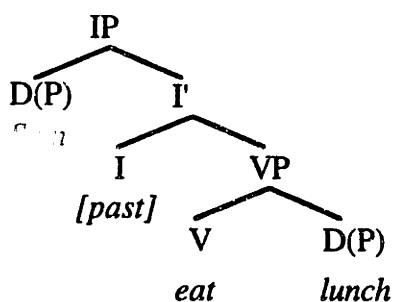
As we shall see, the latter scenario describes accurately the patterns of verb raising in the Germanic languages. In all the languages, the finite verb raises to C in V2 environments. In non-V2 environments, exactly the split is evidenced which is expected if Agr has V-features. The languages which I argued above to have Agr phrases (the Free Agr languages) all show raising of the finite verb out of the VP in V2 and non-V2

environments alike. In the languages without Agr phrases, the verb remains in the VP in non-V2 environments. We conclude that Agr not only exists in these languages, but also that it has V-features, triggering raising in non-V2 environments. By attributing the extra specifier positions in these languages to Spec,Agr and the head movement to the existence of an extra head with V-features, we account for Jonas 1995a's observation that there is a correlation between languages with verb movement to "Infl" in non-V2 environments and the argument position facts attributed to the Free Agr Parameter (see also Vikner 1991).

2.2 The simple case: I + V

Let us begin with an investigation of the simple case, a simple declarative non-V2 clause like English *Sam ate lunch* with the structure in (7):

(7)

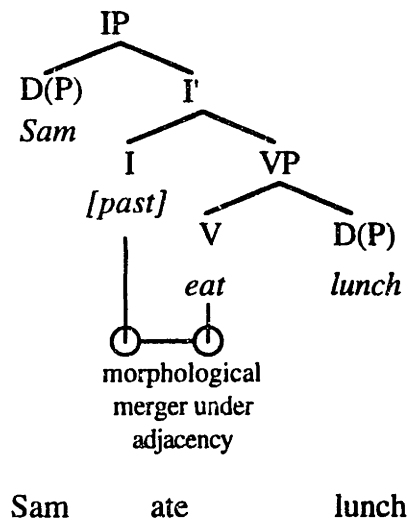


The phrase marker in (7) contains the configuration in (5), with VP the complement of Infl. Above, I claimed that this configuration provides no feature-checking motivation for verb raising to Infl. Thus, the verb is predicted to remain in situ in the VP.

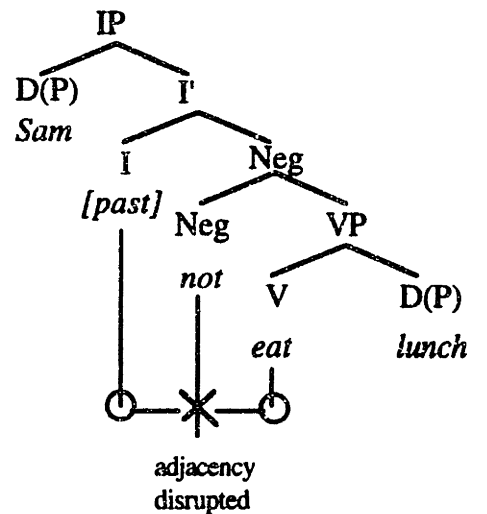
This provides a concise account of non-V2 clauses in the Agr-free languages, i.e. those without Agr-Phrases: the Mainland Scandinavian languages, Faroese II, and English. Taking English first as the simplest case, we have seen in Chapter II that English main

verbs remain in the VP.¹⁴ The analysis of *do*-support from that chapter (i.e. extending that of Chomsky 1955[1975] along the lines suggested by Halle & Marantz 1993) was that, in the morphological component, after the syntax, a process of morphological merger allows the inflectional affix to “hop” onto the verb stem if they are adjacent (8). Otherwise, a default stem *do* is provided for the inflectional affix in Infl (9):

(8) English main verb inflection: merger under adjacency.



¹⁴ Auxiliaries will not be considered until the end of this chapter.

(9) English *do*-support: adjacency disrupted.¹⁵

Sam did not eat lunch.

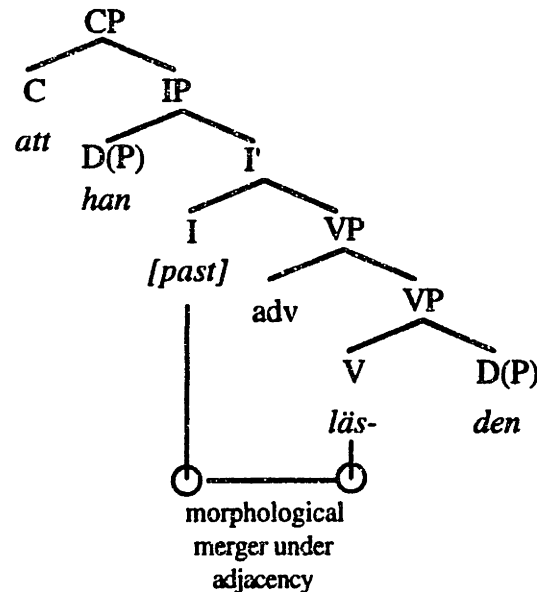
For the Mainland Scandinavian languages and Faroese II, main clauses are V2 environments, to which we return below. Non-V2 environments include most embedded clauses (except those embedded under “bridge verbs”). In non-V2 clauses, we assume that there are no checking requirements between V and C. If this is the case, then these collapse together with the analysis of main verb inflection in English. There is a checking requirement holding between Infl and V, but this requirement is satisfied in the head, complement relation between Infl and V(P), hence there is no syntactic motivation for movement.

¹⁵ For the case of negation, it would seem that one could attribute the appearance of *do* not to a disruption of adjacency, but rather to the presence of an intervening phrase – NegP – which would block checking between Infl and the V(P). However, this would not generalize to the other cases of *do*-support considered in Chapter II. Recall especially section 2.1 of Chapter II – the discussion of subject versus non-subject *wh*-questions. This was the clearest case where there was no structural difference between the environments which trigger *do*-support (non-subject questions) and those which do not (subject questions). In both cases, IP intervenes between the head C and the verb, yet only in the former is adjacency between the two disrupted by the presence of an overt subject DP. Similar considerations obtained for questions in locative inversion. In both of these cases, the factors triggering *do*-support are not structural. The same point recurs throughout Chapter II with VP-ellipsis and the headedness effects in Germanic. All of these analyses involve configurations where the crucial differences are morphophonological – whether or not the relationship of adjacency holds between two elements – the structures involved are generally, apart from the case of negation, isomorphic.

- (10) *Scandinavian - inflection of main verbs via merger
in non-V2 environments (e.g. embedded clause)*¹⁶

Jag tvivlar [CP att han inte läste den.]
I doubt that he not read it
'I doubt he hasn't read it.'

(Swedish)



This was the lynch-pin of the derivation of Holmberg's generalization in Chapter II.

Taking only a limited set of the data, we see that the theory developed here predicts that verb raising to Infl should not occur in an environment where only features of these two heads interact. Since the features of V(P) are in a checking relationship with Infl, subsequent adjunction of the V to Infl (Head raising) can satisfy no additional checking requirements. Two obvious counter-proposals come up at this point. First, one could imagine that raising of V to Infl might not immediately satisfy any property of either head, but that it could be a necessary precursor to some later checking. Alternatively, it has often

¹⁶ Recall from the definition of adjacency in Chapter II, that adverbs do not disrupt this relationship, only structural material (specifiers, heads) does. Also in the Germanic languages other than English, sentential negation is expressed adverbially. Thus, Swedish *inte* 'not' behaves for the purposes of adjacency like English *never*, which does not trigger *do*-support:

- (i) Sam [-past] *never* eats lunch.
0-----0

verbs (*know, think, claim...*).¹⁷ In other languages (especially Icelandic and Yiddish) embedded V2 is far freer, occurring under other matrix verbs as well.

I assume that V2 is movement of a topic constituent (XP) to Spec,CP and that the verb in V2 environments is in the head of C.¹⁸ The large body of recent literature on the V2 phenomena would suggest that this analysis is too simplistic, in particular that this head C is not the same head as the one hosting true complementizers, such as *that* or its cognates in the other languages, nor is it the same as the head C involved in *wh*-questions. For our purposes, we need only say that there are different elements which may occur under the head C, including the feature driving the movement of both the verb and the topic in V2 constructions, and that these different C heads differ in their syntactic features. This is not, as far as I can see, in any relevant way different from the claim that V2 effects involve a head distinct from C, if for instance the theory admits of CP recursion as has often been suggested. The head in V2 constructions is not the head *that*, nor the head in questions, but whether or not these are all of category C seems an issue of no immediate relevance to the analysis here.

Assuming for convenience that the head involved in the V2 construction is C, choices for the head C can be one of at least three different elements: (i) the V2 head (henceforth C_{V2}), (ii) lexically overt complementizers (English *that*, German *daß* etc...), or (iii) an interrogative C. In classifying the three heads in this way, I depart somewhat from assumptions current in the literature, and thus I will use this subsection to justify this position. Specifically, I will not provide an account of why the V2 head has features which require raising of the verb, but I will show that the verb raising is indeed triggered by an

¹⁷ Vikner 1994:133-4 provides a list of bridge verbs in Danish and German. There are clearly semantic factors at work, though it is not clear exactly what these factors are.

¹⁸ I am forced to assume also, contra Travis 1984 and Zwart 1993, that subject-initial main clauses also involve V2 topicalization, as Dianne Jonas points out (personal communication). This is a point of great debate within the relevant literature and I will not consider the arguments on both sides in this discussion.

idiosyncratic syntactic property of this head and not by its status as a phonologically null head.

English is often said to be “residual V2”, with “V2-effects only obtaining in main clause interrogatives”.¹⁹ This view implicitly collapses the distinctions between complementizer types (i) and (iii), above. Another common assumption is that V2 effects obtain simply from a “requirement that C be lexical” in languages like Dutch and German.²⁰ This draws on an observed asymmetry in embedded clauses in these languages. If there is an overt, lexical complementizer then there are no verb-second effects, and conversely, that verb-second obtains in the absence of a lexical complementizer:

(12) embedded clauses

- a. Watson behauptete, **daß** Moriarty nur das Geld gestohlen *hatte*.
 W. claimed [_{CP} that M. only the money stolen has]
 ‘Watson claimed that Moriarty had only stolen the money.’
- b. Watson behauptete, **dieses Geld** *hatte* Moriarty gestohlen.
 W. claimed [_{CP} this money had M. stolen]
 ‘Watson claimed that Moriarty had stolen this money.’
 (German: Vikner 1994:133)

These common assumptions together suggest that “V2”-effects are derived from a simple property that the head C be lexically filled, e.g. an affix. But this is certainly not the case. In particular, there are significant syntactic differences which separate the three C heads I have distinguished. These differences have nothing to do with the overt versus null distinction, and in fact cut across this difference. I illustrate directly.

¹⁹ And perhaps, as Colin Phillips points out, in certain inversion constructions typically involving negation or polarity items in certain dialects/registers, for instance:

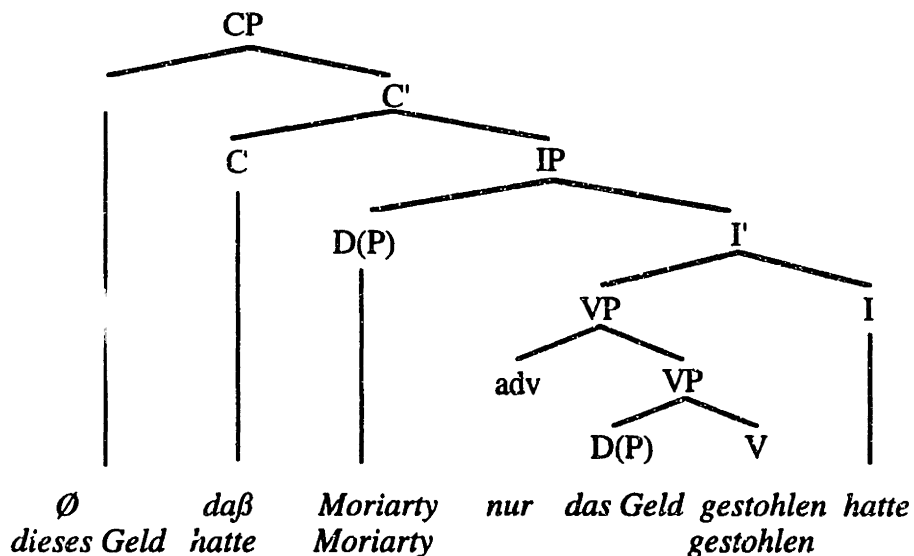
(i) Never had Martha read such a poorly written thesis as now lay before her.
 (ii) Only a thesis of that caliber would I deign to show to Martha.

²⁰ This is the analysis of V2 often discussed in introductory textbooks, cf. Haegeman 1991:530f.

The point to be made is the following. The common analysis of V2 effects, especially the contrast in (12) is by appeal to the notion that C must be lexicalized, and the idea that there are two means to satisfy this – a lexical complementizer (e.g. *daß*) or the raised verb. However this simple view is descriptively an insufficient characterization of the environments of verb raising. The head C_{V2} is distinguished not only by being phonologically null, but also by a syntactic behaviour distinct from other complementizers, null or overt. Phonological nullness is not a sufficient condition to define the head which triggers verb raising, as there are null complementizers which do not trigger raising. In section 3.1, I will argue that the morpho-phonological notion of an affix cannot drive movement at all, but this stronger position is not necessary for this section.

Consider first the pair in (12), the standard examples cited in connection with verb-second as movement to C, assigning the structures as follows:

(13) *structures of (12)*



Putting the two sentences on a single tree, we note immediately that the two do not constitute a minimal pair which varies only in whether or not C is occupied by a

complementizer or the finite verb, but that there is an additional difference in the content of Spec,CP. If C is filled by the verb, as in the V2 construction (12b), Spec,CP is obligatorily filled by a topic constituent as seen by the ungrammaticality of (14b). On the other hand, when C is filled by a lexical complementizer such as *daß* ‘that’ in (12a), topicalization of a constituent to Spec,CP is sharply ungrammatical (14a).

(14)

- a. * Watson behauptete, dieses Geld **daß** Moriarty gestohlen *hatte*.
 W. claimed [CP this money that M. stolen had]
 (Watson claimed that Moriarty had stolen this money.)
- b. * Watson behauptete, *hatte* Moriarty dieses Geld gestohlen.
 W. claimed [CP had M. this money stolen]
 (‘Watson claimed that Moriarty had stolen this money.’)
 (German, after Vikner)

Put more simply, it is not the case that there is some head C which has the quirky property of requiring lexicalization – either an overt complementizer or a raised verb. There is more than a simple phonological overt versus null difference between the complementizer heads in (12). There is an additional, purely syntactic difference between the two: the declarative complementizer *daß* ‘that’ prohibits an XP in its specifier, while the V2 complementizer, by definition, requires such topicalization. Note that many Germanic languages allow both complementizers in “embedded V2” constructions such as (15), where verb second occurs under a lexical complementizer.

(15) *V2 embedded under a lexical complementizer*

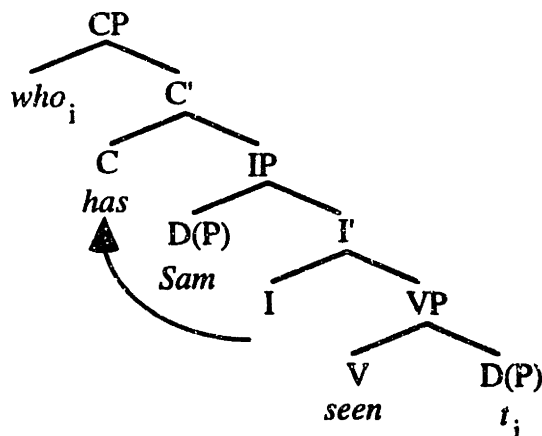
- Jón harmar að þessa bók skuli ég hafa lesið.
 J. regrets [CP that [CV₂-P this book should [IP I have read.]]]
 ‘Jon regrets (it) that I should have read this book.’
 (Icelandic: Vikner 1994:134)

In the case of (12), there is a correlation between phonological content (complementizer versus verb) and topicalization properties. The “V2 as affix” analyses could be saved if the (topicalization) property “requires a filled specifier” could in some

way be related to the phonological content of the head. For example, the claim could be that for whatever mysterious reason, a null head (to which the verb adjoins) requires a filled specifier. However, even this correlation collapses when one extends the discussion to interrogatives.

In all the Germanic languages, including English, matrix interrogatives involve raising of the finite verb (or auxiliary *do*) to a position like *C*. In yes/no questions, this position is clause-initial, otherwise, a single *wh*-constituent occurs before the verb, e.g. Spec,VP. In the Germanic languages, the interrogative *C* has no phonological content, but only triggers raising, both of the finite verb and of some constituent to Spec,CP. In this, main clause interrogatives pattern just as V2 clauses, the basis for the proposal of “residual verb-second” in English.

(16) Who has Sam seen ?



If the analysis of embedded V2 did have to do with a lexical versus null alternation,²¹ then embedded questions with fronting of *wh*-words in English and German

²¹ For example, one idea which has received some attention is the idea that null heads are inherently affixes. This idea plays a significant role in Pesetsky 1995. See section 3.1 for reasons why this view is not entirely consistent with assumptions adopted here, in particular, why such a view could not be maintained if the syntax cannot “see” the phonology, a position I will advocate in Chapter VI.

should have verb raising to C, just as in embedded V2 clauses. Alternatively, embedded interrogatives should prohibit movement of the *wh*-constituent to Spec,CP, just as this is prohibited with lexical complementizers. This prediction is false. Embedded interrogatives pattern neither with embedded V2 nor with lexical C°. The finite verb/auxiliary cannot raise to C, but the *wh*-word must occupy Spec,CP.²²

(17) *Embedded Questions: no inversion.*

- a. * I wonder [CP who has Sam seen.]
- b. I wonder [CP who Sam has seen.]

(18) *Embedded Questions: no inversion.*

- a. * Ég spurði [CP af hverju hefði [IP Helgi [VP oft lesið þessa bók]]].
I asked why had H. often read this book]]
(I asked why Helgi had often read this book.)
- b. Ég spurði [CP af hverju [IP Helgi hefði [VP oft lesið þessa bók]]].
I asked why H. had often read this book]]
'I asked why Helgi had often read this book.'

(Icelandic, Vikner 1994:127)

The behaviour of embedded questions shows that a simple lexical versus null difference in C is not sufficient to predict when verb raising to C is triggered in Germanic, and further, these clauses show that the correlation between phonological content of the head, and the obligatoriness/impossibility of a filled specifier breaks down.

To repeat the main point of this section, then: there are at least three syntactically distinct heads involved in the range of constructions just considered. All three occur somewhere at the top of the clause, and for our purposes group them all under the category label C. However, the heads are quite clearly syntactically distinct, with the properties as summarised below. In particular, note that the status of a head as phonologically overt or null does not correlate directly with either raising of the verb or raising of a topic

²² My thanks to Uli Sauerland for pointing out the relevance of embedded interrogatives.

constituent to the specifier position. What is most relevant for our purposes is the fact that the property of C_{V2} such that it triggers verb raising is not reducible to any other property of the head – syntactic or phonological – and thus it is simply an arbitrary property of this head that it must come to be associated with the finite verb.

(19) *The content of C.*

- i. C_{V2} - the V2 C.
Phonologically null.
Associated with raising of a topic constituent to Spec,CP.
Attracts the verb in main and embedded clauses.
- ii. overt complementizers such as English *that*, German *daß*.²³
Phonologically overt (deleted in certain environments in English)
Prohibit raising of a constituent to Spec,CP.
Prohibit raising of the verb to C.
- iii. interrogative C.
Phonologically null.
Associated with raising of a *wh*-word to Spec,CP.
Attracts the verb (or Infl) in Main clauses,
Prohibits verb raising in embedded clauses.

2.4 V2 - the analysis

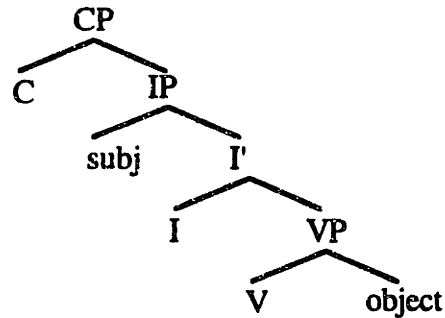
In the previous section, I have argued that we are at least observationally justified in considering C_{V2} as being an element with a distinct featural makeup and in particular having as an arbitrary property the property that it requires the verb to raise to it. We translate this arbitrary property as the equally arbitrary statement that the head C_{V2} has features which need to check with a verb in order to be licit.²⁴

²³ There may be others, such as English “ECM” *for*, with still different properties.

²⁴ I am fully aware that claiming that the C has verb features does little more than to state the descriptive generalization, i.e. that the verb must raise to C. I am, however, aware of no better alternative, and will continue to use this since it is a tool made available by the theory, assuming that it can be ultimately reduced to some more primitive feature, perhaps to do with topic - comment structure. The notion that C has some verbal features in these languages is standard throughout the literature but I am aware of no compelling arguments to prefer any one feature over another. See Rohrbacher 1994: Ch.3 for a discussion of previous accounts.

Restricting ourselves still to the languages which I have argued have only (simple) IP, we now expand the structure in (7) adding a CP:

(20)



If the head C has no V-features, for example lexical complementizers as in (19ii), then the verb is predicted to remain internal to the VP, i.e. in V. That is, if the C in (20) has no V-features, then it should be irrelevant to the checking relations which the verb enters into. Only Infl and V would have features which require checking against each other. The analysis of §2.1 would apply equally in the environment (20) if the C has no features which need to be checked with the verb. The only head which must check features with the verb is the head Infl. The features are checked in the local relation of head, complement which obtains without movement. We thus conclude that (20) – without verb raising – is the structure of non-V2 environments in languages which do not have an Agr-Phrase. The verb obligatorily remains in VP, to the right of VP-adjoined adverbs in all the non-Free-Agr languages. I illustrate here with examples from Swedish:

(21) A non-V2 environment. The verb remains in VP.

- a. Jag tvivlar [CP att han [VP inte läste den]].
 I doubt that he not read it
 'I doubt that he didn't read it.'
- b. *Jag tvivlar [CP att han läste [VP inte den]].
 I doubt that he read not it.
 (same)

(Swedish, cf. (10))

However, if the C head is C_{V2} , i.e. the head which by hypothesis has V-features to check, then C and V(P) are not in a checking relationship in (20). This is the structure in (6), above. The only way for the V and C to enter into a checking relationship is for the verb to raise. I lay aside the technical questions of the characterization of the raising operation.²⁵

(22) V2-environments. The verb raises to C.

- a. Denne film *har* [_{IP} børnene [_{VP} set]].
 this film have children.the seen
 'The children have seen this film.'

Main Clause
 (Danish, Vikner 1994:128)

- b. Vi ved [_{CP} at denne bog *har* [_{IP} Bo [_{VP} ikke læst]]].
 we know that this book has B. not read.
 'We know that Bo has not read this book.'

Embedded Clause, bridge verb
 (Danish: Vikner 1994:130)

Hence, we have the following scenario for a language with a simple IP (English, Mainland Scandinavian, Faroese II). When there is a head higher than Infl which has V-features, such as C_{V2} , then the verb must raise to this head as there is no other way for the features to be satisfied. The verb will appear overtly in C. When no such head is present, then the verb will remain *in situ* in the (head of) the VP.

²⁵ Note that this characterization lends itself more easily to the analysis based on *attraction* as in Murasugi 1992, Oka 1993, Chomsky forthcoming. Until the C_{V2} head is introduced, there is no reason to move. This suggests that it is a property not of the verb, but rather one of the head C_{V2} which induces movement. In this way, we could characterize the movement as C_{V2} attracting the closest head with relevant (e.g. V-) features. One possibility is that C_{V2} attracts first the head Infl, creating the complex head [_C Infl C]. If Infl is not sufficient to check the features of C, then it attracts again. This time, Infl no longer counts as closest, having already been attracted, and the verb is attracted next, raising and adjoining to (complex) C = [_C V [_C Infl C]]. This multiple attraction is parallel to the standard account of multiple LF attraction – “absorption” – of *wh*-elements to a single *wh*-head. The closest / topmost *wh*-element is attracted first, and then subsequent ones are attracted top down. I will return to this in section 4.

The pattern predicted by this analysis is exactly the behaviour which is characteristic of those languages which for independent reasons I argued above have simple IP: namely, Faroese II and Mainland Scandinavian (also English, though English lacks C_{V2} and hence the analysis is vacuous with respect to English).

2.5 *Complex IP = AgrP + IP*

We now turn to the languages which I argued above (section 1) have a complex IP projection – AgrP dominating IP. This allowed two specifier positions for subjects and was implicated in Bures 1993 and Bobaljik & Jonas 1994's analyses of transitive expletive constructions and other things. What we are interested in here is the properties of this head. Recall from §2.1 that I noted an environment where we could potentially determine some characteristics of the Agr head. If the Agr head has V-features, then we predict a difference between Free Agr and non-Free Agr languages in the placement of verbs in non-V2 environments. In the previous section we saw that the head C_{V2} , being a head above Infl with V-features, forced the verb to raise to C_{V2} . Likewise, Agr is not in a local relation with the V (or any projection of the V) and thus, if it has V-features, movement is triggered. The verb will surface either in C or in Agr, but will never surface in V. If Agr does not have V-features then it would not trigger raising and the Free Agr languages should show the same patterns of verb position as the non-Free Agr languages: the verb would be in V or C but never in Infl or Agr. The latter configuration would be uninteresting, since it would also be consistent with there being no Agr head. The theory here is interesting then only if the Agr head has V-features, since in that case it predicts a difference between the Free Agr languages and the non-Free Agr languages in terms of head movement as well as in terms of the distribution of arguments in specifier positions. As is well known (see especially Vikner & Schwartz 1994, Rohrbacher 1994 and Jonas 1995a) there is indeed a difference between the two sets of languages and it is exactly the

difference which is predicted by the presence of an Agr head with V-features (when testable). The inflected verb in the languages without Agr phrases (Mainland Scandinavian, Faroese II and English) raises to C in matrix questions and V2 environments and remains in VP otherwise. It never surfaces in Infl. In the Free Agr languages, Icelandic, Faroese I and Yiddish, the verb raises out of the VP in all contexts including non-V2 environments. This then indicates that there is some head with V-features beneath C but above Infl in the Free Agr languages, a head which is not present in the languages which do not have Agr. I take this as strong evidence for the existence of the Agr head. The correlation between verb raising in non-V2 environments and the possibility of two subject positions was noticed as a difference between Icelandic and Mainland Scandinavian by Vikner 1991, and for the wider range of languages including the Faroese dialects by Jonas 1995a.²⁶

²⁶ This is different from the formulation of 'Jonas's generalization' given in Chomsky, forthcoming [at least in the widely circulated draft version, §9]. Chomsky suggests that the possibility of two subject positions (Chomsky's term is "Multiple Subject Constructions") "is contingent upon overt verb raising", thus that "Agr cannot have [a specifier] unless supported by V" (§9, p.2). This reading of Jonas's work is not entirely accurate. The actual generalization noted by Jonas is the one attributed to her in the text above. A language allows Spec,Agr, quite generally, just in case in non-V2 environments, the verb raises out of the VP. In V2 environments, all the languages considered show overt verb raising, i.e. the V2 effect. Yet, though the Mainland Scandinavian languages have verb raising (to C) in all main clauses (i), just as Icelandic does (ii), only the latter allows what Chomsky calls "Multiple Subject Constructions" (iii) versus (iv):

(i)-(ii) Both languages require verb raising in matrix clauses, i.e. V2 effect.

- (i) [CP Denne film *har* [IP *børnene* *set*]].
 this film have children.the seen
 'The children have seen this film.'

(Danish, =(22))

- (ii) [CP Þessa bók *hefur* [IP *Helgi* oft *lesið*]].
 this book has H. often read
 'Helgi has often read this book.'

(Icelandic, =(11b))

(iii)-(iv) Even with overt raising of V (i.e. to CV₂) the languages vary regarding the grammaticality of Transitive Expletive and other Multiple Subject Constructions.

- (iii) * [CP *Det* *át* [IP *många* *tomtar* *korvarna*]].
 there ate many Christmas.trolls sausages.the
 (Many Christmas trolls ate the sausages)

(Swedish (Chapter I))

Of the Free Agr languages (i.e. Afrikaans, Dutch, Faroese I, Frisian, German, Icelandic and Yiddish), all have V2 effects in main clauses and certain embedded clauses:

(23) Verb Second

- a. [CP Í bókasafninu *hefur* [IP Helgi oft lesið þessa bók]].
 In library.the has H. often read this book.
 'Helgi has often read this book in the library.'
 (Icelandic)
- b. [CP Mit Professoren in den 60ern *hat* [IP Renate den Hubert nicht *gevält*]].
 with professors in the 60s has R. the H. not tormented
 'Renate has not tormented Hubert about professors in the 60's.'
 (German)

Of course, this is uninformative for present concerns; regardless of the nature of the Agr head, the property of C_{V2} (i.e. that it has V-features) is sufficient to force raising of the verb to C in V2 clauses, just as in the languages considered in the previous section. In non-V2 environments, the verb is effectively final in Afrikaans, Dutch, Frisian and German (see Chapter II):²⁷

-
- (iv) [CP *Það* borðuðu [IP sennilega *margir jólasveinar* *bjúgun*]].
 there ate probably many Christmas.trolls the.sausages
 'Many Christmas Trolls probably ate the sausages.'
 (Icelandic, Bobaljik & Jonas 1994:1)

A further difference between Chomsky's statement of Jonas's generalization and Jonas's statement of the generalization concerns English auxiliaries. Neither Jonas's formulation nor mine make no reference to a direct connection between overt verb raising and the licensing of subject positions. For both Jonas and me, the correlation follows since both verb raising and two subject positions have a common source in a characteristic of the language. For me, this is the availability of Agr-P, for Jonas, a licensing requirement on the specifier of that phrase. For Chomsky, the connection is explicit. English auxiliaries are perhaps more of a problem for Chomsky's description than for either Jonas's or mine. That is, these involve a verb in the highest functional head, but do not allow transitive expletive constructions. If verb raising to Agr was the factor which licensed MSCs, then we would expect them in English with auxiliaries, an expectation which proves false:

- (v) * There have many trolls eaten the sausages.

Chomsky (§9, p.3 and fn. 121) notes that the possibility of MSCs may relate to "other properties of the language[s]", in fact exactly Jonas's proposal and that which I am attempting to account for in terms of the Agr head in the text of this chapter.

²⁷ I.e. *pace* extraposed elements.

(24) Embedded clause, non-bridge verb (German)

... matrix clause [CP COMP subject ... object ... V + Infl]

Holmes bewies, [CP daß [IP Moriarty das Geld gestern gestohlen hatte]].
 H. proved that M. the money yesterday stolen had

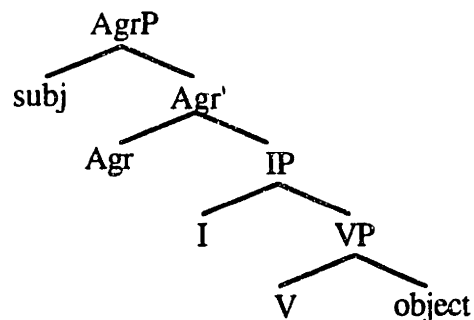
'Holmes proved that only Moriarty had stolen the money'

(German, after Vikner 1994)

Since V, Infl and Agr are contiguous at the right periphery of the clause, current technology does not allow us to test for which of these heads the verb occupies. The prediction regarding Agr cannot be tested in the SOV languages due to their SOV nature, and so I will not consider them further in this chapter. This leaves Faroese I, Icelandic and Yiddish. These languages are underlyingly VO,²⁸ and the V and Infl positions are clearly demarcated by VP adverbs, just as in the languages with simple Infl considered in the previous sections.

Now, the structure which we are interested in is one in which there is no V2 head. Thus, we consider only AgrP and below. (Again, I assume for convenience that the subject is introduced in the highest specifier – it could be introduced lower and move up.):

(25)



²⁸ See Deising 1994 for arguments that Yiddish is underlyingly VO. This is contra Vikner 1991, Santorini 1992 who argue that Yiddish is underlyingly OV or allows an alternation between the two orders. While I find Deising's arguments compelling, I will use data primarily from Icelandic to make the point due to the debate as to the status of Yiddish VO word order.

If the Agr head has V-features, then in all relevant respects this is parallel to the derivation in the last section, involving C_{V2} . At no point in (25) are Agr and (any projection of) the verb in a checking relationship. Just as in the case of V2 environments, the verb must raise to check the features of a higher head. The prediction of the system if Agr has V-features then is that languages which have a complex IP (IP + AgrP) will require verb raising to Agr (the higher Infl projection) even in environments where there is no higher C_{V2} head requiring raising.

This prediction is borne out, quite nicely. Faroese I, Icelandic and Yiddish, all display obligatory verb raising out of the VP in non-V2 environments. That is, in these languages, the finite verb never surfaces in the VP, occurring always in either a functional head above the VP (i.e. Agr) or in C (V2 environments and matrix questions). The contrast in (26) illustrates that the verb must be to the left of a VP-adverb (a) and cannot be in VP (to the right of a VP adverb, as in (b)). The examples in (27) are V2 environments, in which the verb is in C_{V2} .²⁹

²⁹ I have used embedded questions to make the point since these are the environments which most clearly disallow embedded V2 in Icelandic. Thus, embedded *wh*-movement is incompatible with verb movement to C, as (i) shows (this of course is the opposite to main clause *wh*-movement):

- (i) *Ég spurði [CP af hverju *hefði* Helgi oft lesið þessa bók].
I asked why had H. often read this book
(I asked why Helgi had often read this book.)
- (ii) Ég spurði [CP af hverju Helgi *hefði* oft lesið þessa bók].
I asked why H. had often read this book
'I asked why Helgi had often read this book.'

(Icelandic, Vikner 1994:127)

Further, V2 topicalization in embedded questions ranges from fully ungrammatical with *wh*-questions (iii) to marked with complementizer *hvort* 'whether'. It is never fully grammatical, as embedded V2 seems to be in other contexts, as shown by Thráinsson 1994, citing Magnússon 1990 (though speakers disagree on the grammaticality of embedded V2 under non-bridge verbs as well – Halldór Sigurðsson, pc 1993).

- (iii) *Ég spurði Grím [CP hvað [C_{V2} -P [_{top} í þessum kassa] *hefði* hann geymt]].
I asked Grimur what in this box had he stored
(I asked Grimur what he had stored in this box.)
- (iv) ?Ég spurði Grím [CP hvort [C_{V2} -P [_{top} í þessum bíl] *hefðu* þeir fundið hass]].
I asked Grimur whether in this car had they found pot
(I asked Grimur if they had found pot in this car.)

(26) *Embedded question (non-V2 environment). V in Agr.*

- a. Ég spurði [CP af hverju [AgrP Helgi hefði [VP oft lesið þessa bók]]].
 I asked why H. had often read this book
 'I asked why Helgi had often read this book.'
- b. *Ég spurði [CP af hverju [AgrP Helgi [VP oft hefði lesið þessa bók]]].
 I asked why H. often had read this book
 (I asked why Helgi had often read this book.)
 (Icelandic, Vikner 1994:127)

(27) *V2 environment, verb in CV2.*

- a. Þessa bók hefur [AgrP Helgi [VP oft lesið]].
 this book has H. often read
 'Helgi has often read this book.'
 Main clause.
 (Icelandic)
- b. Jón harmar [CP að [CV2-P þessa bók skuli [AgrP ég [VP hafa lesið]]]].
 J. regrets that this book should I have read
 'Jon regrets that I have read this book.'
 Embedded clause.
 (Icelandic, Vikner 1994:134)

We therefore have indirect – though reasonably strong – evidence for the existence of a head between Infl and C in exactly those languages which have evidence of two subject (and object) positions and which are not limited to a single morpheme after the verb stem. Further, we have evidence that this head has V-features. The difference between the Free Agr languages and the non-Free Agr languages regarding the position of the finite verb in non-V2 environments receives a straightforward account if there is such a functional head with V-features above Infl in the Free Agr languages but that there was no such head in the non-Free Agr languages. In the SVO Free Agr languages, the verb always raises out of the VP, even in non-V2 environments. In section 2.1, we saw that checking theory provides no motivation for the verb to raise to the next head up. The head Infl takes the VP as its complement and thus is, by hypothesis, in a potential checking relationship

(Icelandic: Thráinsson 1994:157)

with the head of that projection. Motivation for verb raising must come from the presence of a higher head with V-features. C_{V2} is one such head, implicated in V2 structures and accounting for why the verb never surfaces in Infl in the languages without an Agr-phrase. Apparently, Agr is another such head.³⁰

The theory then also predicts that the OV languages (Afrikaans, Dutch, Frisian, German) also have V to Agr in non-V2 environments. However, this movement will be string vacuous, if Agr, Infl and V are all on the right. Pending a more clever test to determine the position of the verb in head-final structures, this prediction is left sadly untested.

Within the framework of Chomsky, forthcoming, Chapter 4, section 10, in which there are no Agr-phrases, the generalizations provided here would have to be stated as follows. The parametric variation involves some feature of T(ense = Infl) and v. T either forces verb raising or does not. Further, this correlates directly with the possibility of having a second specifier for every argument. If T in a language has requires raising of the verb in non-V2 environments, then not only T, but also v and whatever head hosts the derived position of indirect objects all allow multiple specifiers. Also, if T does not force raising of the verb, then the verb may host maximally one inflectional morpheme.

³⁰ A logical possibility is a language in which Agr is present but has no V-features. Such a language would have two positions for each argument, but would not have verb raising outside of V2 environments. Verb raising could not be triggered by Infl (the head whose complement is VP) but rather only by a higher head with V-features. The parametric difference in the verb raising patterns discussed here (from Jonas 1995a expanding on Vikner 1991) is explained only if there is a head between C and Infl which has V-features.

Though I will not pursue it here, it is tempting to assume that V-features are inherently a property of inflectional heads generally. Thus, Infl must have V-features, though semantically it is no less plausible to assume this than it is for Agr. Likewise, could there be a language with a head C_{V2}' – a head like C_{V2} which forces topicalization but which does not have V-features? In the investigations here, it seems to be that the functional elements C_{V2} , Infl, and Agr all have V-features.

For Chomsky, movement is forced by the presence of “strong” features on the target head. Thus, we would express the generalizations which I have discussed in the following manner. First, the strength of the V-features of T is parameterized, by language. T is always strong (my Free Agr languages) or always weak (my non-Free Agr languages). Further, we state that a language with strong V-features of T allows multiple specifiers of T and the light verbs associated with derived object positions. Note that this does not correlate with strong D-features of these heads, since object shift is dependent on other factors, including the specific versus non-specific contrast and the morphological condition of adjacency. Rather, we must say that if a language has strong V-features of T, then it also allows multiple specifiers for other heads and allows but does not necessarily have, strong D-features for all these heads. I see no way to capture the morphological generalizations.

To a large extent, then, the Free Agr Parameter can be restated without Agr-phrases, if one admits of arbitrary parameterization of feature valences, as just discussed. However, it is unclear why the features and the possibility of multiple specifiers should correlate in exactly the manner just noted. On the theory which I am advocating, feature valences are not invoked and the reasons for the observed variation are more or less straightforward. The existence of an extra projection provides a partial explanation of why the facts should cluster the way they do. An extra projection per argument allows exactly one extra specifier per argument. The head of this projection admits of an account of the verb raising which subsumes it under a part of a larger generalization, encompassing the verb positions in V2 and non-V2 environments in non-Free Agr languages. Further, this account permits a stronger statement about morphology-syntax correlations, one which appears to be valid, at least for the range of languages considered.

2.6 Conclusion

The Germanic languages split into two groups on a range of syntactic phenomena, as summarised in Chapter I of the present thesis and in earlier work (for the split I assume, see Bures 1992, 1993, Bobaljik & Jonas 1994, Jonas 1995a). In section 1 of this chapter, I suggested that the syntactic differences may be accounted for by a simple parameter, which I called the Free Agr Parameter, following in large part Thráinsson 1994b. Some of the Germanic languages (Afrikaans, Dutch, Faroese I, Frisian, German, Icelandic, Yiddish) have a functional projection (Agr) immediately dominating (each) VP and IP projection, while the other languages (English, Faroese II, the Mainland Scandinavian languages) do not allow these projections. This proposal accounted for the observation that in some of the Germanic languages there are two overt subject positions (Spec,Agr and Spec,IP). The evidence for two subject positions comes from the correlations between adverb placement and interpretation observed by Diesing 1990 *et seq.*, extended by Bobaljik & Jonas 1994, and the distribution of transitive expletive constructions (Vikner 1994). In the other Germanic languages, those I have called non-Free Agr languages, there is no such evidence; none of the phenomena which are indicative of two subject positions are attested. The Free Agr Parameter also accounts for the tendency, noted originally by Bures 1992, 1993, for the availability of two subject positions to correlate with the availability of two positions for full NP objects – and two for full NP indirect objects – i.e. object shift effects.³¹

The morphological correlations noted in Chapter I are not unexpected if terminal nodes in the syntax are the locus of insertion of vocabulary items. The strongest claim we can make is that no more than one vocabulary item (i.e. morpheme) can be inserted at any one syntactic node. In the languages with a single inflectional head, i.e. Infl, the

³¹ Again, the correlation is between two subject positions and two positions for full NP objects (Bures 1993). Pronoun shift must be considered a distinct process, not involving Spec,AgrO-P.

occurrence of tense morphology blocks the occurrence of agreement morphology. That is, since there is only one node for the insertion of inflectional morphemes, tense and agreement affixes compete for insertion at this one node in these languages. No such morphological restrictions hold in the Free-Agr languages. In such languages, tense and agreement morphemes freely cooccur on a single verb stem.

Further, in this section I have shown that the Free Agr Parameter has implications for verb raising, on a certain set of assumptions concerning phrase structure, *merge* and checking theory. I showed in particular that there was no motivation for verb raising to Infl in the case where there is only a single projection above the verb phrase with verbal features, *viz.*, IP. This followed from the assumption that the head,complement relationship is a checking relationship (just as specifier,head is), and that the features of a projection are the features of its head (roughly speaking, see below). If there is just a single head, immediately dominating the VP, which must check features with the verb, then it may do so without raising, and we preclude movement by any of the family of *last resort* constraints governing movement (Chomsky 1995: *Greedy*, Collins 1995: *Greedier*, Lasnik 1995 *Enlightened Self Interest*). However, any additional head with V-features above Infl will necessitate raising of the verb to check these features. In what we have considered above, there are two cases where this may arise. In the languages with a split Infl, the presence of the Agr head (whose complement is IP, not VP), triggers raising of the verb at least to Agr in all finite clauses (§2.6). In all the languages, with split or simple Infl, the presence of a V2 head in C will induce raising of the finite verb to C (§2.5).

Thus Jonas's correlation is subsumed as a part of a larger generalization.³² The verb will have no syntactic motivation to raise to Infl if VP is the complement of Infl, since

³² As is most of the account of Rohrbacher's 1994. Rohrbacher's account is discussed in Chapter I, above. In brief, he suggests that verb raising is dependent on a certain configuration of agreement paradigms: if a language has first and second person agreement markers distinct from other markers and from each other in some paradigm then it will have overt verb raising outside of V2 environments. The

features will be checked without movement. Movement is triggered by the presence of a second head above the VP which has V-features. In all the Germanic languages except English, the V2 head triggers movement in this way. The split in non-V2 environments which Jonas observed can thus be taken as corroborating evidence for a functional projection between Infl and C. If there were no such projection (and if the head of that projection did not have V-features), then there would be no motivation for the verb to raise out of the VP. Empirically, as Jonas notes (extending Vikner's 1991 observation) the verb in the (VO) Free Agr languages does raise out of the VP in non-V2 environments.

I have thus introduced a single parameter: whether or not the languages have what I have been calling Agr-phrases. The ultimate source of this parameter is mysterious, but it underlies a wide range of properties in these languages:

- i) the position ~ interpretation correlations noted by Diesing,
- ii) the grammaticality of transitive expletive constructions,
- iii) the possibility of object shift of NPs,
- iv) the complementarity between tense and agreement morphology, and
- v) asymmetries in verb raising in non-V2 environments.

theory here uses a slightly different morphological generalization, one which underdetermines the analysis somewhat, though in a way that seems necessary. The dialect split in Faroese noted by Jonas is unaccounted for, since the two dialects have essentially the same morphological paradigms. Rohrbacher treats Faroese I as having "residual verb raising" without commenting in detail on why this should correlate with Diesing-like adverb position / interpretation effects or the possibility of transitive expletive constructions.

Though Rohrbacher does not discuss it, his theory predicts that the verb in German should raise to Infl (in the singular present tense of regular verbs, 1st and 2nd person are distinctively marked), while in Afrikaans and Dutch the verb should remain in the VP (there is no tense in either of these languages where 1st and 2nd person are distinctively marked in his terms). See Chapter I for presentation of the relevant paradigms. Again, it is unclear where the verb is when it is clause-final. On my theory, there should be no difference in the verb placement among these languages, since they all pattern syntactically as Free Agr languages with respect to the distribution of arguments. In principle, the difference should ultimately be testable.

The distribution of these properties follow from this parameter for the most part directly on independently motivated assumptions. To this is then added the account of Holmberg's generalization in Chapter II; once the position of the verb is determined by the requirements of checking theory, the possibility of object shift of NPs or pronoun shift can be evaluated. If the verb has raised out of the VP due to the demands of checking theory, then the object may shift. In the environments in which feature checking is satisfied with the verb *in situ* in VP, the complement of Infl, an NP object cannot raise to Spec, AgrO and a pronoun cannot shift to the position for shifted pronouns; such shift would disrupt the adjacency between Infl and the verb stem and the requirement for affixation would not be met. I have abandoned the account of the morphological correlations noted in Chapter I and no longer require that the morphology filter the syntax to account for the observed inflectional paradigms of the Germanic languages. The account of Holmberg's Generalization from Chapter II which is maintained here still invokes the filtering role of the morphological component. If the verb has not raised, adjacency in the morphological component becomes the deciding factor determining whether or not an object pronoun or NP may shift. The syntactic movement of pronouns or NPs is dependent upon the morphological configurations. In Chapter VI, I will suggest that even this may be recast with few changes in terms of a model of pronunciation and deletion of copies. This will avoid positing a filtering role for the morphology with respect to syntactic movement processes. There are still many loose ends to be worked out in the present chapter before proceeding to that account and I turn to those in the next three sections.

3. Extensions. Triggers for movements.

The discussion above relies on the idea that the relationship of a head and its complement is a legitimate checking relationship, in combination with the assumption that the syntactic properties of a phrase are those of its head (Chomsky 1995:396). The

combination of this view of phrase structure and the independently motivated Free Agr Parameter (1) was shown in the preceding section to lead straightforwardly to a concise account of verb raising in the Germanic languages, unifying a broader range of phenomena than have heretofore been unified (see also Jonas 1995a).

The conclusions of the preceding section could be weakened if either of two lines of reasoning were to prove true. First, in addition to syntactic features if there was a feature [+affix] which could serve as a trigger for movement, even when such movement would be vacuous in terms of syntactic feature checking, then this would allow a quite different account from the one sketched here. Secondly, one could suppose that V may raise to Infl, not to check features with Infl, but to enter into a checking relationship with some other element, with which it would not be in a checking relationship if it remained VP-internal. In this section, I will address each of these possibilities, and show that both are to be dispreferred for independent reasons. In the case of the feature [+affix], recapitulating a discussion from Koopman 1984, I will show that the notion of “affix” which will be necessary to enforce movement has no one to one correlation with the morphophonological notion of an “affix”, i.e. the traditional meaning of the term. In this, the notion of “affix” as a trigger for movement is divorced from the morphology and phonology. Rather, it must be an abstract syntactic notion, with its defining characteristic being: “forces movement”. While such a diacritic may be necessary (see §5 below), to say movement is forced by this feature is tautological. This discussion will lead me to reconsider a claim of Zwicky 1969, Zwicky & Pullum 1986a, Marantz 1994 and others, namely, that the syntax cannot see the phonology. This will lead into the topic of the next chapter. The second possibility is more complex. The basic case will be excluded by the *last resort* principles, I believe, though not all cases can be thus subsumed. I will speculate on the interaction of *merge*, *move* and checking theory, proposing an alternative conception of this interaction which will achieve the desired results.

3.1 “Affix” is not a syntactic feature

The analysis of section 2 assumed that movement, or syntactic operations generally, are motivated by the need to satisfy syntactic properties – to check syntactic features. Many recent analyses have offered the feature [+affix] as an impetus for movement. Thus, even though the raising of the verb to Infl might not satisfy any purely formal feature in the configuration considered above, nonetheless it might be argued that a morpho-phonological feature such as [+affix] could drive movement. Such is the content of Lasnik’s 1981 proposal, and similar proposals at around the same time (see Koopman 1984 for some discussion).

(28) *The Affix Constraint* (Lasnik 1981)

A morphologically realized affix must be realized as a syntactic dependent at surface structure.

I believe that there is a serious empirical flaw to such a proposal, namely, that instances of movement where one would involve the feature [+affix] in the syntax do not show any correlation with phonological properties.³³ If this is correct and the feature [+affix] as a syntactic feature is to be dissociated from the morphophonological notion of an affix, then the content of the term “syntactic affix” reduces to the observation “thing which triggers movement”. While there may well be a class of such elements, it is simply a statement of the facts. To say that this feature induces movement is to claim that things in the syntax which trigger movement trigger movement. As a final point, given the general absence of syntactic processes sensitive to phonological properties, I suggest that a proposal of Zwicky 1969 is accurate. The syntax cannot “peek” into the phonology and

³³ This discussion draws heavily on observations of Hilda Koopman in Koopman 1984. My thanks to Alec Marantz for (re-)directing me to Koopman’s discussion of this problem.

syntactic derivations proceed regardless of their implications for phonology. If this claim is correct, then appeal to the notion [+affix] as a trigger for movement is, to the extent that it has any phonological substance, excluded *a fortiori*.

As a point of departure, take the case of V to Infl raising, which I have shown is syntactically superfluous in languages with a simple Infl, i.e. no Agr-phrase. Consider a clear example of a language with raising of V to some Infl projection, without V2 properties. French is a well known example of such a language. In French, the finite verb appears to the left of a VP adverb, contrasting with English:

(29)

Les lutins mangent souvent du gâteau.
 the goblins eat [vp often of cake
 'Goblins often eat cake.'

(French)

(30) Goblins [vp often eat cake.]

On the theory I have outlined above, a language like French would have to have a functional projection above IP which would trigger the verb movement in the manner described above.³⁴ The alternative I wish to exclude is that these facts could be accounted for equivalently by positing that French Infl was [+affix], and movement was therefore triggered to satisfy this property.³⁵

³⁴ For evidence that this is indeed the case, i.e. that French has more than one inflectional head, as can be seen by different relative orders of verb and adverb in non-finite contexts, see Pollock 1989. See Iatridou 1990 for a discussion of some problems with Pollock's proposal.

This functional projection does not seem to be the same as the one in the Germanic languages which I have labeled Agr. In the first place, Modern French shows neither object shift of full NPs (though Old French did, Roberts 1993) nor any of the effects associated with two subject positions, such as the interpretive effects identified by Diesing, or transitive expletive constructions. We posit, then, a different functional category.

One possibility is that this category is similar to the Germanic topic head, Cv₂, but that it requires the subject to be a topic. This would go a long way to accounting for the well known difference between English and French such that French does not allow an adverb to intervene between the subject and the finite verb, while English does. The V2 languages seem to allow few, if any, adverbs to intervene between Spec,CP and C. These thoughts are on the fuzzy border between speculation and conjecture, and I will not pursue them any farther here.

³⁵ Lasnik's 1994 proposal, involving a difference between stems which concatenate with affixes in the syntax (as assumed here), and stems which are inserted fully inflected, and raise merely to check features (as in Chomsky 1993 et seq.) will be considered briefly in the discussion of English auxiliaries in §4.

The first potential problem with such an approach, noted by Koopman 1984, is that the property [+affix] as a trigger for syntactic movement does not seem to correlate with the property of being an affix in the morphophonology. Thus Infl in French triggers movement uniformly, independent of its morphophonological content. The regular first person plural inflection is the suffix *-ons* /-õ/, clearly an affix, but there are a range of inflections like the first, second and third person singular, and third person plural, which, though distinguished orthographically, are none of them affixes in the phonology. All are null:³⁶

(31) *French inflection triggers movement*

- a. Nous mange-*ons* du gâteau.
 Infl = /-õ/
 we eat INFL of.the cake
 'We are eating cake.'
- b. Elle mange du gâteau.
 Infl = Ø
 she eat INFL of.the cake
 'She is eating cake.'

(French)

³⁶ For instance, they are not pronounced under "liaison" even if the following word begins with a vowel:

- (i) Il parle aux étudiants. /...parl.o.zet^sud^zjã.../
 he speak.3s to.the students
 'He speaks to the students.'
- (ii) Ils parle-nt aux étudiants. /...parl.o.zet^sud^zjã.../ not /...parl_{to}.zet^su.../
 they speak-3p to.the students
 'They speak to the students.'

(French, Marie-Claude Boivin, pc)

The third person singular is most clearly null of all the affixes. The third person plural does trigger syllabification of an otherwise extraprosodic coda consonant, indicating that it is not entirely irrelevant for the phonology. The third person singular is singularly null since the preceding final consonant can be extraprosodic:

- (iii) part = /par/ <t> (iv) partent = /part/-Ø
 leave.3s leave.3p

(French, Marie-Claude Boivin, pc)

Thus, some phonologically null elements must be syntactically [+affix] on this view, a first difference between the phonological and syntactic notions [+affix]. However, this is only a weak objection, since null affixes are common place in morphological and phonological representations.

The objection would evaporate if all phonologically (inherently) null elements (e.g. not traces, PRO, etc...) could be shown to be affixes, a suggestion which arises in Pesetsky 1995, *passim*. However, we have already seen reasons to doubt this. Thus, the complementizer system in Germanic involves two elements with distinct semantic/syntactic properties which are phonologically null, namely the V2 head and the interrogative head. Neither are ever expressed by overt morphology, either independent lexical items or affixes on the elements (finite verbs) which they attract. The V2 head has a property consistent with the hypothesis that null elements are inherently affixes; it always triggers verb movement, like French Infl. However, as we saw in section 2.3, interrogatives show a clear main / embedded clause asymmetry with respect to this property. Main clause interrogatives attract the finite verb, consistent with the conjecture that they are affixes, but embedded interrogative C is incompatible with verb raising, though it does trigger *wh*-movement. Thus, interrogative C in Germanic is phonologically null, but has the property of attracting verbs only in main clauses. This casts doubt on the claim that all phonologically null elements are affixes.³⁷

³⁷ There is an alternative available, which involves incorporation of the null C into the higher verb, an operation obviously impossible in matrix clauses, yielding the main / embedded asymmetry. Such an analysis is pursued for some embedded clause types in English by Pesetsky (in prep b). However, this analysis is then faced with the problem of accounting for the lack of such an asymmetry in embedded V2 constructions, especially in a language like Icelandic where embedded V2 does not depend on the matrix predicate. If incorporation of C into a higher V satisfies the affix requirement of that C, then why should such a possibility be available, indeed obligatory, for embedded interrogatives, but excluded for embedded V2?

Another potential (partial) analysis is also due to David Pesetsky (Pesetsky 1987:120f). He suggests that movement of the *wh*-element to Spec,CP is sufficient to satisfy the affixal nature of the embedded interrogative head C. If this proves to be on the right track, then it would weaken the objection to affix-driven movement from the Germanic complementizer system. However, there are potentially serious problems for such an analysis. In particular, it fails to account for the embedded versus main clause asymmetry in verb-raising. If movement of a *wh*-operator to Spec,CP is sufficient to satisfy the

This is strengthened by our observations concerning English. The finite main verb in English remains *in situ* in the verb phrase, hence we might claim that English Infl is not an affix. Like French, English Infl is sometimes realized as /Ø/, but, also like French, English Infl is often realized as an overt inflectional affix, i.e. 3sg *-s*, past *-d*. Again, there is no difference, neither the null Infl nor the morphophonologically affixal Infl triggers raising of main verbs.

Finally, there are cases discussed by Hilda Koopman (1984:149ff) which provide the final piece of the objection to a phonologically-determined notion of affix. In addition to contrasts like English and French, where raising is triggered both by phonological affixes and [Ø], there are also phonologically overt elements in Infl which trigger raising of the verb, but which are realized as independent words (particles) and not as morphophonological affixes. In Vata, a Kru language of Africa, there is a class of Infl elements which are phonologically independent of the verb stem. For instance, they show no ATR (“dominant”) harmony with the verb, a process which is characteristic of affixes in these languages occurring within the domain of phonological word (see Kaye 1982), nor do they display the tonological properties of affixes, according to Koopman. Finally, if the process of predicate clefting applies, which copies and fronts the verb, then the tense particles may not occur on the fronted verb (for arguments that the verb in these constructions is raised from within VP to an Infl position, see Koopman 1984). Thus, they are not phonological

hypothetical affixal properties of the C head in embedded clauses, then why is matrix *wh*-movement not similarly sufficient – why should there be verb raising in matrix questions? For that matter, if an element in Spec,CP is sufficient to check affixal features of a C head, why should there be verb raising in V2 topicalization? Why does the topic in Spec,CP not satisfy these features?

I do not claim to have an account of the matrix versus embedded asymmetry concerning verb raising in interrogatives. The point which I am making is that the overt versus null distinction (and a concomitant notion of [affix]) is not all there is to the story. There are two phonologically null C heads in Germanic – the interrogative C and C_{V2}. The two have different properties regarding verb raising. Therefore, the property of attracting a verb cannot be reduced to phonological null versus overt.

affixes, though if movement is triggered by the syntactic property [+affix], then they must be syntactic affixes. I illustrate with Koopman's examples.

(32) *Predicate clefting does not bring the tense particle.*

- a. *lī* *ṅ* *lī-ḏā* *zué* *Ḕ*
 eat you eat-PT yesterday Q
 'Did you eat yesterday ?'
- b. **lī-ḏā* *ṅ* *lī-ḏā* *zué* *Ḕ*
 eat-PT you eat-PT yesterday Q
 (Did you eat yesterday.)

(Vata, Koopman 1984:150)

We see the full range of possibilities in this small sample. There are phonological affixes (the English Infl affixes) which do not trigger raising, and hence are not syntactic affixes. Further, there are syntactic affixes (elements which induce raising) which are not phonological affixes. The properties of phonological affix and syntactic affix are doubly dissociated and thus are logically independent.

It is, of course, always possible to posit a null affix in addition to the overt particle, and ascribe the movement to the null affix. However, this seems to me to be a *reductio ad absurdum*. The empirical observation is that there is no direct correlation between overt affixes and movement. By positing a null affix to trigger movement in all cases where there is no overt affix, the claim that movement is triggered by the property "affix" becomes nearly tautological. I believe a more interesting direction to pursue is to question whether or not there are processes other than affixation at work to trigger head raising, and whether processes other than syntactic movement may derive affixation. I have claimed in Chapter II that the answer to the latter is "yes", invoking Marantz 1984's *morphological merger*. here, I am claiming that the answer to the former is also "yes".

Summing up, if the syntactic feature [+affix] is not connected to the morphophonological property [affix], then what is the content of this term in the syntax? There is only one answer so far. A syntactic affix is simply “an element which induces movement in the syntax”. But this is only a description of the facts. To propose it as an explanation (movement is forced due to the property [+affix]) is tautological.³⁸ One may propose that languages vary as to whether or not Infl is a “syntactic affix”, but this is to simply state the descriptive generalization that verbs raise in some languages and not in others. Given that this syntactic property is doubly dissociated from the morphophonological property, it is nothing more. In this Chapter, I have attempted to go one step further and explain the patterns of verb movement in the Germanic languages, not in terms of an arbitrary feature, but in terms of an independently motivated (though ultimately arbitrary) parameter.

A final speculation. Claims that syntactic processes such as head raising are driven by “the feature [+affix]” are not uncommon in the literature. In this, the double dissociation just noted is perhaps telling. Movement driven by the need to satisfy a feature [+affix] would be the clearest example I am aware of of syntactic processes being driven by overtly detectable morphophonological considerations.³⁹ However, we see that this feature is really often devoid of morphophonological substance. The syntactic feature “affix” has nothing to do with morphophonological properties, such as whether or not something is an affix. This then reopens the question of “the autonomy of syntax”. Can the syntax ever “peek” into the morphological and phonological component(s)? Rephrasing things, if the grammar was constructed such that the syntax could “look ahead” into the phonology and

³⁸ To push the [affix] analysis to its limits, it becomes a notational variant of the feature analysis which I am proposing. That is, [affix] becomes a syntactic feature which is devoid of morphophonological content. Just as “V-features” are an unexplained idiosyncratic syntactic property, with no obvious morphological or phonological reflexes, so would the feature [syntactic affix] be an irreducible syntactic property, related to the morphophonological property “affix” only by virtue of double use of the same word, “affix.”

³⁹ Thus Chomsky 1995, forthcoming discusses movement as being “morphologically driven”, in his terms movement is forced only in order to check features which will “cause problems at PF.” However Chomsky’s phonological and morphological properties are quite abstract; none of the properties he discusses have any connection to tangible, overt morphological or phonological properties, in the common usage of these terms.

constrain syntactic processes on the basis of what output they would derive in the phonology, then we would expect (at an observational level) syntactic processes which were sensitive to the phonological characteristics of their parts, say a verb raising rule which only applied to vowel-initial verbs, or a clefting process that was only possible with tri-syllabic words. Such processes are conspicuously absent from grammar.⁴⁰ Given that the most clear-cut putative cases of such rules, namely movement forced by affixation requirements, turn out not to be driven by overt morphological or phonological characteristics, I believe we are justified, at least as a research programme, in following

⁴⁰ One which has been suggested from time to time is the complex behaviour of French preposition + article combinations. Thus, *de* 'of' and *le* (masc., singular., definite) combine to form *du*, while *de* and *la* (fem. sg., def.) do not. Though syntactic (raising of D to P) accounts have been suggested, they are undermined by the importance of phonological environment. Thus, the masculine and feminine articles are both /' =/ before vowel-initial nouns or adjectives. When the masculine article is reduced in this way, contraction to *du* (or *d'*) is impossible:

- (i) *du* *maître* * *de le* *maître*
 of.the master: of the master
- (ii) * *du* *ancien maître* *de l'ancien* *maître*
 of.the former master of the former master

(French)

For an analysis of these phenomena which does not require syntactic rules which can "peek" into the phonology, see Zwicky 1987. For a re-analysis of this data, and an account which is more directly compatible with the assumptions of this thesis, see Bobaljik (in prep,b).

Other apparent counter-examples exist in the literature. One common view is that phonological properties of verb stems determine whether or not a logically ditransitive verb in English enters into the double object construction, i.e. the difference between *give* (*a book to Colin*) and *donate* (**a book to Colin*). The relevant phonological properties have been variously ascribed to \pm latinate or the syllable count. However, as Pullum & Zwicky 1986b have shown conclusively, summarizing Green 1974, there are no phonological generalizations to be made when one considers the full range of verbs in English. For any single phonological characteristic, construing "phonology" broadly enough to include the difference between Romance and Germanic roots, there is at least one verb which allows the double object construction and one which disallows it.

A more acute apparent counter-example is the case of English aspectual *come* and *go*, which appear to be sensitive to the phonological form of the agreement suffix, hence there are contrasts between 1st and 3rd person:

- (i) I go see my parents every Christmas.
 (ii) * Uli goes sees his parents every Christmas.

See Carden & Pesetsky 1979, Pullum 1990, and Jaeggli & Hyams 1993 for some thoughts. I have nothing to say about this at the present time.

Another obvious counterexample is the "heaviness" effect in extraposition, for instance, English Heavy NP Shift. A direction to pursue is that such "movement" is a part of the morphophonological process of linearization, in effect, a PF movement operation. Pursuing this, of course, runs the risk of a *reductio ad absurdum* in the opposite direction of the one just considered in the text. Thus, just as it is uninteresting to introduce an otherwise unmotivated null affix simply in order to reduce all cases of movement to being driven by affixation, it would be similarly uninteresting to attempt to reduce all cases of movement which seem to be phonologically sensitive to morphophonological processes.

Having opened a Pandora's box, I will move on...

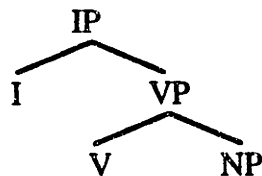
Zwicky 1969, Zwicky & Pullum 1986a, Halle & Marantz 1993, Marantz 1995 and others in claiming that the syntax is blind to phonology.

Chapters I and II of this dissertation had a “peeking” characteristic to them. Specifically, both required that syntactic operations (verb movement and object shift) be constrained by morphological factors, in particular, that the morphophonological component filter the syntactic derivation. The data from Chapter I has been reanalysed in section 1 of this chapter, the morphological correlations with possible argument positions now falling out as a result of the Free-Agr Parameter without any filtering effect by the morphology. There remains only the derivation of Holmberg’s generalization in Chapter II. This then will be the topic of the next chapter. Before that, though, there are a number of ends which remain loose...

3.2 *Last resort*

I argued above that the configuration in (5), repeated here as (33), is sufficient for feature checking between the verb and Infl. That is, I claim, contra Chomsky, that the head,complement relation is a sufficient relation for feature checking.

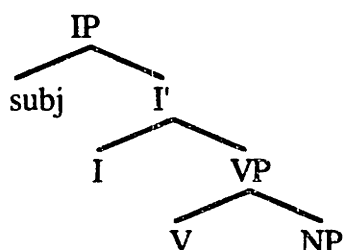
(33)



From this, I concluded that verb raising was superfluous in such a configuration. This is true as far as the verb must check features with Infl. However, if it was also the case that the verb had features to check with some element besides Infl, then this

conclusion may be weakened. Consider in particular, the hypothetical situation where the verb has features to be checked with a DP subject, base-generated in Spec,IP. I do not wish to commit myself to the view that, if one abandons the VP-internal subject hypothesis (see Williams 1994 for arguments why this may be a fruitful move), then the verb must check features with the subject in Spec,IP. However, such a view is at least plausible, and provides a concrete configuration for the discussion. There are others as well.

(34)



An implicit assumption in earlier theories was that this configuration could be sufficient to force raising of the verb to Infl, in order for the verb to be in the specifier,head relation with the subject. However, I believe that this argument is inconsistent with the assumption that economy considerations, i.e. conditions on the derivation, are strictly local (i.e not representational). Ultimately, I will suggest that this operation is barred by the principle of *last resort*, however it is ultimately formulated. For now, I will state it as:

(35) *last resort*

A syntactic operation (merge/move) involving two elements (α, β) is licit only if it satisfies some property of either α or β (or both).⁴¹

⁴¹ Compare Chomsky's 1995 *Greed*, Collins's 1995 *Greedier*, Lasnik's 1995 *Enlightened Self Interest*. Note that I am making a stronger claim in suggesting that this holds of *merge* as well. For this to work, satisfaction of thematic/selectional properties, in addition to checking of formal features must count as satisfaction of *last resort*. Compare Collins 1995: *Integration*.

Consider first what happens if the verb raises to Infl in (36) (i.e. the derivation of (7924)) before the DP specifier is introduced.

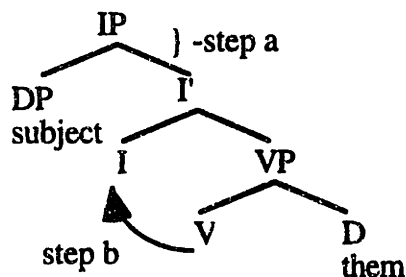
(36)

- i. Merge V + D = VP
- ii. Merge Infl + VP = IP
- iii. Raise V to Infl (adjunction of heads)
- iv. Merge DP + I' = IP (introduce subject in Spec,IP)

Assuming that any member of a complex head (any sub-label of an X° in Chomsky's terms), may check features with a specifier on subsequent operations of merge⁴², then step (iv) will check the relevant features of the verb (as well as Infl and the DP). However, step (iii) is already problematic. This step satisfies no features of either the verb or Infl. Rather, it only leads to the possibility of subsequent checking of features at step (iv). If *last resort* is truly a condition on derivations, locally interpreted at each stage (as has been argued by Chomsky (forthcoming), Collins 1995, Ura 1995, Lasnik 1995 and others), then step (iii) should be prohibited in (36) just as it is in §2 above.

Consider next what happens if verb raising occurs after the subject has been introduced in Spec,IP in (34), i.e. counter-cyclically.⁴³

(37)



step a = introduction of the subject, precedes step b = raising and adjunction of the verb to Infl.

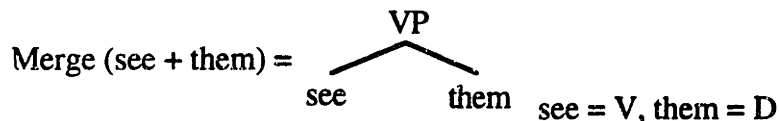
⁴² I.e. in this case, after the verb has raised to Infl creating the complex Infl (Infl + V), any element in a checking relation with this complex head can check features of either Infl or V.

⁴³ Recall that head movement is standardly assumed to be non-cyclic (as in 36). See Chomsky 1995, Kitahara 1995, Watanabe 1995, etc. However, this derivation involves truly counter-cyclic movement of the verb, thus, the case may be ruled out on independent grounds. For a dissenting view, and a different approach to head movement, see Bobaljik 1995b and §4 below.

If counter-cyclic movement is to be prohibited, then this would be ruled out *a fortiori*. However, it is not clear that counter-cyclic movement of heads is necessarily to be prohibited, or at least, we would hope that such a prohibition could be derived. In this subsection, I would like to explore a possible view of *merge* (and *move*) which will underlie the claims a) that the head, complement relation is a checking relation, and b) that the derivation in (37) is also to be excluded by *last resort*.

The syntax, I assume with Chomsky 1995, has two operations, *merge* and *move*. The former, *merge*, is a binary operation, which combines two terms, creating a complex one. This complex term, I assume, again following Chomsky 1995:396, has the syntactic properties (i.e. features) of its head, however the head is determined (see Collins 1995, as well as Chomsky, for thoughts). In the following diagram, I write VP to refer to “the product of merger of V and D(P) which has the syntactic properties of (i.e. the head of which is) V”.⁴⁴

(38)

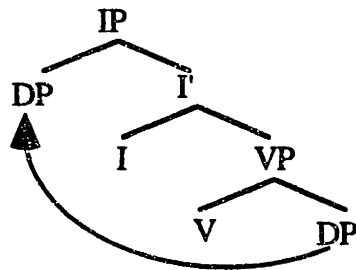


In addition, there is the operation *move*. This operation has two components. One component is *merge*: two terms are combined and the product has the syntactic properties of one of the two. The second component of *move* is that, unlike *merge*, a copy of one of the terms affected is left in its original position. That is, while *merge* combines two terms, either, both or none of which may be complex (the product of earlier applications of *merge*

⁴⁴ For a view on the difference between an X' and an XP, see Carnie 1995a,b.

and *move*), *move* affects at least one term which has already been merged, i.e. is a sub-term, or constituent of an existing, larger term. Graphically:

(39) *Move*



Move:
 i. copy DP
 ii. merge DP, I'

In addition to the operations of *merge* and *move* which arrange and rearrange elements involved in the derivation, there is also checking theory. Elements involved, as we have been assuming, carry formal features (e.g. case, and others) which, by hypothesis, need to be checked in the course of the derivation. Where I differ from Chomsky is in the definition of what configurations are admissible checking relations.

Chomsky proposes (1995) that a head H is in a checking relationship with an XP in its specifier or with another head G adjoined to H, but that the relationship of a head H to its complement is not a checking relationship. The head,complement relationship is implicated in theta-theory, or selection, but not in the checking of formal features. The special nature of a complement derives, apparently, from the fact that it is “the most local relationship of an XP to a terminal head Y” as distinct from “all other relations within YP [which are] head-specifier” (Chomsky, forthcoming: Ch. 4 §3 p8). The dissociation of theta-theory and checking theory becomes sharper in Chomsky (class notes, 1994; forthcoming), where it is suggested, (Ch. 4, §6, p1, and elsewhere) that there is a complementarity between the two types of relations.

My proposal differs in that I accord the complement relation no special status for checking theory.⁴⁵ For my purposes, all local relations of an XP to a head (i.e. all relations to the head Y within YP) are potentially checking relations. That is, I believe that there is no structural or derivational complementarity between checking and theta relations.

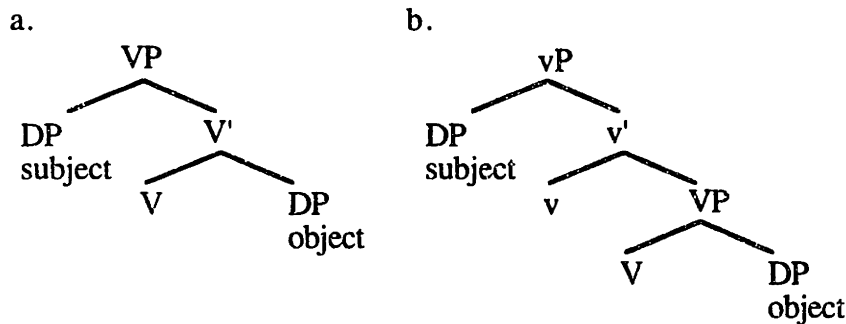
Now, let us consider Chomsky's proposed complementarity between theta-relations and checking relations. As far as I can tell, this is the primary motivation for the claim that the head-complement relation is not a checking configuration. It is not entirely clear to me, though, how this disjunctivity is supposed to be expressed in the syntax, or what the conclusion that head, complement is uniquely implicated in theta- relationships follows from. There seem to be two obvious candidates. On the one hand, one could assume that the difference between theta- relations and checking relations is structural, expressed in terms of *domains*. The complement of a head H is, in Chomsky's terms, in the *internal domain* of H, which is disjoint with the *checking domain*, which latter includes the specifier position. On the other hand, the difference could reduce to the distinction between *move* and *merge*, the former being implicated in checking theory, and the latter introducing arguments into theta-configurations. I believe neither of these approaches can be correct, at least within the framework of the proposals set out by Chomsky 1995, forthcoming, as I will show directly.

Take the structural, *domain*-based distinction between case and theta- relations. On this view, the complement position would not be a checking position, since it is a theta-position. But this reduction to structure cannot be right. In particular, the specifier-head

⁴⁵ Though I do not preclude that the specifier versus complement distinction may play a role in predication theory, and perhaps theta-theory if the two are distinct. Hale 1995 proposes that relations expressed as structural configurations are the canonical units of universal interpretation. He suggests that categorial labels such as N and V – which we generally associate with the heads of canonical configurations expressing relations such as causativity – reflect only tendencies. The structural relations, according to Hale, are invariant but the specific category labels associated with the heads in these structures potentially vary across (or even within) languages.

relation is in some cases a checking relation (i.e. the DP in Spec,IP to satisfy checking requirements of formal features), and in other cases, the same relation (specifier,head) is a theta (non-checking) relation (i.e. the introduction of the subject in its base position, e.g. in Spec,VP). This is illustrated by consideration of the following structures (“v” in (b) is a light verb, responsible for theta-assignment to the subject):

(40)



If complement is defined, as Chomsky defines it, as the most local relation of an XP to a head, then there is no way a transitive subject can be a complement. It is either the specifier of VP, where the object is in the most local relation (complement), as in (40a), or it is in the specifier of a light verb (v), the complement of which is the verb phrase introducing the object. Similar examples are easy to construct, the point being that structural configuration alone is not a sufficient characterization of theta- versus checking-relations. At least the specifier,head relation is implicated in both, and there is thus no reason to suppose, *a priori*, that the head,complement relation is any different.

Another possibility is that the difference between theta- relations and checking relations reduces to the difference between *merge* and *move*. That is, a position introduced by *merge* is a “base-position” (to borrow familiar terminology), for theta-purposes only,

while a local relationship created by *move* is a “derived” relation, for checking purposes only.

But this also does not seem to be the difference assumed by Chomsky. That is, in a number of environments, he proposes that “a checking relation can be established by *merge*...” (forthcoming, Ch. 4, § 5.4, p12). One such environment where this is proposed is the insertion of a complementizer *whether* or *if* into Spec,CP or C° of an embedded interrogative, in order to check the “Q” (i.e. *wh*-) feature of the interrogative head, a feature which is explicitly treated as a formal feature (*ibid.*) Another such environment is the treatment of expletives, where expletive *there* (or its equivalent in other languages) is inserted by *merge* in a/the subject position in order to check the features (likely the purely formal EPP features) of the head T (= Infl) (Chomsky, forthcoming, especially §§ 9-10).

Internal to the technical side of the framework laid out in Chomsky, forthcoming, the difference between specifiers and complements with respect to checking theory is unmotivated. The two possible motivations are a principled difference in structure, or the difference between relations created by *merge* and those created by *move*. Neither one is at stake. Theta-relations can be determined in either complements or specifiers and checking relations can be established by either *merge* or *move*.

We conclude, then, that at least within Chomsky’s framework the possibility of checking in a head-complement relation (the underpinning of the analysis of this chapter) is not excluded for any principled reasons. In fact, we have seen that the theta- versus checking- relationship is neither a direct consequence of configuration (isomorphic relationships are independently required to be potentially checking or theta-relationships), nor is it a direct consequence of *move* versus *merge*, at least not in the direction crucial for

this analysis. Chomsky has independently demonstrated that relations created by *merge* must at least potentially be checking relations.

Chomsky does make a distinction between arguments on the one hand, and non-arguments such as expletives and *whether* and *if*, on the other. For the former, and only for the former, there is a stipulated requirement that only the head of a non-trivial chain may enter into a checking relationship (forthcoming, §5, p30 and elsewhere). As I have shown though, this requirement follows from no independent aspect of the theory. Moreover, this requirement says nothing of non-argument relations such as the relation between Infl and the VP in (33). The VP is not an argument, and there is no reason then to expect that the verb must raise and that the features of Infl cannot be satisfied by the checking relation established with its complement, the VP, which, recall, has the formal features of its head, the V.

As Chomsky points out, allowing checking relations to be defined this way (though I see no non-stipulative alternative) encounters a potential problem if the subject is base-generated (i.e. inserted by *merge*) internal to the VP, for instance in either of the configurations in (40). Why does the subject not check features with the verb, thus receiving accusative case and triggering object agreement ?

Chomsky's claim that arguments can not check features where they are introduced by *merge* evades this problem. A consequence of this is that all arguments must raise, covertly if not overtly. It is not clear that this is a desirable consequence, though it may well be.

There are many other ways of avoiding the potential problem posed by VP-internal subjects. Many of these are compatible with the present proposal and do not require all

arguments to raise, allowing objects to check features in the head, complement relation. I will mention a few, though I see no compelling reason to adopt any of these proposals over any other.

The most obvious way to avoid the problem would be to deny the VP-internal subject hypothesis outright. Nothing in this thesis hinges on the subject being inserted in the Spec,VP position, and in fact, I see few compelling arguments for this hypothesis generally (see Williams 1994 for a critical review of standard arguments in favour of it).⁴⁶ In particular, the main conceptual motivation for the hypothesis in the form adopted by Chomsky and in related work is a view of theta-theory as an interpretive reflex of structure, stemming in large part from the work of Hale & Keyser (1989, 1991, 1993). Thus, in a discussion of the light verb as in (40b), Collins 1995 proposes that thematic roles be derived from the structure by means of interpretive rules such as the following:

(41) *Collins: Theta-theory as interpretive rule*

The DP specifier of a VP whose complement is an AP/PP
is interpreted as an individual that undergoes a change
resulting in the state described by AP/PP

(Collins 1995:8)

Collins suggests that all of theta-theory may be reduced to interpretive rules for configurations like this. Thus, replacing AP with VP in (41) we have the definition of an agent or causer, and so on, with some more complication introduced for roles such as *goal* and the like. I see no reason to reject this view of theta-theory, with the quibble that the occurrence of “VP” in the first line seems unmotivated. Let us replace it with “XP”:

⁴⁶ Though see Harley 1995 for a defense of the hypothesis.

(42) *Revised theta-theory*

The DP specifier of **an XP** whose complement is an AP/PP
is interpreted as an individual that undergoes a change
resulting in the state described by AP/PP

The DP specifier of **an XP** whose complement is a VP
is interpreted as the agent or causer of the event / state
denoted by the VP.

...

The latter interpretive rules seem much more in line with (my reading of) Hale 1995, where it is argued that the universal part of universal grammar is the configurations. The category labels which instantiate a given configuration may vary from language to language, though there is some sort of markedness or canonicity effect: a verb is the canonical expression of an agent-patient relation, an adjective the canonical expression of a state, etc... However, with the replacement of “XP” for “VP” in (42), the motivation for the VP-internal subject hypothesis from (this) theta-theory disappears.

Another solution, maintaining the VP-internal subject hypothesis, would be to add force to the Extended Projection Principle. One could imagine that the subject could in principle remain *in situ* in Spec,VP, checking features with the verb, but that such a derivation could not lead to convergence (in Germanic) due to a strong EPP. Infl would not be able to discharge its case feature. Some version of this underlies many theories of case systems, including the theory of Ergativity which I suggested in Bobaljik 1993

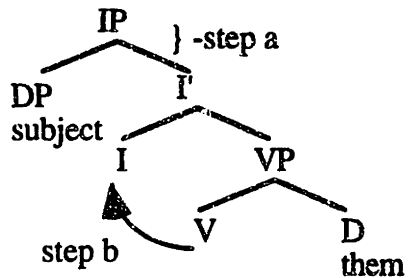
extending ideas of Levin & Massam 1985.⁴⁷ Another interpretation of this is the “Lemming” theory of case systems developed by Sauerland 1995. The essence of Sauerland’s system is that all arguments check / are assigned case in their base position (i.e. internal to the VP), but that Infl introduces a wrench into the theta-connected case patterns, attracting (and thus suppressing) one of the cases. Effectively, transitive subjects in Nominative-Accusative languages like English check (abstract) Ergative case features in Spec,VP, but these features never receive overt realization since the case of the closest argument is always suppressed, the argument surfacing as nominative. In Ergative-Absolutive systems on this story, abstract Accusative is the case attracted and suppressed by Infl, when there is an Accusative argument in the clause. Other related proposals (Bittner & Hale, to appear; Bobaljik 1993) may play out in the same way. Obviously, these proposals are but the tip of an iceberg; my point in bringing them up is to suggest that an explanation of the failure of a VP-internal subject in Nominative-Accusative languages to surface with the same case as the object should undoubtedly take into account the range of attested case systems in the world’s languages.

In sum, Chomsky’s proposal that arguments need to move to enter a checking relationship (in most cases covertly) is not by any means the only solution to the potential problem posed by VP-internal subjects as in (40). Nor does it seem to follow from any independent considerations. Finally, even if Chomsky’s solution turns out to be correct, it does not follow that the head-complement relation is not a checking relation for non-arguments.

⁴⁷ This would have to be rethought in terms of a stacked VP-structure, of course. It seems to me that the problem here is not a paucity of alternatives, but rather a plethora of them, and it is unclear to me what direction is superior to the others.

Returning the discussion to its intended course, I have still not shown that (37), repeated here, in which the verb raises counter-cyclically to check features with the subject, is excluded for any principled reason.

(37)



step a = introduction of
the subject, precedes
step b = raising and
adjunction of the verb
to Infl.

We are finally at a point where this derivation can be excluded by appeal to *last resort*, I believe. In fact, the claim is even stronger, as I will claim that this derivation does not create a checking relation between the DP specifier of IP and the verb.

Recall that I have assumed that all local relationships are checking relationships. Let me now elucidate what I intend by *local relationships*. Unlike Chomsky's representational characterization of the relationships specifier and complement, I would like to suggest that, for the purposes of constraints on the syntactic derivation, *local relationships* are defined derivationally. To be sure, post-syntactic interpretive components, such as the view of theta-theory advocated by Hale & Keyser in much recent work (Hale & Keyser 1989, 1993), and Hale 1995, and its interpretation by Collins 1995 (above), and others, may make use of representational relations, but I believe that these are not necessary in the syntax *per se*. After elucidating the difference somewhat, I will show that this derivational definition of local relationships will exclude the counter-cyclic derivation (37).

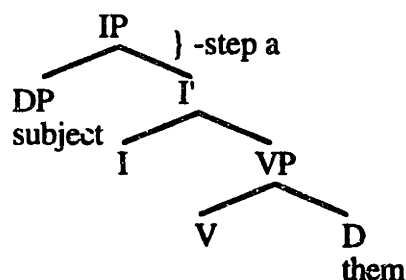
Keeping in mind that *move* is essentially *merge* + *copy*, I define “local relationship” in the following way.

(43) *Local relationship.*

α and β are in a *local relationship* iff an operation of merge (or move) has α and β as its terms.

The case of head, complement is of course no different on this definition than it is on the standard, i.e. representational definitions. If V and NP merge, then V and NP are in a local relationship. Consider now the case of a DP in Spec,IP:

(44)

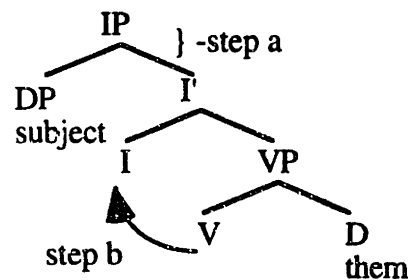


Whether the subject is introduced directly into Spec,IP (i.e. *merge* from the numeration), or whether it raises from some lower position, via *move* (e.g. an unaccusative, or the VP-internal subject hypothesis), “step a” in (44) involves an application of *merge* taking as its two terms I' and DP. Of course, the features which are checked in this configuration are the features of the heads of both I' and DP (Infl and D), but on the hypothesis that the features of the projection are those of its head, this is not problematic. Thus, the features of D(P) and the features of I(P) are in a local relation since there is an application of *merge/move* which takes these two elements as its terms. In this way, the specifier, head relation is also a *local relation* as defined in (43).

This configuration in particular points to the necessity of assuming that the features of a projection of Y (i.e. YP) are those of its head (Y). In (44), the operation combining the phrase marker headed by Infl (IP) and the subject, combines only projections. Further, the structural relation specifier-head is between an XP and a head. That is, if this configuration is established for the purposes of feature checking, then the features which are being checked must be those of the maximal projection in the specifier position, i.e. DP, and only those of D by virtue of inheritance.

For the most part, of course, the representational and the derivational characterizations of structural relationships will coincide. One point where there is a difference with ramifications for the theory is in the hypothetical derivation in (37), repeated here:

(37) (repeated)



step a = introduction of the subject, precedes step b = raising and adjunction of the verb to Infl.

We assume that the head Infl has some formal feature which must enter into a checking relationship with the subject DP. This relationship is established in “step a” of (37). The DP (a projection of D) merges with a projection of Infl (perhaps via Move). The projections, recall, have the relevant syntactic properties of their heads, including the formal features which enter into the checking relation. In this way, as discussed above,

what is representationally Spec,Head is derivationally simply a by-product of the operation *merge*.

Consider now “step b”, raising of the verb to Infl. This operation, being *move* copies the verb and *merges* a copy with (the head) Infl. Though representationally the V is now in a local relation to the DP specifier of Infl, derivationally it is not. That is, there has been no operation of *merge* such that the V and the DP subject are terms of that operation. Merger of the subject and (the projection of) I occurred prior to merger of V and Infl. Hence, (this counter-cyclic) raising of the verb to Infl can only satisfy *last resort* if last resort is a condition on representations, and not on derivations. If checking is derivational, in the manner I have suggested (i.e. the specifier,head relationship is merely a by product of the operation merge with a projection of the head), then the need to check features with a specifier cannot trigger raising after the specifier has been introduced.

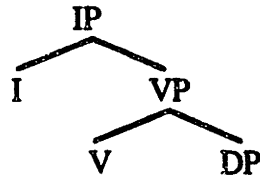
Thus, on the hypothesis that conditions on derivations are interpreted locally, we find that the conclusions of section 2 hold. To the extent that the analysis offered there is the most concise and empirically broad account of verb raising in the Germanic languages, it then lends support for pursuing the interpretation of *last resort* and the reduction of checking relationships to local relationships, defined derivationally as above. The difference between the view proposed here and that advocated by Chomsky is ultimately empirical; I leave the topic as a subject for further research.

4. Attraction is Myopic: The mechanism of verb raising

Thus far, I have refrained from a discussion of the mechanics of verb raising in those environments in which the verb raises. Above, I argued that there is no motivation for the verb to raise out of the VP if the next head above V – i.e. Infl – is the only head

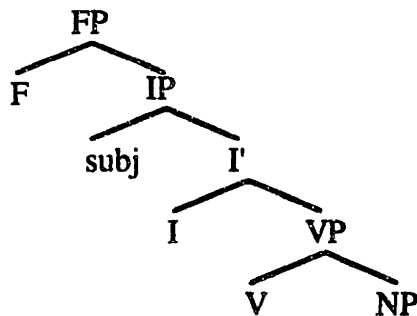
c-commanding V which has features to check with V. Thus, in the configuration in (45) repeated from (5), Infl is in a local relationship with (a projection of) V and all relevant feature-checking takes place in this configuration.

(45)



I argued further that the presence of some head with V-features dominating Infl would require the verb to raise to that head in order to check features (6), repeated:

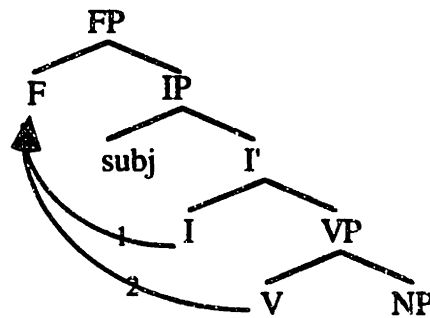
(46)



Two cases were given in section 2; F could be the V2 head (C_{V2}) or it could be Agr. The question which I postponed above was the mechanics of the verb raising. Does the verb raise directly to F, skipping the intermediate head, Infl? If the morphological correlations are correct then the answer must be negative. For instance, in V2 environments the inflectional affixes surface on the verb in C, not following the subject in Spec,IP. Moreover, morphological merger is not a possibility in these cases, since the subject in Spec,IP intervenes between C and Infl, violating adjacency – a crucial part of the analysis of *do*-support in non-subject questions in English in Chapter II.

There are a number of ways in which one could proceed at this point, and it is not clear to me what direction is the most appropriate. However, I will take this section to sketch one approach which is, I believe, at least coherent. What I will propose here is that F first attracts the closest head, Infl, and then attracts the head V, as in (47):

(47)



The first step in the analysis is the argument that movement is attraction. That is, it must be the features of the target which motivate movement, and not (or not solely) the features of the element which moves. This proposal is, in one form or another, put forth in Murasugi 1992, Oka 1993 and Chomsky, forthcoming (the last attributing it to John Frampton). This much is natural in the cases considered in this chapter. Thus, the finite verb is presumably no different in its featural make-up in V2 and non-V2 environments. It is rather some property of F – in this case C_{V2} – which triggers the movement. If movement was solely to check features of the element which moves, we would have to posit that finite verbs have C features in V2 environments, while such features are lacking in non-V2 environments. But it is certainly not a property of the verb which is at issue here, but rather a property of the head C_{V2} . I take the position that it is in fact properties of the target which trigger raising, at least in the cases of V-raising under consideration.


Moreover, these considerations lead us to the conclusion that the V-features of the verb are not erased by the checking procedure. Were this to be the case, then the verb could raise no further than one head. Again, it seems to be a case of simply restating the

observation if we propose that the verb has a Cv_2 feature which must be checked just in case there is a Cv_2 head dominating the verb. Rather, it seems that the verb has its inherent property of being a V and will check the V-features of any element which requires V-features.

The next step in the analysis is to determine what the process *attract* attracts. I assume, following Chomsky, forthcoming, that the operation *attract* is constrained by some proper translation of Relativized Minimality (Rizzi 1991) or the Minimal Link Condition / Shortest Move (Miyagawa 1993, Chomsky & Lasnik 1993). One such translation – suggested by Murasugi 1992 and adopted by Chomsky, forthcoming – is that *attract* takes the *closest potential source* (Murasugi 1992:24). Somewhat metaphorically, if movement is viewed from the point of view of the element moving, then these constraints require movement to proceed to the first potential landing site c-commanding the moving element (see Marantz 1995 and references therein, especially Bobaljik & Jonas 1994 for detailed discussion). However, the operation *attract* proceeds from the opposite point of view. In the case at hand, still speaking metaphorically, F in (46) looks into the phrase marker which is its complement and attracts the closest element with the relevant features.⁴⁸ *Attract closest* seems to be relevant in *wh*-movement at least. Given more than one *wh*-word in a clause – and abstracting away from the effects of discourse-linking – it is well-known that the topmost *wh*-word must raise first:

(48) *superiority*

a. * Which book will who read ?



⁴⁸ Murasugi 1992 proposed that the two views of closest (target-oriented and source-oriented) are effectively in competition, and from a certain view of the interaction of these two develops a theory of Ergativity. Some of Murasugi's ideas are extended in Phillips 1993. Discussion of these issues, though quite interesting, goes well beyond the confines of this thesis.

- b. **Who** will read **which book?**
-
- The diagram shows a horizontal line starting from a triangle under 'Who' and ending at a vertical line under 'will'. A second vertical line is positioned under 'read', and a third vertical line is positioned under 'which book?'.

Similarly, in the case of verb movement to Infl, it is always the topmost verb or auxiliary which raises:

(49) *topmost condition to determine what verb / auxiliary is finite*

- a. Andrew has occasionally [vp trace [vp been [vp seen [vp dancing in New Orleans]]]].
-
- The diagram shows a horizontal line starting from a triangle under 'has' and ending at a vertical line under 'trace'. A second vertical line is positioned under 'been', a third under 'seen', and a fourth under 'dancing'.
- b. * Andrew was occasionally [vp had [vp trace [vp seen [vp dancing in New Orleans]]]].
-
- The diagram shows a horizontal line starting from a triangle under 'was' and ending at a vertical line under 'trace'. A second vertical line is positioned under 'had', a third under 'seen', and a fourth under 'dancing'.
- c. * Andrew saw occasionally [vp had [vp been [vp trace [vp dancing in New Orleans]]]].
-
- The diagram shows a horizontal line starting from a triangle under 'saw' and ending at a vertical line under 'trace'. A second vertical line is positioned under 'had', a third under 'been', and a fourth under 'dancing'.
- d. ...

Attract closest will ensure that if both Infl and the verb are to be attracted by F, then Infl will be attracted first, as it is closest. Empirically, this seems to be the correct result when testable, *viz.*, the Head-Movement Constraint of Travis 1984; the clearest cases being movement to Infl or C. Such movement never skips an intervening verbal or inflectional head. However, though we clearly desire this result, we have not yet seen how it may come about under the system developed here.

The final step in the analysis is to ensure that the head F attracts Infl at all. If Infl did not have features which could be attracted by F, then F should attract the verb from V, skipping Infl. I will rely here on the fact that Infl has V-features, but suggest that these features are insufficient to check the V-features of F. One reason for this could be that Infl auxiliaries, modals, etc... are some sort of defective verbal elements. Recall that auxiliaries in English pattern sometimes as verbs (as in (49)) and sometimes like modals, which latter may only surface in Infl. Another reason could be a sort of myopic nature of the feature checking system, drawing on a suggestion of Demuth and Gruber 1994 discussed in

Collins 1995. Their suggestion is put in terms of movement; roughly the idea is that movement must be to the closest position which is of the right type to check the appropriate features, even if such checking does not actually take place (see Ura 1995 for related ideas).⁴⁹ If we press Demuth & Gruber's *myopia* into service, but recast it from the point of view of *attract*, then we have the following sketch of an analysis:

We assume that the verb, being of category V, has V-features. Further, these features are sufficient to check those of some other element which requires V-features. We further assume that Infl has V-features. These features are of the type which require that they check with the V-features of some element. It is these features which are checked with

⁴⁹ I rely here on a draft of Collins 1995 for the interpretation of Demuth and Gruber. I apologise for misrepresentation of any of these authors. Demuth and Gruber are concerned with the appearance of subject agreement on more than one auxiliary in Bantu languages (see also Carstens 1994). They argue that the subject raises to the specifier of a functional projection above each auxiliary in turn until it reaches the highest one. Loosely speaking, at each introduction of an auxiliary and accompanying functional projections, the subject DP sees positions of the right type for checking and moves there accordingly. This movement triggers agreement, but true checking of features occurs only in the highest one, as in English.

Collins 1995 makes use of this to account for the possibility of *all* occurring before any auxiliary in a string of auxiliaries in English, adopting the trace-view of floating quantifiers (since Sportiche 1988). This approach would invalidate the criticism of that view of floating quantifiers given in footnote 12 of Chapter IV.

David Pesetsky points out (personal communication) that *myopia* shares a similar intuition with Obenauer's 1984 account of *pseudo-opacity* effects, extended by Rizzi 1990. Obenauer's cases included the interaction of extraction of a quantifier and a quantificational adverb in French. Extraction of the quantifier *combien* 'how many' is possible in general, as (i) shows. However, the presence of a quantificational adverb *beaucoup* 'a lot' renders the structure ungrammatical, as in (ii):

(i) *Combien_i a-t-il consulté [trace_i de livres] ?*
 how.many has-he consulted of books
 'How many books did he consult?'
(French)

(ii) * *Combien_i a-t-il beaucoup consulté [trace_i de livres] ?*
 how.many has-he a.lot consulted of books
 'How many books did he consult a lot?'
(French, Obenauer 1984, cited in Rizzi 1990:3)

Obenauer's central intuition, extended by Rizzi, is that the quantificational adverb *beaucoup* 'a lot' is the "right type" of element to bind the trace of *combien* 'how many' in (ii). Even though *beaucoup* does not actually bind the trace, it is a potential binder and is closer to the trace than *combien*. The notion of "closest potential" as opposed to "actual" is quite similar to the intuition behind Demuth & Gruber's *myopia*. For all these analyses, it is sufficient for some thing (position, head, binder...) to be "of the right type" in order to count as closest, even if that thing can not actually check the features, bind the trace, or whatever the relevant notion is.

its complement, the VP. Contra Chomsky 1995, I do not assume that features disappear once checked. Thus, when F in (46) is some head with V-features which must be checked (e.g. CV_2 or Agr), then there are two such heads. Both Infl and the verb have V-features, though only the latter has the type of features (call them inherent features) which can actually check those of another element. The question is whether attract can see this difference – i.e. the difference between the V-features of the verb and the V-features of Infl. The answer I suggest here is that attraction is myopic – mechanically, the head F attracts the closest head with V-features. This head is Infl, but these V-features – not being inherent – are insufficient to check those of F. The head F must thus attract again. This time, however, the features of Infl do not intervene. I assume that this must be due to the fact that Infl is now a sub-term of F. Since Infl has already adjoined to F, forming the head $[F \text{ Infl}, F]$, I assume that the features of its trace are no longer relevant.⁵⁰

That this account is sketchy is an understatement. I have not tried to suggest otherwise. However, I offer it as the initial step towards plugging a hole in the analysis of section 2. Obviously, future research will determine whether or not this is the correct plug, or if we are even plugging the correct hole. For the moment, I have indicated only the shape the analysis might take, and sketched certain factors which may influence its motivation. I leave the implementation and thorough motivation of this approach as an open topic.

5. Post Script - Auxiliaries

In the above discussions, I have steered away from the behaviour of English modals (*might, can...*) and auxiliaries (*have, be*). As is well known, these behave differently

⁵⁰ Effectively, this is a form of equidistance. A head which has raised cannot re-attract its trace, but the closest for purposes of attraction must be those other than the trace of the head, or any of the sublabels of the head.

from main verbs. In particular, while main verbs surface in V (50a), auxiliaries surface in Infi (50b), as can be seen by their relative order with respect to VP / manner adverbs:

- (50)
- a. Churchill [vp vehemently *denied* the accusations.]
 - b. Churchill *has* [vp vehemently denied the accusations.]
 - c. * Churchill [vp vehemently *has* denied the accusations.]

Auxiliaries also raise to C in questions, while main verbs never do:

- (51)
- a. Why *has* [IP Churchill denied the accusations ?]
 - b. * Why *denied* [IP Churchill the accusations ?]
 - c. Why *did* [IP Churchill deny the accusations ?]

Of the Germanic languages, English is alone in displaying an asymmetry in adult, normal speech between auxiliaries and main verbs. I have no account of the behaviour of English auxiliaries at the present time. Before giving up completely, I will note converging evidence from different domains which displays quite clearly that auxiliaries are different from main verbs at a very deep level, which must be universal. Further, this difference manifests itself in a marked tendency among auxiliaries to raise when other verbs do not. The English pattern is but a small part of a much larger, and as yet unexplained generalization.

The data of interest comes from three domains. There is striking evidence that auxiliaries and main verbs behave differently in the speech of children and German-speaking agrammatic aphasics. This data is especially revealing in that there are no auxiliary / main verb asymmetries in the grammars of normal, adult speakers of these languages. The Swedish data is by far the most striking since it would suggest that

children raise auxiliaries – but not main verbs – in an environment where neither raise in the adult grammars.

4.1 Swedish

The first piece of data is from first language acquisition of Swedish. Recall that in Swedish main clauses, the verb is in second position (V2), but that in embedded clauses, main verbs and auxiliaries alike are VP internal, following VP-adverbs including *inte* (negation). Håkansson 1989 reports on a series of imitation experiments with a 3 year old Swedish child. At age 3;6 years, the child reproduced all the subordinate clauses with the correct order *inte* + verb, i.e. with the verb in the VP, for both auxiliaries and main verbs. The correct reproduction was not a mimicking of the adult speech, since the child corrected token sentences which were presented to her with the ungrammatical order (verb + negation). That is, when presented with a token with the ungrammatical order, she repeated the sentence with grammatical order. These results are significant in that they contrast sharply with the same child's performance previously, at age 2;11. At that age, the child produced correct subordinate clauses with main verbs, giving the order *inte* + main verb, again giving the correct order even when the input adult sentence showed the ungrammatical order. However, with auxiliaries (one half of the token sentences), she *consistently* produced the order auxiliary + *inte*, i.e. placing the verb in Infl, outside the VP. This placement was consistent regardless of the order of the input - the child "corrected" grammatical adult strings with the sequence *inte* + auxiliary to the inverted order.

Håkansson's results are striking. The child, at age 2;11 consistently placed main verbs correctly, below negation (in VP), but with equal consistency placed auxiliaries above negation (e.g. in Infl). The child showed an exceptionless contrast between

auxiliaries and main verbs, under which auxiliaries raised and main verbs did not. This in a language, Swedish, which has no such contrast in adult speech, not even in inflectional paradigms. She could have had no source for the distinction other than some property of universal grammar which distinguishes main verbs and auxiliaries.

Obviously, this data is very preliminary. Håkansson's paradigm is taken from one child. Further research with a larger sample size will be needed to validate or invalidate the conclusions. However, Håkansson's data is significant in that the main versus auxiliary distinction in children is corroborated by recent findings from Faroese.

4.2 *Optional infinitives* ⁵¹

An "optional infinitives" stage in child acquisition is well documented cross-linguistically (see Wexler 1994 for an overview of relevant facts in Germanic and French). At this stage, children apparently allow either the finite or non-finite forms of the verb in positions where the finite verb is used in adult grammar. In essence, children allow non-finite matrix clauses. What makes this stage so interesting is that children with striking regularity place the finite verb in the correct position (e.g. second position in V2 languages, like German), but with similar regularity leave the non-finite verb *in situ* in the VP. This is most clearly discernible in V-final languages like German (Poeppl & Wexler 1993). What is even more striking is that children with almost total regularity do not use non-finite forms of auxiliaries and modal verbs (though such forms exist and are used in the adult grammars of all the languages except English). Modal and auxiliary verbs in the Germanic languages (including English) apparently always show up in finite form and in the correct position.

⁵¹ Dianne Jonas, Howard Lasnik, Alec Marantz and Colin Phillips, all commenting on the defense draft of this thesis have directed me to the growing body of research on optional infinitives stage in child language, for which I thank them. The deadline for this thesis does not permit me to investigate this body of research before the final version is due, but it seems to support the observation that auxiliaries are just different at a quite deep level. I leave refinement of this observation to further work.

Wexler attributes this discovery for Dutch to de Haan 1987, and it is confirmed for German (Poeppel & Wexler 1993) and Faroese (Jonas 1995b). Colin Phillips (pc) notes that a similar state of affairs is well-attested throughout the Germanic languages and in French and Italian.

Like Håkansson's Swedish data, with the exception of English this data is all the more striking in that there is no attested difference in adult speech between auxiliaries and main verbs. With no external evidence for such a contrast, the only source for a systematic difference between auxiliaries and main verbs for children must be internal - i.e. from Universal Grammar.

4.3 German

Perhaps the most striking example of a deep difference between auxiliaries and main verbs, with no external motivation, is in the speech of German-speaking agrammatic aphasics, reported by Martin Hackl (personal communication, see Hackl 1995).⁵² Hackl studied verb placement in agrammatic German-speaking aphasics. In a series of different tasks, subjects were presented with words on cards and were asked to arrange them into sentences. In some cases, the experimenter gave the first word, and in other cases, the subjects were free to arrange all of the words.

The general result, with main verbs, was that the verb occurred in second position after a *wh*-constituent, and often in third position if the first constituent was a locative or temporal PP or adverbial. However, with auxiliaries, the subjects consistently placed the verb in second position, regardless of the type of the first constituent (*wh*-word or adjunct). This asymmetry between main verbs and auxiliaries was observed both in the test

⁵² I thank Martin Hackl for discussing the results of his work and its theoretical implications with me. I thank him also for providing an English synopsis as my reading ability in German is not what it might be.

where the first word was given, and in the free test, where subjects arranged the cards with no prior order given. Here, “V3” occurs with main verbs, allowing the order [adverb (such as “probably”) - subject - main verb...], while this order was eschewed with auxiliaries. Finally, Hackl notes that the order [subject - probably - main verb ...] occurred quite often, but that subjects were unwilling to accept the order [subject - adverb - auxiliary ...].

Like the Swedish and Faroese acquisition data, this contrast between auxiliaries and main verbs shows up in a language which has no such contrast in normal adult grammars. Hackl’s experimental data from agrammatics dovetails with, and thus corroborates, the acquisition data. As Hackl puts it:

Whenever the damaged system shows properties that are not attested in the original system but are known in other languages, we take those properties as indications for underlying UG-mechanisms. [In the case at hand,] there is something about auxiliaries as opposed to main verbs that makes them much more likely to raise.

(Hackl, p.c. April 1995)

These three pieces of evidence have a certain cohesiveness to them. In all three cases, the children and aphasics show a systematic difference between auxiliaries and main verbs, which is not present in the adult, normal grammar. The source of this difference can only be some deep property of human language. Furthermore, the nature of this difference is that auxiliaries consistently raise, in environments where main verbs do not do so with any regularity. This asymmetry is not present in the normal adult grammars of all the Germanic languages studied above, except English. In English, this is the well-attested pattern.

Lasnik 1994 suggests an account of the auxiliary versus main verb difference in English (and extending this cross linguistically to French and Swedish), which is not unrelated to present proposals. In particular he argues as I do that main verbs in English never leave the VP, but are inflected via morphological merger (see the analysis in Chapter II). Thus, main verbs for him (in English) are inserted as bare stems, and inflect via concatenation with the inflectional affix in Infl. His proposal for auxiliaries is that they are not inserted as bare stems, but rather that they behave in the manner that Chomsky 1991 proposed for all verbs: they are fully inflected and raise only to check that the features they bear are compatible with those in Infl.⁵³

The specific technical details of Lasnik's proposal are not directly compatible with the present analysis (see Chapter II for some discussion). That is, I have argued that the Infl and the verb, essentially by virtue of being in the head-complement relationship, cannot check any additional features by movement of V to Infl. But, as Lasnik's discussion and that above illustrate, there is clearly some aspect of auxiliaries which causes them to raise, over and above considerations which obtain for main verbs, e.g. based purely on structure. I believe I have offered in this section compelling reasons to separate auxiliaries and main verbs at some deep level of universal grammar. In the next chapter, the account of raising of weak pronouns is somewhat *ad hoc* as well. Some extra mechanism is needed to ensure that English auxiliaries and Scandinavian weak pronouns raise in environments where main verbs and other arguments do not. As Dianne Jonas points out, it is this class of elements (auxiliaries and weak pronouns) which surface as second-position clitics in many of the world's languages. This is no accident, and there is obviously a great deal more to be said.

⁵³ See Hagstrom 1994 for some discussion of Lasnik's proposal, and an interpretation of it within the Attract-F(eature) system developed in Chomsky (class notes, 1994).

When I was one I had just begun.
When I was two I was nearly new.
When I was three I was hardly me.
When I was four I was not much more.
When I was five I was just alive
But now I am six; I'm as clever as clever.
So I think I'll be six now for ever and ever.

A.A. Milne *And now we are six*

Chapter six

Object shift as a morphological phenomenon

In the preceding chapter, I suggested that the proposal that the syntax is blind to morphophonological considerations be reintroduced. Chapters I and II ran exactly contrary to this proposal. That is, in both chapters, the morphology was seen to play a filtering role in the grammar, prohibiting certain syntactic operations if these would lead to undesired consequences in the phonology. In the case of the analysis of Chapter I, we saw reasons in Chapter III to question the underlying assumptions of the syntactic proposals on which Chapter I rested. In recasting the analysis in a different vein in Chapter V, we no longer appeal to a filtering role for the morphology. This leaves the analysis of Holmberg's generalization in Chapter II. I suggested there that the morphology played a

clearly filtering role in the case of object shift in the Scandinavian languages. The syntactic movement process of object shift was blocked in case it led to a disruption of an adjacency relation in the morphophonology.

In this chapter, I will recast that proposal as well, maintaining the assumption that the syntax is blind to phonology. The basics of the proposal are quite simple. If there is covert (i.e. invisible) movement in the cases which do not allow overt object shift (i.e. those falling under Holmberg's generalization) then Holmberg's generalization does not describe the difference between object shift and no object shift, but rather between overt and covert shift. The syntactic operation always applies, but its results are not always directly visible.

Given this, I propose that the difference between overt and covert movement may be recast not as a difference in the ordering of syntactic operations (i.e. relative to Spell Out), but rather as which of multiple *copies* created by movement are pronounced. This idea is not new; the question is obvious as soon as one adopts the copy theory of movement. Groat & O'Neil 1994 and Pesetsky, in prep. suggest an analysis along these lines, and Brody 1992 presents related proposals.

The analysis of Chapter II is thus restated purely in terms of the morphophonological component. In a line: the topmost copy of the object is pronounced unless pronouncing this copy would block the possibility of affixation via morphological merger.

This chapter is laid out as follows. In section 1, I refresh the reader's memory of the relevant parts of Chapter II and of the basics of the analysis of object shift which I have been assuming. Section 2 then lays out the proposal. The copy theory of movement

requires a principle determining which copy is pronounced, and I suggest that this proposal interacts with the adjacency condition on affixation in a principled manner. The result is that the top copy will be pronounced when possible; otherwise the lower copy is pronounced. The analysis in Chapter II, with surprisingly little modification, is recast as the interaction of two morphological operations: the determination of pronunciation and affixation under adjacency. The syntax does not need the power to peek into the morphophonology. In section 3, I push this proposal in a few directions to see where it may lead. While it is well beyond the scope of this thesis to push the proposal to its limits, I show that it is surprisingly successful at adopting the analyses of *wh-in situ* of Watanabe 1991 and Pesetsky 1987, among other things.

1. Holmberg's generalization again

1.1 Object shift and adjacency

Recall from Chapter II the observation which has come to be known as Holmberg's Generalization. Object shift in Scandinavian, both of NPs and of weak pronouns, is blocked in environments where the main verb has not raised out of the VP. In (1), the verb is in C (i.e. these are V2 environments) and the object in each case surfaces preceding the adverb which is taken to mark the left edge of the VP.

(1) Object Shift in V2 clauses (a. = pronoun, b. = NP)

- a. I går læste Peter **den**; [vp uden tvivl ikke *trace*_i].
 yesterday read Peter it without doubt not
 'Peter undoubtedly read it yesterday.'
 (Danish: Vikner 1991:300)
- b. Í gær luku stúdentarnir sennilega **bjórin**; [vp alveg *trace*_i].
 yesterday drank students.the probably beer.the completely
 'The students drank the beer completely yesterday.'
 (Icelandic: Bobaljik & Jonas 1993)

In (2), we see the generalization at work. In the mainland Scandinavian languages, the verb remains in the VP in non-V2 environments such as embedded clauses (Chapter V), and object shift is blocked (2a). Though Icelandic generally has verb raising (to Infl) in embedded, non-V2 environments, one environment in which there is no verb raising to Infl is non-finite complement clauses of modal verbs. As predicted by the descriptive generalization, object shift is blocked in these environments (Thráinsson 1993), (2b).¹

(2) *V in VP: Object Shift blocked in embedded clauses*

- a. * Jag tvivlar [CP att han **den** [VP inte läste]].
 I doubt that he it not read
 (I doubt that he did not read it.)
 (Swedish)
- b. * Risarnir ættu [IP að ríkisstjórnirnar [VP éta]].
 giants.the ought to governments.the eat
 (The giants ought to eat the governments.)
 (Icelandic, Thráinsson 1993:204)

Likewise in (3) we see that object shift is blocked when an auxiliary occupies Infl and the main verb (participle) is, in effect, trapped within the VP.

(3)

- a. Hvorfor har Peter [VP ikke købe **den**]?
 b. * Hvorfor har Peter **den** [VP ikke købe]?
 why has Peter it not bought it
 'Why hasn't Peter bought it?'
 (Danish, Vikner 1991)
- c. Hann hefur [VP aldrei lesið **bókina**].
 d. * Hann hefur **bókina** [VP aldrei lesið].
 he has book.the never read book.the
 'He has never read the book.'
 (Icelandic, Thráinsson 1994:20)

¹ Contrast, e.g. non-finite complements of control verbs which do have raising of the non-finite verb and, predictably, do allow Object Shift. Hence, the relevant distinction is verb placement and not finiteness.

- (i) Risarnir lofuðu [IP að éta ríkisstjórnina [VP ekki]].
 giants.the promised to eat government.the not
 'The giants promised not to eat the government.'

(Icelandic: Thráinsson 1993:203)

Further, I noted in Chapter II that Holmberg's generalization characterizes only the SVO Germanic languages, and does not hold of the SOV languages. For example, object shift in Dutch is not blocked even if the main verb is in V, as it must be in (4) since the auxiliary is in Infl.²

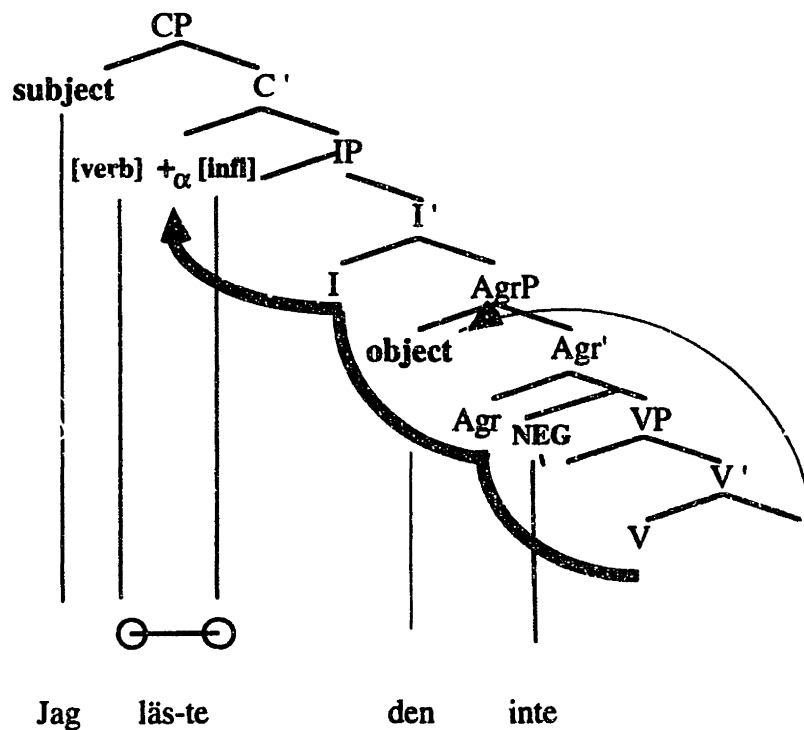
(4) *Holmberg's generalization does not apply in SOV Germanic.*

... dat veel mensen [_{AgrOP} dat boek [_{VP} gisteren gekocht]] hebben].
 that many people that book yesterday bought_[PART] have
 '... that many people bought that book yesterday.'

(Dutch)

The account of all of this which I offered in Chapter II was that object shift is blocked if it would disrupt the relation of adjacency between the inflectional (or participial) affix and the verb stem. If the verb has raised out of the verb phrase, no question arises and object shift is thus not blocked (5):

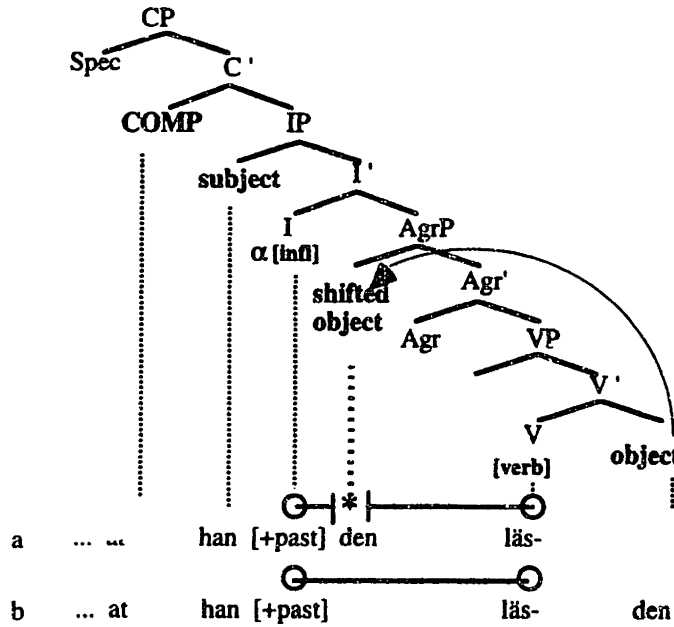
(5) *Object shift permitted if verb raises*



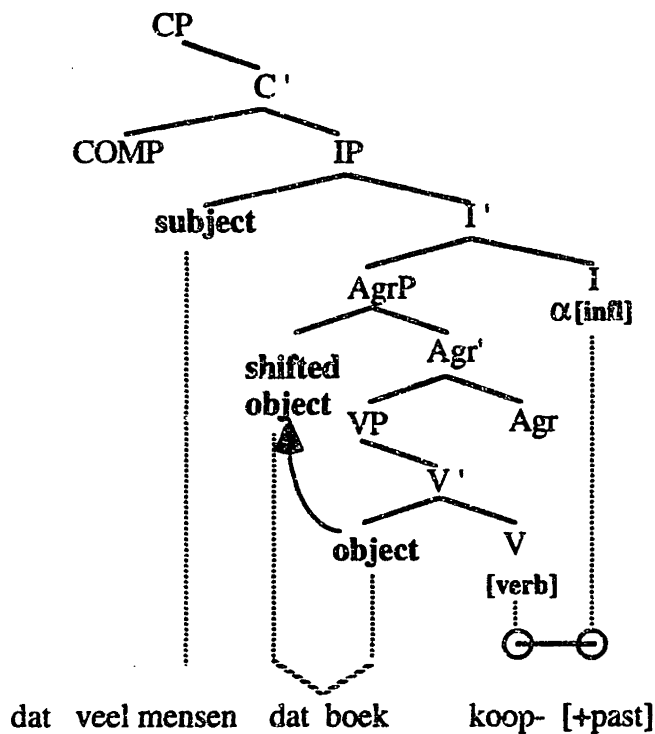
² In Chapter III, §1.1.1, I present evidence that this example and similar ones do involve object shift, i.e. A-movement, as opposed to focus scrambling.

If the verb has not raised and the language has VO order in the VP, then object shift would disrupt the adjacency relationship needed for affixation via morphological merger:

(6) *Holmberg's Generalization: adjacency disrupted*



Finally, if the language has verb-final order in the VP, then object shift will not be blocked even when the verb has not raised, since the verb stem and inflectional / participial affix are string adjacent on the right edge of the clause:

(7) *Head-final order, no effect on object shift*

This account relies on the ability of the morphology to act as a filter on syntactic derivations: object shift (a syntactic movement process) is blocked if it would lead to disruption of a morphophonological configuration at a later stage. In the end of Chapter V (§3) I suggested that such is not the nature of the grammar. That is, I suggested that the syntax is blind to morphophonological considerations. I will now attempt to reformulate the account of Holmberg's generalization and its distribution within Germanic from Chapter II in these terms.

1.2 *Object shift revisited*

The first step to take in developing the analysis is to consider the question of why objects shift in the first place. Throughout the dissertation, I have been assuming that movement is triggered solely by the need to check formal features. Further, I have assumed that such movement has a last resort character. Movement is only mandated to

check a feature which is not checked prior to movement. This set of assumptions leads us to posit that object shift serves to check some feature and, further, that this feature is not checked when the object remains *in situ*. At first blush, this accords well with the paradigms of pronoun shift. That is, if a weak pronoun remains *in situ* (in an environment where object shift is possible) the sentence is ungrammatical:

(8) *Shift of weak pronouns is obligatory*:³

- a. Jag läste **den** inte.
I read it [vp not]
'I didn't read it.'
- b. *Jag läste inte **den**.
I read [vp not it]
'I didn't read it.'

(Swedish)

(9) *Same point, SOV language*

- a. Ons het **dit** gister gedrink.
we have it [vp yesterday drunk]
'We drank it yesterday.'
- b. *Ons het gister **dit** gedrink.
we have [vp yesterday it drunk]
(We drank it yesterday.)

(Afrikaans)

With definite NPs, the questions are slightly trickier. Such movement has often been characterized as optional:

(10) *Shift of definite NPs characterized as optional*

- a. Jólasveinarnir borðuðu **þjúgun** ekki t;
Christmas.Trolls.the ate sausages.the [vp not]
'The Christmas Trolls didn't eat the sausages.'

(Icelandic: Bobaljik & Jonas: 1)

- b. Jólasveinarnir borðuðu ekki **þjúgun**
Christmas.Trolls.the ate [vp not sausages.the]
'The Christmas Trolls didn't eat the sausages.'

(Icelandic)

³ Exx. (8b) and (9b) are grammatical if the pronouns are strong, e.g. conjoined or contrastively stressed. See, e.g. Holmberg 1986 in the Scandinavian context, and Cardinaletti & Starke 1994 for a much more thorough investigation of the systematic differences between weak and strong pronouns. In what follows, all pronouns in examples are taken to be weak pronouns unless otherwise indicated explicitly.

(13) *Definite NPs shift if not contrastively stressed.*

context: Does he know Chomsky's book, "Barriers?"

- a. Hann les **Barriers** [vp alltaf].
 He reads B. always
 'He always reads "Barriers."'
- b. *? Hann les [vp alltaf **Barriers**].⁴
 He reads always B.
 (He always reads "Barriers".)

(Icelandic: Diesing 1995: 14)

As Diesing notes also, morphologically indefinite NPs may shift (in which case they must have a specific interpretation) and even pronouns may remain *in situ*, though in such cases they must be modified or contrastively stressed, i.e. like full NPs. Though the issues are far from resolved, if Diesing is on the right track, then the paradigm in (10) is misleading. Objects divide into two semantically delineated classes, one of which shifts obligatorily, and the other may not shift. The standard characterization (pronouns shift, definites shift optionally, and indefinites do not shift), is valid only to the extent that the morphological classes reflect the semantic classes, though this correlation is not perfect. The true generalization, if Diesing is correct, is more that pronouns and specific, definite NPs are required to undergo object shift, but that this requirement may be obviated by factors such as contrastive focus indicated by stress, and the like. The apparent optionality of object shift of definite NPs arises from the independent stress at the end of the VP dictated by phrase-level phonology. When this is controlled for, as in (13), shift of definite NPs patterns together with shift of pronouns. As a final piece of support for this, Diesing 1995 notes that the non-specific indefinite pronoun cannot shift, in contrast to the definite pronouns which must shift if shift is permitted.

⁴ As noted in Chapter IV, this string of words is not ungrammatical, rather it is inappropriate when the object "Barriers" refers to old information, as in the context set up here. In another context where "Barriers" introduces new information, such as an answer to the question "Does he know any of Chomsky's work?", then the opposite preference obtains. See Chapter IV for more discussion.

(14)

Nei, jeg har ingen paraply ...
 no I have no umbrella
 'No, I do not have an umbrella...'

- a. men jeg k per muligens en i morgen.
 but I buy [vp probably one tomorrow]
 '... but I will probably buy one tomorrow.'
- b. * men jeg k per en muligens i morgen.
 but I buy one [vp probably tomorrow]
 (but I will probably buy one tomorrow)

(Norwegian)

Diesing's work shows that the deciding factor in object shift is not morphology. There are pronouns, indefinite and definite NPs which shift, apparently obligatorily, and pronouns, indefinite and definite NPs which do not shift, again apparently obligatorily. The generalization seems to be semantic / interpretive. The morphological form of arguments tends to reflect the semantic classes, but not entirely, accounting for the apparent fuzziness in the patterns. Assuming this characterization of the data, we find that shift of new information (non-specifics and indefinites) is generally prohibited, and shift of old information (definites, specifics and pronouns) is obligatory.

On the general assumptions adopted here, i.e. that movement is driven by the need to check features which are not checked *in situ*, the paradigm in (27504) shows that whatever feature drives object shift can not be checked in the objects' base position ((27504b). This line of reasoning encounters its first challenge when the effects of Holmberg's generalization are brought into consideration:

(15) *Holmberg's generalization: shift barred in certain environments*

- a. Jag tvivlar [CP att han [vp inte l ste den]].
 I doubt that he not read it
 'I doubt that he did not read it.'

(Swedish = (2))

- b. Hann hefur [vp aldrei lesið bókina].
 he has never read book.the
 'He has never read the book.'

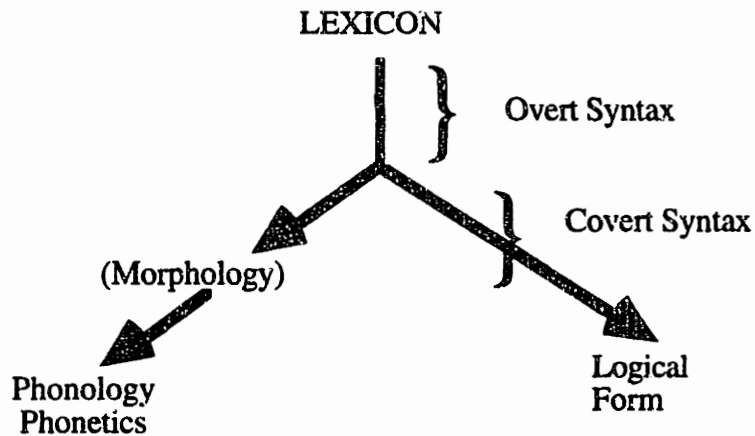
(Icelandic, Thráinsson 1994:20)

Note that elements of both classes are permissible in the *in situ* position in (15). Thus, weak pronouns are grammatical in the complement of V in (15a), in sharp contrast to (27504), and similarly with the definite NP *bókina* 'the book'. On general assumptions, we were forced to the conclusion that feature checking was impossible for the object *in situ*, yet (15) on the surface appears to be exactly a case of this configuration. The logical escape from this quandary is an appeal to an invisible (i.e. covert) movement operation. That is, we assume that the objects of the shifting class in (15) shift to check features, just as in (27504), only that in (15), this movement is not visible. In this, I do not differ substantially (if at all) from previous accounts within a set of common assumptions. Where I will differ (and here only marginally) is in the characterization of covert movement that I will offer.

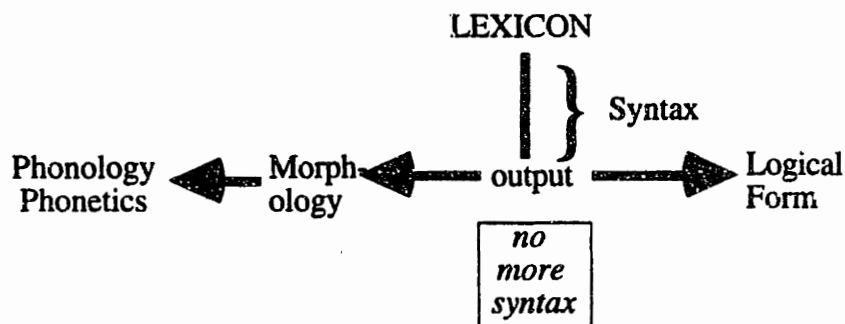
Now, on my account (Chapter II), the factor which determines between overt raising of the object (27504) and covert raising of the object (15) is morphophonological – the adjacency condition on morphological merger. In Chapter V, I suggested that the syntax is blind to morphophonology, a view dating at least to Zwicky 1969. The conclusion from this is quite straightforward - the difference between overt and covert movement in (27504) and (15) is morphological and not syntactic.

2. Copy Pronunciation: Single Output Syntax

The more or less standard account of “covert” movement operations is that they are syntactic movement operations which occur after the split in the grammar which takes a single input and leads to separate phonological (PF) and semantic (LF) representations:

(16) *Model T Grammar*

The considerations of Chapter II, I believe, lead in a slightly different direction. In particular, I will argue that the account I will provide leads us to a model of grammar where the syntax produces a single output representation from a given input, and that this output representation is then interpreted by semantic and morphophonological components. In Chomsky's terms, what I am proposing is that Spell Out is after LF movement operations (as noted, see Groat & O'Neil 1994 for an implementation of this idea within a framework of assumptions very close to Chomsky's; see also Pesetsky in prep. a, and Brody 1992 for related ideas in different frameworks).

(17) *Novel T: Single Output Syntax (SOS)*

Consider, in particular, the notion of *move* as an operation which creates or leaves a *copy* (Chomsky 1993). Obviously, we generally see / hear only one copy of an element which has been moved. That is, in the event that there is more than one copy of a single element in a given syntactic representation, only one copy is pronounced in the general case.⁵ The remaining copies, visible in the syntax, receive no morphophonological realization. For discussion of these ideas, and in particular an extension of this to VP-ellipsis, see Chomsky & Lasnik 1993 and Tancredi 1992.

The question which is left hanging, though, is what principle determines which one of multiple copies is pronounced. Let us take the naive view and assume that *c-command* and/or linear precedence are the key factors involved in this, acknowledging that this is an idealization. I express this as the morphophonological principle *Speak Up*:

(18) *Speak Up*

Pronounce the topmost / leftmost copy of each element.

This is, in essence, the principle of *Minimize Trace* or *Silence Trace* of Pesetsky in prep.⁶ Off the bat, we note that (18) interacts with other factors, especially in the case of VP-ellipsis. In such cases, *c-command* does not suffice, and linear precedence seems often the deciding factor:

⁵ It would not be correct, as Noam Chomsky points out (pc), to say that one member of every chain is pronounced (as in Bobaljik 1994b) since under the definition of *chains* in Chomsky 1993 *et seq.* (contrast CHAIN in Chomsky 1986), something like a question of a passive in (i) involves two chains: an A-chain created by movement to subject position and a subsequent A'-chain created by *wh*-movement.

(i) Who did Sam think <who> had been arrested <who>



If it was the case that one copy of each chain that was pronounced, we would predict two occurrences of *who* in (i), contrary to fact. Rather, it seems to be the general case that maximally one *copy* of a single element is pronounced, regardless of the number of chains in which it occurs. See Fox 1994 for an analysis of resumptive pronouns in these terms, which builds on earlier ideas, especially, e.g. Doron 1982, Sells 1984, and Shlonsky 1992, arguing that resumptive pronouns involve the pronunciation of (parts of) more than one copy of a single element.

⁶ To the extent that *c-command* is the deciding factor in the case of *move*, this is a logical reinterpretation of Pesetsky's 1989 *Earliness* principle, i.e. as opposed to Chomsky's 1989 *Procrastinate*.

- (19) Aran has [vp hit a home run], and Jen has [vp] too.
 * Aran has [vp] and Jen has [vp hit a home run] too.

In (19), the VP in the first conjunct does not c-command that in the second conjunct, though the choice of which copy is pronounced and which deleted does not seem arbitrary. Nevertheless, there are cases where even linear precedence is not sufficient:⁷

(20)

Even though last week Aran did [vp], this week Jen might [vp score the winning run].

To the extent that these observations lead anywhere, the principle in (18) has an economy flavour to it. It seems that the procedure determining which copy is pronounced is subject to interaction with various constraints, at least some of which (i.e. the ones relevant in (20)), are poorly understood.

I propose that (18) also interacts with the adjacency condition on morphological merger. Concretely, my proposal is that object shift always involves movement in the syntax. Pronunciation of the top copy is preferred, however the bottom copy may be pronounced in case pronunciation of the top copy will lead to a disruption of the adjacency relation necessary for inflection of the finite verb via morphological merger. This proposal

⁷ A possible analysis to maintain the precedence aspect of (18) in the face of (20) would be the suggestion that the clause introduced by *even though* is at some level an adjunct to the right of the clause introduced by *this week ...*, as in (i). At some late level, the *even though* clause is fronted, perhaps even by a phonological process, such as the extraposition processes studied by Truckenbrodt 1995.

(i) This week, Jen might score the winning run even though last week Aran did.

Note that these are the environments where backwards binding is also licensed:

(ii) Even though he hit only a double last week, this week Aran might hit a home run.

Note, however, that mismatch is licensed, indicating that the two do not have a common source and questioning the preposing analysis of the *even though* clause. In (iii), there is forwards binding, with the pronoun in the second clause, but VP-ellipsis in the first clause, and in (iv), there is backwards binding of the pronoun, but ellipsis of the second VP.

(iii) Even though Aran didn't [vp] last week, this week he might [vp hit a home run.]

(iv) Even though he [vp scored the winning run] last week, Aran might not this week.


As always, the issues here are interesting, but must be left for future investigation.

resolves the apparent tension in my assumptions noted at the end of the last section. The feature-checking requirement is absolute. Thus, there is always movement of the pronouns and definite NP objects, and the ungrammaticality of (27504b) follows from failure of feature checking (or unforced violation of (18)). Pronunciation of the object *in situ* in (15) is licit only when pronunciation of the top copy would lead to more serious problems in the morphophonological component.

I illustrate this schematically, in the following (with some details of the structure omitted). Here, I adopt a notational convention of Pesetsky (in prep), using ~~strikethrough~~ to indicate those copies which are not pronounced (i.e. these receive “copy intonation” in the theory of Tancredi 1992).

First, the case where the verb raises. Here, the trace (lower copy) of the verb is not pronounced (by 18) and the trace of the object is also not pronounced:

(21) *Object Shift with verb raising:*

- a. [CP I går læste [IP Peter læste [~~den~~ [VP uden tvivl ikke læste ~~den~~]]]
- 
- b. I går læste Peter den uden tvivl ikke.
yesterday read P. it without doubt not
'Peter undoubtedly didn't read it yesterday.'

(Danish: =(1a))

Next, a case where the verb has not raised overtly. Recall from Chapter V that I do not analyse these as covert movement of the verb (as in Chomsky 1991-1995);⁸ instead the verb simply does not raise in the syntax in these constructions. Inflection thus takes place under *morphological merger*. Thus, in this example, the pronoun raises in the syntax

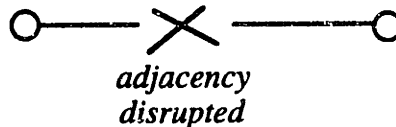
⁸ I do not exclude, in principle, the possibility that features of the verb raise at LF, though the verb itself does not (Chomsky forthcoming, ch. 4), except to the extent that the possibility of pied-piping in the syntax being driven by the phonology is incompatible with the central claim that syntax is blind to morphophonology. Note that this claim may be restatable in other ways.

leaving a copy in its base position. Here however, pronunciation of the topmost copy would lead to a violation of the disruption of the adjacency condition so the lower copy is pronounced. Since pronunciation (and deletion) of copies and *morphological merger* are morphological processes, we avoid the problem faced by the Chapter II analysis: syntactic movement is not sensitive to later levels of representation.

(22) *Holmberg's Generalization at work:*

a. Top copy of object pronounced:

... [CP att [IP han [+past] -te] [**den** [VP inte [v las-] ~~den~~]]]

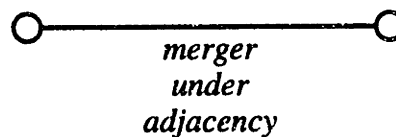


* Jag tvivlar att han den inte läste.
I doubt that he it not read
(I doubt that he didn't read it.)

(Swedish: =(2))

b. Lower copy of object pronounced:

... [CP att [IP han [+past] -te] [~~den~~ [VP inte [v las-] **den**]]]



Jag tvivlar att han inte läste den.
I doubt that he not read it
'I doubt that he didn't read it.'

(Swedish: =(15))

The analysis, then, is not significantly different from that of Chapter II. However, by recasting the overt versus covert movement distinction, at least in this case, as a difference not in the syntax but in the pronunciation of different copies, we maintain the assumption that the syntax sees only the syntax, and the morphology sees only the morphology. The requirement ultimately underlying Holmberg's generalization is morphophonological – adjacency. This interacts only with the morphological principle

Speak Up (18), the principle determining what copy of an element is pronounced. Below (§3.3) I will refine this somewhat, but this is the essence of the idea which I am advancing.

At this point, we have two formal mechanisms for capturing covert movement. The one just considered involves pronunciation of different copies of an element. Pronunciation of the highest copy corresponds to “overt” movement and pronunciation of a lower copy corresponds to “covert” movement. In addition, though I have made no use of it, the standard notion of covert (i.e. LF) movement remains. On this view, covert movement is movement after the “branch” to phonology, as in (16). The two characterizations of covert movement are not incompatible, though they are in a very large part redundant.

On the assumption that syntactic operations cannot “peek” into the morphophonology, we have seen reason in this section to have recourse to the pronunciation characterization of covert movement. The question, then, is whether the “post-Spell Out movement” characterization is ever necessary. I turn to some introductory remarks on this now, though I do not pretend to resolve the issue in this dissertation.

3. Extending the system - some speculations

As the discussion of the previous sections indicates, a certain set of assumptions dictates that morphophonology determines, among other things, which copy of an element will be pronounced in the event that there are multiple copies of an element in the output representation. That is, at least in the account of Holmberg’s generalization, we see that a lower copy (i.e. trace) of an element may be pronounced, in the event that pronunciation of the higher copy would lead to disruption of the adjacency required for the application of morphological merger. In this way, we have a formal device for capturing “invisible”

movement. The question at this point is whether this one device (i.e. pronunciation) will suffice for all cases of supposed invisible movements. That is, do we need both variable pronunciation and post-Spell Out syntactic operations, or will just the variable pronunciation suffice ?

For the most part, it is obvious that the pronunciation mechanism will suffice, i.e. the two approaches differ primarily in notation. However, there is in principle one source of arguments which could decide the issue. That is, suppose it can be shown that movement post-Spell Out obeys different constraints than pre-Spell Out movement and that these constraints are syntactic, i.e. they are not representational constraints on strings of copies which could be expressed as conditions on pronunciation. In that case there would be an argument for the necessity of LF-movement as post-Spell Out movement, in addition to the variable pronunciation mechanism proposed here. I will consider perhaps the best known case of such an argument, coming from *wh-in situ* languages like Japanese and Chinese, and show that arguments from Pesetsky 1987 and Watanabe 1991 suggest that the pronunciation condition is sufficient here too. To the extent that the approach bears fruit we have potentially an answer to the question of where Spell Out is determined in the syntactic derivation. The answer is that it is at the end of the derivation. The pronunciation mechanism is necessary for the case of Holmberg's generalization. If there are no arguments for LF-movement which cannot be reduced to pronunciation in this way, then there are no arguments which support any syntactic operations post-Spell Out.

3.1 *A'-movement at LF: Apparent subjacency violations*

Huang 1982,1995 and Lasnik & Saito 1984, developing ideas from Chomsky 1976 suggest that constructions or languages which do not display overt fronting of *wh*-words, i.e. to Spec,CP (e.g. Chinese and Japanese) involve the same movement operations as

overt *wh*-fronting constructions, but that the *wh*-phrase moves to the specifier of CP at LF. Further, they present a range of evidence which is purported to show that LF movement, in contrast to overt movement, is not subject to Subjacency effects. In the English sentences in (23) movement of the *wh*-phrases to the specifiers of the CPs crosses two bounding nodes, the effects of the familiar Complex NP constraint (23a) and extraction from an adjunct (ab). The sentences are therefore deviant. No such deviancy is evidenced by parallel constructions in, say, Chinese or Japanese, as (24)-(25) show⁹:

- (23) a. * *What_i* did Sam meet [NP the man [CP who gave *t_i* to Pat]] ?
 b. * *What_i* did Sam leave [before Pat read *t_i*] ?
 (after Pesetsky 1987)

- (24) a. √ ni xihuan [NP [CP piping *shei* de] shu] ?
 you like criticize who REL book
 'Who do you like books that criticize ?'
 b. √ ni xiang-zhidao [CP *shei* mai-le shenme] ?
 you wonder who bought what
 'What do you wonder who bought ?'
 (Mandarin, Watanabe 1991:3)

- (25) a. √ Mary-wa [NP [CP John-ni *nani-o* ageta] hito-ni] atta-no ?
 M. -Nom J. -Dat what-Acc gave man-Dat met-Q
 = (23a)
 b. √ Mary-wa [John-ga *nani-o* yomu mae-ni] dekaketa-no ?
 M. -Nom J. -Nom what-Acc read before left -Q
 =(23b)
 (Japanese, Pesetsky 1987:110)

This is exactly the type of argument which, if it held, would be fatal for the SOS view. If there is a structural principle such as Subjacency which does hold of overt movement but fails to hold of covert movement, then reducing the two sets of phenomena to one cycle of movement and deriving the cross-linguistic difference from the point of pronunciation would seem impossible.

⁹ I follow the transliterations common in the literature, omitting tones for Chinese.

Nishigauchi 1986 and Pesetsky 1987 consider a broader range of evidence from Japanese and other languages, which suggests that the contrast in (23) versus (24) cannot be explained by the assumption that Subjacency constrains only s-structure movement and not LF-movement. In particular, they demonstrate that Subjacency constrains movement uniformly, both overt and covert. The difference between (23) and (24) then is not reduced to possibilities of Subjacency violations due to differing levels of movement, but rather it has to do with the possibility of large scale pied-piping in Japanese, unavailable in English (Nishigauchi 1986, Watanabe 1991), or with asymmetries between d(iscourse)-linked and non-D-linked *wh*-phrases which cut across the languages in (23) and (24) (Pesetsky 1987). To take an illustrative sample of the relevant evidence, Pesetsky 1987 first sets the stage by showing that *in situ wh*-phrases in English do not all behave alike with respect to a range of phenomena, including the well-known superiority effects. Thus, there is a contrast as illustrated in (26) such that if a single clause contains two *wh*-phrases, then the one “higher up” in the clause must generally be the one which moves overtly, i.e. to Spec,CP.

- (26) a. Sam asked *who* read *what*.
 b. * Sam asked *what who* read.

This contrast disappears however if the *wh*-phrases are linked to entities previously salient in the discourse. Such D-linking can be achieved by substituting *which x* phrases for the generic *wh*-words (27) or, with perhaps a slight markedness, by introducing the relevant entities into the immediate discourse (28). In either case, the superiority effects disappear.

- (27) a. Sam asked *which students* read *which books*.
 b. Sam asked *which books which students* read.
- (28) Looking at the children and the empty plates which had only minutes earlier held an enticing array of cakes...
- (?) Sam asked *what who* ate.

Pesetsky's conclusion is that there are two strategies for interpreting *wh*-phrases which are *in situ* in the overt syntax. Non-D-linked phrases (*who*, *what* in (26)) must, for him, raise at LF to the specifier of CP and are thus subject to conditions on movement, such as the Nested Dependency Condition¹⁰ which forces the Superiority effect. On the other hand, D-linked phrases *in situ* do not move at LF; rather they are bound by the *wh*-operator in C° by a process of unselective binding, an approach which Pesetsky traces back to Baker 1970. The details are not directly relevant for present purposes, what is relevant is Pesetsky's proposal that only non-D-linked *in situ* phrases move at LF.

Armed with this conclusion, Pesetsky ventures forth into *wh-in situ* languages such as Japanese. If *wh-in situ* is a uniform phenomena, he argues, then Japanese *wh*-phrases should behave like their English *in situ* counterparts. Non-D-linked phrases (and only non-D-linked phrases) should be subject to general conditions on movement, Subjacency for example. There are two predictions, then. On the one hand, Subjacency effects should show up in constructions formally similar to (25) if the *wh*-phrase can be forced to be non-D-linked. Secondly, given that Subjacency appears to be violated in these examples, Pesetsky's story would predict that the *wh*-phrases in (25) must be D-linked and thus do not in fact move at all. The second prediction turns out to be much harder to test, for reasons having to do with pied-piping which we will return to shortly. However, there does seem to be a way to test the first prediction.

Pesetsky notes that the particle *ittai* in Japanese serves much the same discourse function as English *the hell* in a phrase like: *Where the hell did you get that?* Specifically, it seems to presuppose a non-D-linked reading of the *wh*-word. Thus we find examples like (29)

¹⁰ "If two *wh*-trace dependencies overlap, one must contain the other." Pesetsky 1987:105.

Pesetsky's and Nishigauchi's approaches, LF-movement, like overt movement, is subject to Subjacency.

The next step in the chain of logic which will allow us to reduce the two stages of movement (overt and LF) to a single cycle is presaged by Watanabe's (1991) analysis of these facts. Building on the conclusions noted that Subjacency holds of *wh*-movement both in languages where it is visible and where it is invisible, Watanabe argues that *wh*-movement in Japanese (and Chinese) is overt. However, what moves in these languages, as opposed to languages like English, is a phonetically null, "pure" *wh*-operator. Recasting Watanabe's proposals in our terms, I do not posit a null, *wh*-operator, but rather that *wh*-movement in Japanese proceeds just as it does in English, leaving a copy in its base position. The difference between English and Japanese then is that English is analogous to Pseudo-English I (11.) – the head of the chain is pronounced and the tail deleted in PF – while Japanese is like Pseudo-English II – the tail of the chain is pronounced and the head deleted at PF. Since the difference is relevant only at PF, there should be no syntactic differences which distinguish *wh*-movement in the two languages except those which can plausibly be derived from independent principles. *Wh*-movement uniformly obeys Subjacency, but there are differences in legitimate pied-piping structures between English and Japanese and universal differences in how D-linked and non-D-linked phrases are interpreted at LF.^{11,12}

¹¹ There remains, of course, the question of how it is that in English one *wh*-chain must have its head pronounced, while in Japanese *wh*-words generally cannot. Moreover, this question must now be one of morphophonology, since I have argued that the two languages are identical in the syntax. While an investigation of this question is the subject of another paper – or perhaps a few books – a logical direction in which to proceed has been offered in Pesetsky 1987:120f. He suggests that the Q(uestion) morpheme in Comp is an affix, and therefore the requirement that it be "supported" by an appropriate host is one of morpho/phonology. In English, the only available means of supporting this affix if there is no interrogative C (*if, whether*) is by pronunciation of the head of the *wh*-chain in Spec,CP. In head-final Japanese, the Q morpheme (*-no, -ka...*) may simply affix to the verb, with which it is adjacent. See Chapters I and V for discussion of related issues.

¹² There is also some residue of the argument if Watanabe 1991 is correct. Watanabe reintroduces the claim that overt movement is subject to Subjacency while LF movement is not. That is, he captures Nishigauchi's and Pesetsky's insight that *wh*-movement obeys a set of common restrictions in English and Japanese by arguing, as I do, that it is overt in both language types. However, Watanabe suggests that an

There are other examples of apparent LF-movement, but I take this as a starting point, and will predict that they, too, will be amenable to the same account. To the degree that this approach is on the right track, we find that the arguments from A'-movement in favour of LF-movement as a "second chance" at syntax after Spell-Out disappear.¹³

3.2 On Agr-phrases

Throughout this thesis, Agr-phrases have played a significant role in the discussion of object shift, especially of NPs, and also in the analysis of verb raising in Chapter V. In the present chapter, I provided somewhat theory-internal arguments for invisible, i.e. covert, movement of definite NPs (and perhaps pronouns) to the specifier of this phrase. I have consistently abstracted away from the specific role of Agr-phrases, beyond making use of them as convenient landing sites in the Free Agr languages: AgrO-P for shifted objects, and AgrS-P for the second subject position. Before winding up the thesis, it is worth considering two of the leading characterizations of this phrase in the current literature.

anti-superiority effect in Japanese derives from LF-movement of the remainder of the wh-phrase (still in situ) to adjoin to the "pure" wh-operator which moved overtly to Spec,CP. Clearly, to the extent that there is an anti-superiority effect in Japanese, it wants an account however a reasonable alternative seems plausible from different strategies for interpreting the variable component of an operator-variable chain, such as a wh-chain. I will not pursue the question here.

¹³ A definition of Spell Out – i.e. of the end of the syntactic derivation – could be as follows:

(i) The *end* of the derivation

When a single node dominates all the terms of the derivation (those from the numeration, and those created by operations of *merge* (and *move*)) then the derivation terminates and is evaluated relative to feature checking, and fed to the morphophonological component.

A similar definition is proposed as a local economy condition –*integration* in Collins 1995. There are other definitions which would suffice equally.

Chomsky 1991 originally proposed that the specifier positions of Agr-phrases are universally the locus of case-checking for both subjects and objects, merging ideas of Pollock 1989, Kayne 1989 and Koopman 1992. If this proposal is accurate, then all objects raise to the specifier of AgrO in Free Agr languages. The theory of covert movement above will have to be revised accordingly.

In Bobaljik 1994b I developed such a tack. In place of the principle, *speak up* (18), or Pesetsky's (in prep) *Minimize Trace*, I suggested that the morphophonological condition on pronunciation was *Minimize Mismatch*:

(31) *Minimize Mismatch* (adapted from Bobaljik 1994b)

Pronounce the copy of an element which is mapped to the quantificational structure.

This proposal presupposes something like the Mapping Hypothesis of Diesing 1990, 1992 as extended by Tsai 1994, (see also Percus 1995). That is, if the mapping of an argument from syntax to tripartite quantificational structures of the type developed by Kamp 1981, and Heim 1982 is dependent upon syntactic position, then one could imagine a system in which the optimal pronunciation of a syntactic representation involves the least mismatch between the morphophonological and the quantificational representations. Each representation interprets only one copy of an element, and the claim of (31) is that mismatch between these representations is dispreferred.

I will not pursue this direction here. However, it is worth noting that an approach of this nature is necessary if Agr-phrases are associated with case checking, and in particular, that case-checking is always in a relationship with an Agr head.

Another proposal which has received some currency since Chomsky' 1991, is that the derived object position has little or nothing to do with case, being rather associated with semantic or interpretive characteristics, such as Aspect (Travis 1992), or Specificity (Adger 1994, Runner 1994, and others). This latter view is more directly consistent with the analyses throughout the latter half of this thesis. In this interpretation, raising to Spec,Agr does not serve to check case features, but checks some semantic / interpretive feature of the arguments which raise. Indefinite, non-specific arguments would then remain *in situ*, throughout the derivation.

There is nothing in the proposals of this chapter or of this thesis which depends on the approach to Agr taken. In particular, nothing requires that Agr be implicated in case relations, and hence the name is perhaps misleading. Still, I maintain it for the sake of familiarity.

3.3 *Null affixes and pronunciation*

Consider that the system I have outlined in this section requires not only that the syntax be blind to morphophonological features, but in addition that the mechanism determining pronunciation does not see the actual phonological make-up of the items in question. It can see the [affix] vs. [non-affix] distinction, and makes a binary distinction [\pm pronounce], but does not make reference to the actual phonological form of the elements.

To see this, consider the case of English main verb inflection and the triggering of *do*-support. The insertion of dummy *do* is triggered when the adjacency between the affixal features in Infl and the verb stem is disrupted, e.g. by *not*:

The answer must be that the morphological condition which triggers *do*-support is blind to phonological form, and sees only [\pm pronounced]. In the VP ellipsis case, regardless of the end phonological shape of the affix in Infl, the morphology sees an affix in Infl, which is [+pronounced], and a verb stem in the VP which is [-pronounced], i.e. elided. In such a configuration, the morphology sees that the affix has no adjacent [+pronounced] host and dummy *do* is inserted. Likewise in the case of a regular, phonologically null affix, such as 2nd psn sg, pres. The morphology sees the affix in Infl, and that it is [+pronounced]. If the affix is not adjacent to a [+pronounced] verb stem – if, for instance, negation intervenes – then the affix must be supported with *do*.

These considerations lead us to refine a little more the mechanism of pronunciation introduced in this chapter. Specifically, the mechanism does not actually deal with phonological matrixes. Rather, it sees syntactic constituents, and copies of them, and assigns to one copy (in the general case), the feature [+pronounced], assigning [-pronounced] to all others. It would appear that the mechanism prefers to assign [+pronounced] to the highest copy when there is more than one, but that this preference interacts with the adjacency condition (which also sees only [\pm pronounced]) and processes such as VP-ellipsis (the assignment of [-pronounced] to a VP under identity, see Tancredi 1992). Specific phonological shapes, then, including / \emptyset /, are associated with elements marked [+pronounced] after this mechanism. We are led, in short, to the view of *late insertion* of vocabulary items advocated by Distributed Morphology (Halle & Marantz 1993, Marantz 1994).

There is one final reason to believe that this is on the right track. Just above, I notes that the form of an inflectional affix is in many cases dependent on the verb stem it is attached to (and in some cases the opposite holds). However, the relationship of the stem to its affix is logically determined *after* the process triggering *do*-support. Irregular forms

of both stems and affixes only surface when there has been *morphological merger*. If *do*-support is triggered by the disruption of an adjacency relation, then the default form of both stems and affixes surface, always:

(34)

- a. I went to school (* go-ed)
- b. I did not go to school (* I did not wend, I dit not ...)
- c. You are on your best behaviour. (*be)
- d. Do not be an idiot. * Do-re not be; * Do not are...

Thus, the specific phonological shape of both stems and affixes is determined by both syntactic configuration and morphological configuration. If affixation and *merger under adjacency* are morphological processes and not syntactic ones, as I am arguing here, then the syntax is blind to these. This being the case, the syntax has no way of knowing what the phonological form of the affix will be, especially in the cases of *do*-support just discussed. The phonological form must be determined post-syntactically. If the syntax cannot look ahead into the morpho-phonological component, then vocabulary insertion (assignment of specific phonological matrices to [+pronounced] terminal nodes) must be late.¹⁴

¹⁴ A standard objection to the notion that VP-ellipsis is “deletion under identity” is that Negative Polarity Items may be licit in one VP but not in the other, but this does not effect the possibility of ellipsis:

(i) I didn't [vp see anyone] but Sam did.

VP = [see someone]

VP ≠ [see anyone]

Many languages, including English, show strong morphological similarities among indefinite pronouns, including Negative Polarity Items, and in many cases, indefinite *wh*-pronouns. On the late-insertion story, an account is straightforward. The element in the syntax is simply [D indefinite pronoun]. At the point of vocabulary insertion, if the element is in a polarity item licensing configuration, such as c-commanded by negation, it receives the phonological shape of *anyone*, and otherwise of *someone*.

Such an account could also be extended to the Genitive of Negation in languages like Russian (see Pesetsky 1982, Neidle 1982 for syntactic accounts in different frameworks), and French (Kayne 1982). The morphological form of existentially quantified (i.e. non-specific indefinite) underlying object NPs is in some cases determined by environment, just as NPIs. Thus, an object may surface with genitive case if c-commanded by negation, where it would otherwise receive structural nominative or accusative. On the reasoning of this footnote, the specific phonological form of the structural case marker for indefinites, like that of English indefinite pronouns, is determined *late*, with reference to whether or not the element is c-commanded by negation.

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