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LINEARIZATION-BASED GERMAN SYNTAX
VOL. I

DISSErTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By

Andreas Kathol, MA

* * * * *

The Ohio State University

1995

Reading Committee:
Carl Pollard
Peter Culicover
Robert Kasper
Robert Levine

Approved by

Advisor

Department of Linguistics
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VITA

May 31, 1965 ............................................... Born, Fredeburg, Germany
1985–1988 .................................................... Universität Tübingen
1989 .............................................................. M.A. University of Massachusetts, Amherst
1990–1994 .................................................... Graduate Research and Teaching Associate. Ohio State University

PUBLICATIONS


FIELDS OF STUDY

Major Field: Linguistics
Studies in Syntax, Semantics, and Computational Linguistics
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Introduction

It might seem somewhat of an odd undertaking to attempt, after about 30 years of research in various frameworks of generative grammar, yet another approach to the clausal syntax of German. One might think that after all this time, the research community has come reasonably close to definite answers for at least some of the basic questions regarding the derivation of the different types of clauses in this language which is anything but understudied. Alas, as the following quote from one of the most prominent German syntacticians regarding the state of the (transformational) analyses of German vis-à-vis assumptions about Universal Grammar (UG) in the early nineties shows, there still seem to be unsettling questions regarding the adequacy of the common descriptive devices when applied to the peculiarities of German.

An den Anfang dieses Abschnitts will ich mein in abgewandelter Form Albert Einstein entlehntes Credo stellen: Die Grammatik ist raffiniert, aber nicht boshaft. Der gegenteilige Eindruck stellt sich aber unmittelbar in, wenn man betrachtet, zu welchen Verrenkungen eine dem anglo-romanischen Standardmodell direkt folgende Analyse des Deutschen zwingt. [...] Mir will es nicht einleuchten, daß Englisch in irgendeinem "interessanten Sinn die UG besser reflektieren soll als Deutsch."

1 "I want to put my credo at the beginning of this section, taken over in modified form from Albert Einstein: grammar is clever but not malicious. One immediately gets the opposite impression if one considers the kinds of distortions necessitated by an analysis of German that directly follows the Anglo-Romance standard model. [...] I fail to understand why English should in any interesting sense reflect Universal Grammar in a better way than German." (Haider 1993:142)
This feeling of unease (which leads Haider to conclusions that are quite different from the ones to be reached here) is by no means restricted to work in the transformational tradition. Nontransformational literature on German, albeit considerably smaller and less driven by a desire to make their analyses fit into the mold of what is thought to be principles of UG, can hardly claim to leave the unbiased observer with a feeling that German is adequately cared for. Take for instance the suggestion regarding universal principles found in Pollard & Sag (1994) to the effect that each language can be described using a subset of a universal set of phrase structure schemata (see Chapter 1). There is little doubt that this proposal is inspired by the relationship between syntactic structure and string representation exhibited by languages such as English which lend themselves quite neatly to a description in purely phrase structure-based terms. Yet, to require that all syntactic phenomena be describable in terms of such phrase structure schemata in essence amounts to a mental "straightjacket".\(^2\)

While there was a time during the early to mid-eighties when one of the paramount concerns of syntactic descriptions was to state one's analysis within the confines of grammar formalisms that are context-free (or mildly context-sensitive), generative capacity is of considerably less concern to syntacticians nowadays. This means, however, that the path has cleared for a fresh look at a number of syntactic phenomena and one of the purposes of this study is to propose a new perspective for a number of fairly well-known problems of German(ic) syntax. In fact, some of the leading ideas have been around for a long time in the form of traditional approaches to German

---

\(^2\) I owe this metaphor to Ivan Sag.
syntax based on linear (or "topological") relationships, as opposed to hierarchical ones (cf. Chapter 1). What is uncommon is that this study seeks to combine the combinatorial system underlying lexicalist theories such as HPSG with a level of linear representation that is to some extent independent from the combinatorial. Thus, the underlying theme is that a reductionist approach which has constituted the leading paradigm in generative linguistics should be seriously reconsidered. Instead, the linear organization in a language such as German is taken to have properties which, albeit correlated with categorial distinctions, are ultimately not derivable from the latter.

This idea, taken to its ultimate conclusion, suggests strongly that linear organization should prove itself to have a cognitive reality within the system of linguistic knowledge of speakers. While investigating this question is an issue far beyond the scope of the present study, it seems that this is in fact a rather plausible hypothesis from the standpoint of language acquisition. For some time now, Principles and Parameters has been the predominant paradigm of how languages are learned. The main premise is that the language learner comes equipped with a large amount of specifically linguistic knowledge that helps him/her fix the properties of a grammar which is defined in highly articulate configurational terms. The set of parameters defines a finite space of possible grammars and the "task" of the language learner reduces to finding out what the values are for the language that he/she is exposed to. But this model and transformational theories have a symbiotic relationship to each other—without the assumption of a highly specialized language acquisition device,
none of the theories that have sprung up in the wake of Chomsky's (1992) Minimalist framework is arguably learnable. However, in a recent study, Culicover & Nowak (1995) point out a number of severe conceptual problems with the Principles and Parameters theory of acquisition which lead them to instead argue for an approach in terms of dynamical adaptive systems. In such a model, there is very little, if any, innate language-specific knowledge and the state of a learner's grammar is determined virtually entirely by his/her exposure to linguistic data. As a result, a much more fluid notion of grammar and syntactic knowledge ensues in contradistinction to the all-or-nothing view embodied in the Principles and Parameters view. Once this conceptual shift is taken, there is no prima facie reason why configurational relations should be preferable over linear ones. In fact, in the absence of large amounts of innate linguistic knowledge guiding the learner, linear relations clearly are epistemologically prior to configurational ones: when you hear two linguistic forms in an utterance, you will always know which one predeces the other, while their potential hierarchical relations requires a full linguistic analysis. Consequently, if a certain generalization is statable in linear terms or by assuming more articulate configurational relations, then, all things being equal, the first should win out, as it can be stated in terms of predicates that are correlated with directly observable properties in the linguistic data. Insistence on hierarchical vocabulary as the only means of stating syntactic generalizations can easily lead to what Reape (1993:19) calls "tree hacking". A sentiment of a rather similar nature is voiced by Dowty (in press):

I suspect syntacticians today have almost come to think of the "primary empirical data" of syntactic research as phrase structure trees, so firm are
our convictions as to what the right S-structure tree for most any given sentence is. But speakers of natural languages do not speak trees, nor do they write trees on paper when they communicate. Their primary data of syntax are of course only strings of words, and everything in syntactic description is part of a theory, invented by a linguist. (Dowty in press:1)

If this thesis manages to reclaim some of the value of linear predicates in syntactic description, it will already have succeeded.

In as much as this work follows work in the early nineties by Dowty and Reape it embodies the idea that grammatical relations should by themselves not involve any linear relations. Yet it is interesting to note that this premise is not original to their work either. In fact, the idea of rejecting ordered deep/D-structure representations as the basis for surface order goes back to at least the mid-seventies—even though it appears that the dissenting voices have to this day had little impact within transformational grammar. For instance, Scaglione (1980) makes the following remarks in reference to Ramat (1976):

The question, he says, must be taken beyond the surface order into the deep structure, in search of universal principles that will have to be of a logical nature (predicates and arguments). But the deep level cannot be conceived as linearly arranged. (Scaglione 1980:144)

Could this mean that the problem was put in the wrong terms: that perhaps the only productive approach, for the time being, is the historical one: surface diachrony? More important, could it not be that, in Ramat’s own words (p. 26), “transformational grammar is, above all, not in a position to clarify the problem of ordering, because it starts from the wrong premise that the deep structure contains a linear, time-bounded arrangement,” whereas it contains only hierarchic relations of semantic elements with a logical configuration? (Scaglione 1980:145)
In a sense then the problem with traditional generative approaches (including, to a lesser degree, nonderivational ones) has been that Behaghel’s *oberstes Gesetz* (‘highest law’): “das geistig eng Zusammengehörige [wird] auch eng zusammengestellt.” has been interpreted too literally. This has led to the assumption that even when syntactic elements bearing a particular relation to one another do not occur in linear proximity, there must nevertheless be some level of genuinely syntactic representation at which they do. By contrast, the clean separation between grammatical relations on the one hand and linear properties on the other obviates the need for undermotivated syntactic structure.

**Structure of the thesis**

Chapter 1 provides a brief overview of the main concepts of Head-Driven Phrase Structure Grammar (HPSG), which the linguistic analyses put forth are based on. Particular attention will be paid to the description of linear order in that framework. In Chapter 2 a roadmap is given to some of the reoccurring themes in German syntax guided by the traditional model of topological fields. This forms the linguistic backdrop of the analysis to be pursued in the later chapters. In Chapter 3, a rather specific coordination construction is discussed which to date has proven rather recalcitrant for common syntactic description in phrase structure terms. This particular phenomenon provided some of the original impetus for the research reported here.\(^3\)

\(^3\)“That which belongs closely together in the mind will also occur closely together.”

(Behaghel 1932:4).

\(^4\)Earlier stages in the development of the proposed analysis are documented in Kathol (1992) and Kathol (1993).
A concrete proposal for an analysis is given in Chapter 9, with Chapters 4 through 7 paving the way for a model with the requisite properties. After a brief review of some of the intellectual predecessors to the present model in Chapter 4, the heart of the proposed convergence of insights from topological fields theory, transformational grammar, and HPSG is developed in Chapters 5 and 6. Chapter 7 focuses on the interaction of complex predicate formation and serialization offering a somewhat different perspective on an area that has received much attention in recent years. In Chapter 8, a rather straightforward extension to the model is proposed for the treatment of extraposition. Finally, Chapter 10 concludes this study with some comparisons with the Scandinavian variety of topological field theory and outlines some of the ways in which other Germanic languages are similar/different from German.
CHAPTER I

Preliminaries

This chapter provides a brief overview of some of the major concepts underlying HPSG. Besides introducing notational conventions of the framework for linguistic knowledge representation, it surveys some of the main ideas on the relationship between constituent structure and linear order laid out in the "standard" version described in Pollard & Sag (1987) and Pollard & Sag (1994). This will serve as a background to the discussions in later chapters when a different conception will be explored. I conclude with some remarks about the sense in which Transformational Grammar patterns with most nonderivational theories in terms of relying on tree-based phrase structure representations to derive surface order.

1.1 Head-Driven Phrase Structure Grammar

There are usually two separate but closely related notions that are referred to by the term "HPSG". The first is a general framework for representing linguistic knowledge—i.e. a knowledge representation language—which has drawn mainly from ideas in such areas as knowledge representation and theoretical computer science. As such a system, HPSG can be viewed on a par with other frameworks for knowledge representation such as KL-ONE (Brachman & Schmolze 1985). Under the second use of the term.
HPSG denotes a set of specific assumptions about the nature of natural language (universal or language-specific), which are expressed by using the HPSG knowledge representation scheme. That is, it is a theory expressed in the representation language. Thus, the relation between the two notions referred to by “HPSG” is analogous to the one between the language of first order predicate calculus and a theory expressed in it. The objects (feature structures) that satisfy the HPSG theory correspond to the first-order models of a logical theory.

Linguistic objects are modelled as sorted feature structures, which constitute bundles of diverse kinds of linguistic information in terms of pairs of features (or: attributes) and their respective values. Consider for instance a feature structure of sort sign, given in (1) (Pollard & Sag 1994:16):

(1)

\[
\begin{aligned}
&\text{PHON} \\
\text{list(phon)} \\
\text{sign} \\
\text{SYNSEM} \\
\text{synsem}
\end{aligned}
\]

According to the representation in (1), signs are minimally specified for two kinds of information given as the features PHON(OLGY) and SYN(TAX-)SEM(ANTICS). The first serves to represent phonological properties of a word or phrase\(^1\) while the second encodes various aspects of syntactic, morphological, semantic, and pragmatic information. As respective values of these features, we can have lists of objects of sort phon in the first case and objects of sort synsem in the second.

\(^1\)In this study, I will not be concerned much with this aspect and for simplicity will instead keep with the common orthographical notation.
The value of a feature may itself be a complex object, that is one with a number of features and their respective values. Thus, synsem objects are specified for two features, LOCAL and N(ON)LOC(AL), as illustrated in (2):

\[(2)\]

\[
\text{SYNSEM} \rightarrow \text{LOCAL} \rightarrow \text{local}
\]

The sequence of feature labels that has to be traversed to reach a value is called a path. Thus, in (2), the traversal of the path SYNSEM|LOCAL yields its value an object of sort local.

Feature structures can be partially ordered in terms of their informational content, also known as the subsumption ordering. There are three ways that one feature structure may contain less information—or, equivalently, subsume, notated as "\(\subseteq\)"—another. First, it may contain fewer feature labels. For instance, in (3), NLOC is missing, hence it is less informative than the feature structure in (2).

\[(3)\]

\[
\text{SYNSEM} \rightarrow \text{LOCAL} \rightarrow \text{local} \quad \subseteq \quad (2)
\]

Next, it is possible for the values of two paths in a given feature structure to lead to the very same object. In this case we have a case of structure sharing or reentrancy. One example is given in (4), where the value of the two features FEAT1 and FEAT2 are identified:

---

| In this respect, HPSG is different from GPSG, where complex values are generally not allowed, resulting in flat representations. |
As a result, whatever the value of FEAT1 may turn out to be, we automatically know
that it will be token-identical to the value of FEAT2. Hence, the following two feature
structures represent different objects; even though in (5b), both features have a value
which is of the same sort as in (5a), viz. sort2, this correspondence is accidental and
not the result of structure sharing.3

Importantly, in terms of their informational content, the feature structure in (5b) is
less specific than the one in (5a), hence the former subsumes the latter: (5b) ⊑ (5a).

Third, feature structures are ordered in terms of a partial order on sorts. Sorts
are ordered in terms of an inheritance hierarchy. Thus, a given sort may have more
specific subsorts, each of which may introduce new features that are appropriate for
it. Important examples are the subsorts of the sort sign, viz. word and phrase:

3If, however, sort2 is taken to be an extensional sort, then the case in (4b) could not exist, i.e.
all occurrences of (atomic) sort2 would automatically constitute the same object; see Carpenter
(1992:ch.8) for discussion. The distinction between extensional and intensional sorts will be of no
relevance in this study and we can safely assume that all sorts are intensional.
Here, as throughout this study, I use the convention of showing sorts encoding more specific information higher on the page.\(^4\) Thus, sorts will be depicted below the subsorts that inherit from them. Thus, any sort will subsume its subsorts. In (6), the hierarchy shows that signs come in two varieties: those that are listed in the lexicon are of sort \textit{word}, while more signs that are formed in the syntax are of sort \textit{phrase}. Moreover, phrases also bear information about their internal structure, encoded in terms of the feature D(AUGH)T(E)RS.\(^5\) Since DTRS is introduced at the level of phrase, it is not an appropriate feature for words, thus reflecting the fact that in HPSG, words do not have any internal syntactic structure. On the other hand, since PHON and SYNSEM are introduced at a supersort of both sorts, it follows that this kind of information will be associated with both words and phrases. If a sort has no appropriate features, it is said to be \textit{atomic}.

As an example of feature structures ordered in terms of the sortal inheritance hierarchy, consider (7), in which the root node is of sort \textit{word}, and hence more specific than the feature structure in (1):

\(^4\)In this I follow Pollard & Sag (1994) and Carpenter (1992). However, in much of the literature on knowledge representation, the opposite ordering convention is followed, which is also the source for the terms \textit{subsort} and \textit{supersort}.

\(^5\)The status of the features Q(UANTIFIER)-\textit{STORE} and \textit{RETRIEVED}, which in Pollard & Sag (1994) are also introduced at the level of \textit{sign} will be discussed in Chapter 6.
One very important distinction that we need to draw attention to is that between feature structures and their descriptions. For instance, the feature structure in (8a) is described by, or satisfies ("\(\models\)") the description in (8b). As in Pollard & Sag (1994:8). I take the language used for such descriptions to be a sorted Kasper-Rounds logic (Kasper & Rounds 1990), with a number of standard extensions to be introduced shortly.

\[
\begin{align*}
\text{a.} & \quad \text{FEAT}_1 \text{ FEAT}_2 \\
& \quad \text{sort}_0 \quad \text{sort}_2 \quad \text{sort}_3 \\
\end{align*}
\]

\[
\begin{align*}
\text{b.} & \quad \models \text{sort}_0 \\
& \quad \land \text{FEAT}_4 \text{ sort}_2 \\
& \quad \land \text{FEAT}_4 | \text{FEAT}_2 \text{ sort}_3 \\
& \quad \land \text{FEAT}_1 \models \text{FEAT}_4
\end{align*}
\]

In fact, this feature structure is not the only satisfier of the description, as every feature structure it subsumes will satisfy the description as well. Yet, it is special in that it is the most general one; i.e., there is no other feature structure satisfying the description that it is subsumed by (other than itself).

Very often it is convenient to state feature descriptions not in the form given in (8b), but as attribute value matrices (AVMs). The AVM corresponding to the
description in (8b) is given as follows:

\[
(9) \quad \begin{bmatrix}
  \text{sort0} \\
  \text{FEAT1} \llbracket \text{sort2} \rrbracket \\
  \text{FEAT4} \llbracket \text{FEAT2 sort3} \rrbracket
\end{bmatrix}
\]

I adopt the convention of annotating the sort of the described object in italics in the upper left corner of the AVM. This is the same format that was used in (6) to specify which features are introduced as appropriate for a particular sort and all of its subsorts. Also note that path equality sharing is represented by means of coreference tags such \(\llbracket\cdot\rrbracket\).

If the logical conjunction ("\(\land\)"") of two descriptions is satisfiable, we say that the most general satisfiers of both descriptions are unifiable. Viewed from the perspective of information content, two feature structures can be unified if and only if there exists a feature structure that they both subsume (a unifier). If so, the result of the unification is the most general feature structure among the unifiers. Likewise, if two paths are structure-shared, the resulting feature structure will have as the value at these paths the unification of the original values. For instance, if (8a) is unified with the most general satisfier of the description in (10a), then the unified resulting structure is as is given in (10b). Here, \text{sort1} is taken to subsume \text{sort2}:

\[
(10) \quad \begin{array}{l}
  \text{a.} \\
  \quad \begin{bmatrix}
    \text{sort0} \\
    \text{FEAT1} \llbracket \text{sort1} \rrbracket \\
    \text{FEAT4} \llbracket \text{FEAT3 sort3} \rrbracket
  \end{bmatrix} \\
  \text{b.} \\
  \quad \begin{bmatrix}
    \text{sort0} \\
    \text{FEAT1} \llbracket \text{sort2} \rrbracket \\
    \text{FEAT4} \llbracket \text{FEAT2 sort3} \rrbracket
  \end{bmatrix}
\end{array}
\]
Unification of feature structures is often also represented by means of the symbol \( \sqcup \) denoting the function that returns the least upper bound in the subsumption order—if it exists.

\[
\begin{array}{c}
sort_0 \\
\text{FEAT}_1 \\
\text{sort}_1 \\
\text{FEAT}_2 \begin{bmatrix} 7 \end{bmatrix} \\
\text{FEAT}_3 \begin{bmatrix} 1 \end{bmatrix} \\
\text{sort}_2 \\
\text{FEAT}_4 \begin{bmatrix} 2 \end{bmatrix} \\
\text{FEAT}_2 \begin{bmatrix} \text{sort}_1 \end{bmatrix} \\
\end{array}
\end{array}
\sqcup
\begin{array}{c}
sort_0 \\
\text{FEAT}_1 \begin{bmatrix} 2 \end{bmatrix} \\
\text{FEAT}_2 \begin{bmatrix} \text{sort}_2 \end{bmatrix} \\
\text{sort}_1 \\
\text{FEAT}_3 \begin{bmatrix} 1 \end{bmatrix} \\
\text{sort}_2 \\
\text{FEAT}_4 \begin{bmatrix} \text{sort}_3 \end{bmatrix} \\
\end{array}
\end{array}
\]

Above, I was somewhat sloppy in referring to feature structures in terms of the descriptions (in AVM format) that they are most general satisfiers of. This should not give rise to confusion as in the rest of this study, I will be concerned not with feature structures per se, but exclusively with descriptions. Such a set of descriptions or constraints over feature structures constitutes a grammar. Nevertheless, one has to keep in mind that linguistic objects are ultimately modeled in terms of feature structures, in particular, totally well-typed sort-resolved feature structures (cf. Pollard & Sag 1994:21). Total well-typing means that all the features appropriate for a sort must be present with values of the appropriate sort. A feature structure is sort-resolved if the values of all of its features are maximal, i.e., if there do not exist more specific subsorts of the sorts given as the values of any of the features. A grammar is only correct if those totally well-typed and sort-resolved feature structures that solve the constraints model grammatical linguistic utterances and do not model ungrammatical ones.

Feature descriptions will not only contain assignments of values to features and structure sharings, but will also comprise relational constraints over feature values. Consider the example in (12), in which the value of FEAT3 is constrained to be...
the append of the values of FEAT1 and FEAT2. This is achieved by the three-place relational constraint \textit{append}, which in turn is defined via the recursive definition in (13):

\begin{equation}
(12) \begin{array}{c}
\text{FEAT1} \\
\text{FEAT2} \\
\text{FEAT3}
\end{array} \land \text{append}(\{1,2,3\})
\end{equation}

\begin{equation}
(13) \text{append}(\{1,2,3\}) \equiv \\
\begin{cases}
(\{} : {} \land [2] = [3] \\
\lor (\begin{array}{c}
\text{FEAT1} \\
\text{FEAT2} \\
\text{FEAT3}
\end{array} [H] \mid [L_1]) \\
\land (\begin{array}{c}
\text{FEAT1} \\
\text{FEAT2} \\
\text{FEAT3}
\end{array} [H] \mid [L_2]) \\
\land \text{append}(\{L_1,L_2,L_3\})
\end{cases}
\end{equation}

Because of the ubiquity of the append relation, I will often use a simpler functional notation that uses "o" infixed between the lists to be concatenated:

\begin{equation}
(14) \begin{array}{c}
\text{FEAT1} \\
\text{FEAT2} \\
\text{FEAT3}
\end{array} o [2]
\end{equation}

### 1.2 Constituency in HPSG

So far, relatively little has been said about the specific assumptions that HPSG as a linguistic theory makes about the syntax of natural language(s). To this end, I now turn to the substantive constraints laid out in Pollard & Sag (1987) and Pollard & Sag (1994) that constitute the heart of HPSG as a theory of grammar, specifically of syntax.

---

\(^6\text{Lists themselves will consistently be notated using angled brackets "( )"}, but this is to be understood as a convenient shorthand for the encoding that uses \textit{FIRST} and \textit{REST} features. I also employ the common notation "(H/T)" for representing a list with head element \textit{H} and tail list \textit{T}.\)
By means of the feature DTRS, it is possible to make the phrase structure representation of the constituents of a sign a proper part of that sign. Thus, the conventional representation of the constituent structure of a simple sentence as in (15) by means of a labelled tree can directly be translated into a feature-based encoding as in (16) (cf. Pollard & Sag 1994:32). Note, though, that the tree is not part of the description, but is only displayed for perspecuity in analogy to the common notation for phrase structure.

(15) 
\[
S \\
\text{NP} \quad \text{VP} \\
\text{Kim sneezes}
\]

(16) 
\[
\begin{array}{l}
\text{phrase} \\
\text{PHON}(\text{kim, sneezes}) \\
\text{SYNSEM S} \\
\text{head-subj-struc} \\
\text{DTRS HEAD-DTR [1] SUBJ-DTR [2]} \\
\text{phrase} \\
\text{PHON}(\text{kim}) \\
\text{SYNSEM NP} \\
\text{phrase} \\
\text{PHON}(\text{sneezes}) \\
\text{SYNSEM VP}
\end{array}
\]

The different DTRS features on the highest, clausal sign incorporate via structure-sharing (notated by the coreference tags [1] and [2]) the various components that legitimate this structure as a well-formed sentence. The sort label head-subj-struc on the value of the clause's DTRS value classifies syntactic structure of the clause as a subsort of headed-struc(ture). Category labels given as the value of SYNSEM are to be understood as abbreviations for more complex feature structures, along the following
conventions, where \textit{SUBJECT} and \textit{COMPONENTS} are attributes for the selection of a subject and complements, respectively.

\begin{align*}
\text{(17) a.} & \quad \text{NP}_1 = \left[ \begin{array}{c}
\text{LOC} \\
\text{VAL} \\
\text{COMPS} \\
\text{CONTENT} \\
\text{INDEX}
\end{array} \right] \\
& \quad \text{HEAD noun} \\
& \quad \text{SUBJ (e.g.)} \\
& \quad \text{COMPS (e.g.)} \\
\text{b.} & \quad \text{S}_1 = \left[ \begin{array}{c}
\text{LOC} \\
\text{VAL} \\
\text{COMPS} \\
\text{CONTENT}
\end{array} \right] \\
& \quad \text{HEAD verb} \\
& \quad \text{SUBJ (e.g.)} \\
& \quad \text{COMPS (e.g.)} \\
\text{c.} & \quad \text{VP}_1 = \left[ \begin{array}{c}
\text{LOC} \\
\text{VAL} \\
\text{COMPS} \\
\text{CONTENT}
\end{array} \right] \\
& \quad \text{HEAD verb} \\
& \quad \text{SUBJ (synsem)} \\
& \quad \text{COMPS (e.g.)}
\end{align*}

In (17), I also list common conventions for abbreviating reference to (parts of) the \textit{CONTENT} specification.

A structure such as the one in (16) is licensed not by a rule as in GPSG or LFG, but instead via an immediate dominance schema (ID schema). A schema is a very general set of constraints on how different signs can be put together syntactically to form a larger sign. According to the version of Universal Grammar assumed in HPSG (Pollard & Sag 1994:58), there is a finite set of universally available schemata. Languages differ in that they may employ different subset of this set of schemata.

Roughly, one can distinguish between valence-based schemata and others. In the first category, a phrasal sign is licensed by virtue of the fact that a valence property of the head (i.e. as part of the value of the feature \textit{VAL(ENCE)}) is matched against another sign or a list of other signs. Thus, in (17), \textit{Kim} serves as the subject of the verb \textit{sneezes}, which means that the single element of \textit{SUBJECT} list of \textit{sneezes} is
unified with the SYNSEM value of the NP *Kim*. Consequently, the element is taken off the SUBJ list of the mother category, which yields an empty SUBJ list as a result:⁷

\[
\begin{align*}
\text{phrase} & \quad \text{SYNSEM} \quad \text{LOCAL} \quad \text{CAT} \quad \text{VAL} \quad \text{SUBJ} (\) \\
\text{PHON}(\text{*Kim sneezes}) & \\
\end{align*}
\]

As another notational device, I often abbreviate paths giving only their final segment. This is to be understood as referring to the shortest path with that attribute as its final member within the given feature structure. Thus, the VP sign in (18) is represented more succinctly as follows:

\[
\begin{align*}
\text{phrase} & \quad \text{PHON}(\text{sneezes}) \\
\text{...} & \quad \text{SUBJ} (\) \text{NP} \\
\end{align*}
\]

At this point, let us take a brief look at the relationship between schemata and the grammar as a whole. In Pollard & Sag (1987:44), an HPSG theory of Universal Grammar and its relation to individual languages is developed. According to that model, Universal Grammar (UG) consists of a number of language-universal constraints on phrases *Pi* though *Pn* that apply conjunctively to all languages:

\[
\text{UG} = P_1 \land \ldots \land P_n
\]

In addition to UG, language-specific constraints apply in a language such as English. Moreover, a given sign has to be licensed either by virtue of it being a lexical entry (*Li*) or one of the ID-schemata that are available in that language (*Si*):

---

⁷For simplicity, I will from now on adhere to the convention of leaving out commas separating elements of the list value of the PHON feature.
English = (P₁ ∧ ... ∧ Pₙ ∧ Pₚ₊₁...Pₚ₊ₘ ∧ (S₁ ∨ ... ∨ Sₚ)) ∧ L₁ ∨ ... ∨ Lₚ

The Head-Subject Schema licensing structures as in (18) is one of the Sj. In its most general form, it can be expressed as the following constraint on phrases:

\[
\begin{align*}
(22) & \quad \text{phrase} \\
& \quad \quad \text{...}\left[\text{SUBJ} \&\right] \\
& \quad \quad \text{head-subj-struc} \\
& \quad \quad \text{DTRS} \left[\text{HEAD-DTR} \left[\text{phrase} \left[\text{SUBJ} \left[\text{SUBJ-DTRS} \left[\text{SYNSEM} \right]\right]\right]\right]\right]\end{align*}
\]

In the following I will illustrate schemata in terms of specific structures that are licensed by them. It should be understood, however, that schemata are really constraints of the sort shown in (22).

The other valence feature\(^8\) is \textsc{comp(lement)}s, which is responsible for the syntactic selection of complements such as NP objects or dependent VPs.

\[
\begin{align*}
(23) & \quad \text{phrase} \\
& \quad \quad \text{PHON}(\text{give a book to Sandy}) \\
& \quad \quad \quad \text{...} \left[\text{SUBJ} \left[\text{COMPS} \right]\right] \\
& \quad \quad \quad \quad \text{head-compl-struc} \\
& \quad \quad \text{DTRS} \left[\text{HEAD-DTR} \left[\text{COMP-DTRS} \left[\text{SYNSEM} \right]\right]\right]\end{align*}
\]

\(^8\)I will for now ignore \textsc{sp(ecifie)r}, which regulates the selection of determiners by nouns or degree specifiers by adjectives.
The reason that as values of valence features such as \textsc{subj} and \textsc{comps} we have lists of \textit{synsem} objects instead of full signs is to impose a type of locality condition on subcategorization. This means that the other kinds of information specified for signs—phonology and syntactic structure in the case of phrases—is in principle unavailable for selection via a head. As a result, it is impossible, for instance, to have verbs that select their complements according to whether they start with a high front vowel or whether they have a ternary constituent structure. In this sense, the explicit restriction on subcategorization complies with and at the same time goes beyond, the principle of \textit{Phonology-Free Syntax} (cf. for instance Pullum \& Zwicky 1988).

One aspect worth drawing attention to is the fact that in phrases of sort \textit{head-compl-struc} as in (23) above, all of the complements are discharged at the same time, resulting in a flat structure within the VP. The preference for flat structures is also embodied in the HPSG analysis of inversion constructions, as in (24), which are handled in terms of a separate schema that discharges both the subject and all complements at the same time giving rise to objects of type \textit{head-subj-compl-struc}, as illustrated in (25):
In addition to licensing via valence features, there are a number of schemata for headed structures\(^9\) that employ other types of selection. In phrases of type filler-head-struct, a constituent ("filler") is matched against the information about a missing constituent in the head. This information is given as the value of the INH(ERITED)\(\backslash\)SLASH specification which forms part of the NLOC information of the head. The Filler-Head Schema is employed in unbounded dependency constructions (UDC) such as topicalization in English, in which a phrasal constituent is displaced to the left edge of the sentence:

\(^9\)Except for certain coordination constructions to be discussed in Chapter 9, I will not have much to say here about nonheaded structures, cf. Pollard & Sag (1994:397n.).
Information about missing constituents is typically given as a set in order to allow the retrieval of this information to be possible in any order, unlike in the list-based encodings of valence which imposes an explicit ordering.\(^\text{10}\)

While in the Filler-Head Schema, the selecting sign (via SLASH) is also the head, the roles are reversed in the case of phrases of type head-adjunct-structure and head-marker-structure. In those cases, it is the nonhead, i.e. the adjunct or marker, that determines the features of the head selected via the head feature MOD or SPEC, in (26) and (27), respectively.

\(^{10}\)Note also that the structure-sharing between the SLASH information and the filler sign involves information of type local, and not of type synsem, as in the case of valence features above. This allows the noncyclic description of HPSG traces as linguistic objects that contain certain information and at the same time lack it, thereby initiating the percolation of gap information up the syntactic tree, cf. the HPSG trace as defined in Pollard & Sag (1994:164):

(i) \[
\begin{array}{c}
\text{PHON}[] \\
\text{SYNSEM} \begin{cases} \text{LOCAL} & 1 \\
\text{NLOC INH} & 1 \end{cases}
\end{array}
\]
1.3 Principles

There are a number of generalizations across different syntactic licensing schemata that are factored out by means of principles. This allows the schemata themselves to be stated in a rather redundancy-free fashion. Here, I will discuss, to varying degrees of formalization, the three most important principles for the purposes of this study.

The first principle, the Head Feature Principle, is a direct descendent of Gazdar et al.'s (1985) Head Feature Convention (HFC). It ensures that for each constituent, there is a projection path along which the head values are shared. Of special importance among this information is the categorial status of the constituent in question.
i.e. whether it is a noun, verb, preposition, adjective, adverb, or some other syntactic category.

(28) **Head Feature Principle**
In a headed phrase, the values of SYNSEM|LOCAL|CAT|HEAD and DTRS|HEAD-DTR|SYNSEM|LOCAL|CAT|HEAD are token-identical.

Following the convention of taking principles to be *implicative constraints*, this can be formalized along the lines given in (29) (Pollard & Sag 1987:148):

(29) \[
\left[ DTR_{\text{headed-struc}} \right] \rightarrow \left[ \ldots \text{HEAD} \, \| \right]
\]

Intuitively an implicational constraint is interpreted as stating that every feature structure satisfying the antecedent will also have to satisfy the consequent. Formally, this means that a feature structure \( F \) satisfies \( A \rightarrow B \) if and only if \( F \) does not satisfy \( A \) or \( F \) satisfies \( B \).\(^{11}\) In the example in (29), the antecedent description only specifies a path and a sort assignment. But, in principle, the description can be of arbitrary complexity, so long as the negation of the description is computable. Moreover, any tags that occur in any of the descriptions of an implicational constraint is to be interpreted as variables bound by implicit existential quantifiers scoping over the description. So, in (29), this means that for any object whose \( DTR_{\text{ts}} \) attribute is of sort \( \text{headed-struc} \), there exists some structure \( x \) such that \( x \) is the value of both that sign's head attribute and of the head attributed of that sign's head daughter.

One important aspect of implicational constraints is inheritance by subsorts. Since, for instance, every subsort of \( \text{headed-struc} \) is also of sort \( \text{headed-struc} \), it follows

---

\(^{11}\)Note that "—" will be exclusively used for implicational constraints, while in lexical rules, input and output descriptions will be connected via "⇒" (reversing the usage in Pollard & Sag 1987, but in line with the notational conventions in Pollard & Sag 1994).
that the constraint will be applied to any of the subsorts as well. This allows us to organize linguistic generalizations by means of sort hierarchies, which subsorts not only inherit appropriate features but contentful constraints of the kind in (29) as well.

Another principle constraining the range of possible schemata is the Valence Principle. It ensures that the valence on the mother is that of the head with any complements taken off the valence lists. This subsumes the case in which no argument is discharged at all, such as in the case of head-modifier combinations.

\[(30) \text{ Valence Principle} \]
\[
\text{In a headed phrase, for each valence feature } F, \text{ the } F \text{ value of the head daughter is the concatenation of the phrases's } F \text{ value with the list of SYNSEM values of the } F\text{-DTRS value.}
\]

For expository simplicity, I limit myself to one particular valence feature here, COMPS. The formalization is rather straightforward, as shown in (31). However, note that there is one complicating factor. As was mentioned earlier, the value of the COMPS attribute is a list of objects of sort synsem. Yet, the elements of the list value of COMP-DTRS are whole signs. Therefore, this list of signs needs to be converted into the corresponding list of synsem objects, which is the function of the relational constraint extract-synsem. The definition of this relation is rather straightforward and therefore will not be given here.

\[(31)\]
\[
[DTRS \text{ headed-struct}] \rightarrow \begin{bmatrix}
...\text{COMPS [1]} \\
DTRS \left[\begin{bmatrix}
\text{HEAD-DTR} [\ldots\text{COMPS [2]}] \\
\text{COMP-DTRS [2]} \\
\end{bmatrix}\right] \\
\wedge \text{extract-synsem([2],[2])} \\
\wedge \text{append([1],[2],[2])}
\end{bmatrix}
\]

This formulation crucially relies on there being a COMP-DTRS attribute that represents all the complements of the given phrase, which may be empty. In fact, the Valence
Principle in (30) requires that every headed structure have daughter attributes corresponding to all of the valence features, even if no valence is discharged at that node, as for instance in the case of head-modifier constructions.

In later chapters, I will propose a version of syntactic licensing that dispenses with representing syntactic structure explicitly via DTRS in favor of a purely relational encoding of ID schemata. While this avoids the problem of spurious valence daughter attributes, it also makes it harder to refer to nonhead daughters of a specific kind as there are no features to index daughters the same way across schemata. Therefore, in this study, the Valence Principle will not be taken to be an explicit constraint on structures, but instead its effects will be folded directly into the formulation of the various syntactic licensing conditions.¹²

Finally, we have to concern ourselves with the distribution of nonlocal information. In Pollard & Sag (1994:164), this is handled via the NONLOCAL Feature Principle, stated in (32):

\[(32)\quad \text{NONLOCAL Feature Principle}\]
\[
\text{In a headed phrase, for each nonlocal feature } F, \text{ the value of }
\text{SYNSEM}\mid \text{NLOC}\mid \text{INHER}\mid F \text{ is the set difference between the union of the values on all the daughters and the value of SYNSEM}\mid \text{NLOC}\mid \text{TO-BIND}\mid F \text{ on the HEAD-DTR.}
\]

The range of nonlocal features in standard HPSG is taken to be SLASH for missing constituents, and QUE and REL for determining the status of a constituent as an

¹²Thus, the Subcategorization Principle can be seen as a metaconstraint on a certain type of relation, rather than as a constraint on syntactic structure.

¹³The same holds for the SPEC Principle which regulates the combination of nonheads such as specifiers or markers selecting head constituents via SPEC. Note also, that Pollard & Sag’s Marking Principle will be replaced by a version that is entirely based on linear notions, as opposed to constituent structure.
interrogative or relative phrase, respectively. If we limit our attention again to one feature, SLASH, the following provides a formal rendition:

\[
[DTRS \quad \text{headed-struct}] \rightarrow \left[ DTRS \left[ \begin{array}{c}
\text{HEAD-DTR} \left[ \begin{array}{c}
\text{[INH|SLASH] 1} \\
\text{TO-BIND|SLASH} 4
\end{array} \right] \right] \\
\text{X-DTRS} 2
\end{array} \right] \\
\wedge \text{extract-inh-slash}(z_1, z_2) \\
\wedge \underline{x} = (\underline{x} \cup \underline{x}) - \underline{x}
\]

Here, X-DTRS is taken to be a variable over attribute names, and again, a definite relation, called extract-inh-slash is called upon to collect a set all of the INH|SLASH values of the list of daughter constituents.

The theory of syntactic licensing developed in later chapters differs in two respects from the version just outlined. First, the lack of a DTRS attribute will automatically obviate the need to “undo” the distinctions among different nonhead daughter types by means of variables over features or disjunctions. Furthermore, since all combinations will be assumed to be binary, the relevant information can be accessed directly in the nonhead daughter and no extraction will be necessary.

More importantly, however, following Pollard & Yoo (1995), neither QUE nor REL will be taken to be nonlocal features. Instead their instantiation principles will, as in the case of markers, be directly tied to linear structure.

1.4 Order in HPSG

One important aspect implicit in the kind of schemata introduced in Section (1.2) is that they make no reference to linear order. ID schemata, like the corresponding rules in GPSG, only state constraints on immediate dominance relations. Decoupled from
those are those constraints that handle word and constituent order. While relatively little is said in standard HPSG about the specifics of this component, the general picture is reasonably clear and will be outlined below.

The overall design of the order component in HPSG is handled via language-specific instantiations of the *Constituent Order Principle* (COP) in (34) (Pollard & Sag 1987:169):\(^{14}\)

\[
\text{(34) Constituent Order Principle}
\]

\[
\begin{align*}
\text{[phrasal-sign]} & \rightarrow \left[ \begin{array}{c}
\text{PHON} [2] \\
\text{DTRS} [1]
\end{array} \right] \\
\wedge \text{order-constituents}[1,2]
\end{align*}
\]

The particular nature of the *order-constituents* relation is not elucidated, but instead, the authors offer a sample of the constraints that are at work in English in the form of *linear precedence* (LP) statements. As in GPSG, any order among sister constituents in a local tree which is licensed by one of the ID schemata is possible so long as it does not violate LP statements. However, there is one aspect in which the interpretation of LP constraints is different in HPSG from that in GPSG. In the latter, LP statements serve to order local trees which in turn allow the phonology of a given phrase to be computed as the terminal yield of the subtree rooted at the mother of that phrase. In HPSG, on the other hand, the representation of the constituent structure—encoded via \text{DTRS}—contains no information regarding order. Rather, any order relation resides exclusively in the \text{PHON} values of a given constituent. Therefore, the purpose of LP constraints is different in HPSG from that in GPSG.

---

\(^{14}\)In the original formulation, *order-constituents* is given as a functional constraint, as in (i):

\[
\begin{align*}
\text{[PHON order-constituents[1]]} \\
\text{[DTRS [1]]}
\end{align*}
\]
statements is to rule out illegitimate orderings among the PHON values contributed by the various daughters in a local tree.\(^\text{15}\) We can then say that statement of the form \(X \prec Y\) is interpreted as saying that in any phrase containing a daughter satisfying description \(X\), it has to be the case that the PHON value of this daughter must precede the PHON value of any of its sister categories satisfying the description \(Y\).\(^\text{16}\)

Among the few LP statements Pollard & Sag (1987) list for English, one important one is the constraint that linearizes lexical heads, LP1 (Pollard & Sag 1987:172):

\[
(35) \quad \text{HEAD[LEX +]} \prec [ ]
\]

This constraint states that in any phrase containing a lexical head as its immediate daughters, that head has to precede all of its sister constituents. LP1 handles the order between heads and complements in VPs, NPs, APs, PPs, and inverted sentences in English. The other main LP constraint discussed by (Pollard & Sag 1987) states, roughly, that the order among different complements of a head is a direct consequence of the relative *obliqueness* ordering holding among those complements in the head's valence features. The value of SUBJ feature is less oblique than any member of the COMPS list. In the latter, in turn, the earlier elements are less oblique than the later ones, which means that relative obliqueness can be read off among the COMPS elements (from less to more oblique) in left-to-right fashion. Leaving a number of

\(^{15}\)This subtle distinction is often overlooked, for instance in Engelkamp et al. (1992:202), who explicitly assume the objects matching the descriptions in the LP statement to be themselves ordered: "An LP-constraint is an ordered pair \((A,B)\) of category descriptions, such that whenever a node \(\alpha\) subsumed by \(A\) and a node \(\beta\) subsumed by \(B\) occur within the domain of an LP-rule \(...\), \(\alpha\) precedes \(\beta\)."

\(^{16}\)This ignores the complications arising when there exist structure sharings across \(X\) and \(Y\). This issue will be taken up in Chapter 5.
subtleties aside, LP2 states that less oblique complements are to precede more oblique ones; here, "\( \ll \)" incorporates the requirement of obliqueness ordering in the linear precedence constraint (Pollard & Sag 1987:174):

\begin{equation}
\text{COMPLEMENT} \ll \text{COMPLEMENT}
\end{equation}

As a result of LP2, only the (a) sentences in the following examples are well-formed:

\begin{enumerate}
\item[(37) a.] \([\text{vp} \text{ give} [\text{Kim} \ [\text{a book}]]]\]
\item[(37) b.] *\([\text{vp} \text{ give} [\text{a book} \ [\text{Kim}]]]\]
\item[(38) a.] \([S \text{ Aren't} [I \ [\text{being invited}]]]\]
\item[(38) b.] *\([\text{vp} \text{ aren't} [\text{being invited}] [I]]\).
\end{enumerate}

Pollard & Sag (1987:187) also suggest that the obliqueness-based ordering constraint can be extended to include heads, which are taken to be more oblique than any of their complements. This correctly accounts for instance for the ordering of subjects in clauses (finite or otherwise) and of determiners within NPs.

\begin{enumerate}
\item[(39) a.] \(S\)
\item[(39) b.] \(\text{NP} \quad \text{V}[\text{LEX} \ - \ , \ \text{SUBCAT (NP)}]\)
\item[(39) b.] \(\text{NP} \quad \text{DET} \quad \text{N}[\text{LEX} \ - \ , \ \text{SUBCAT (DET)}]\)
\end{enumerate}

The last example features the single valence feature assumed in Pollard & Sag (1987). \textsc{subcat}. In such a system, the notions of “subject” and “least oblique argument” are coextensional. As was seen earlier, a more fine-grained distinction is made in later version of HPSG that separate the selection of subjects from that of complements (and determiners). In later chapters I will propose a return to the earlier system.
of a single valence feature for all phrasal arguments. However, I will retain the ability to refer to subjects independent of their obliqueness status. Moreover, I will argue for another valence feature for the selection of “quasilexical” complements in constructions involving complex predicates.

The last major LP constraint proposed by Pollard & Sag (1987)^17 handles the ordering of fillers with respect to heads.

\[(40) \quad \text{FILLER} \prec \text{HEAD[LEX \_]} \]

This LP statement rules out (41b), while licensing (41a):

\[(41) \quad \begin{align*}
\text{a.} & \quad [\text{which problems}] [\text{did you explain to the students}]? \\
\text{b.} & \quad *[\text{did you explain to the students}] [\text{which problems}]?
\end{align*} \]

It should be noted, however, that there is only one schema that licenses the discharge of information in \textit{SLASH} and hence, there is only one type of phrase in which the LP statement in (40) could ever be effective. This means that the LP statement does not do much work in the sense of capturing genuine generalizations. In other words, the effect of (40) could simply be integrated directly into the Filler-Head Schema along the lines in (42), where the phonology of the filler and that of the head are concatenated directly:

\[(42) \quad \begin{align*}
\text{PHON} & \quad \left[ \text{FILL-DTR} \left[ \text{PHON} [1] \right] \right] \\
\text{DTRS} & \quad \left[ \text{HEAD-DTR} \left[ \text{PHON} [2] \right] \right]
\end{align*} \]

The same holds quite generally in all instances in which a certain type of daughter with specific ordering properties is introduced by a single schema. Nevertheless, for

\[^{17}\text{I will ignore their Focus Rule (LP3) Pollard & Sag (1987:178).}\]
reasons of conceptual clarity, it may be preferable to keep with the original formulation that separates information regarding immediate dominance from ordering statements.

While the theory just outlined pays special attention to the description of English, Pollard & Sag intend it to be expandible so as to provide models for languages that are less configurational than the type represented by English. A tentative proposal to that effect is made in Pollard & Sag (1987:189). In languages with free word order, constituents may be interleaved with one another via the Scrambling Principle:

\[
(43) \text{Scrambling Principle}
\]

\[
[\text{phrasal-sign}] \rightarrow \left[ \begin{array}{c}
\text{PHON}_2 \\
\text{DTRS}_1 \\
\text{\Lambda interleave-constituents}(1, 2)
\end{array} \right]
\]

As a result, the phonological integrity of a constituent—and the linear order—may completely be lost once it combines with some other constituent to form a phrase. Yet, Pollard & Sag express skepticism whether such “free word order” languages without any ordering constraints in fact exist.

What follows in Chapters 4–10 is an attempt to derive word order not directly from the constituent structure, as is standard in phrase structure-based approaches to syntax, but instead via a separate level of linear representation. It will be shown that among other things, this provides a natural framework for describing linear relations among nonsister constituents and hence provides content to the notion of interleaving left unformalized in current HPSG.
1.5 Structure and order in Transformational Grammar

In terms of the way linear order is obtained from constituency structure, not only nonderivational theories like GPSG and standard HPSG constitute phrase structure-based syntactic models but transformational theories of any vintage do so as well. This is so because one assumption that has stayed constant throughout all manifestations of transformational grammar\(^\text{18}\) is that once the syntactic derivation of a sentence is completed—i.e. at S-structure, or in newer terminology, when the derivation “branches off” into Phonological Form (PF)—the linear relations are immediately given as the terminal yield of the corresponding arboreal syntactic representation. One caveat is that occasionally, it has been suggested that in the mapping from syntax to PF, certain processes may apply. However, such proposals generally content themselves with PF-deletion (e.g. of complementizers) and possibly PF-insertion, but there exists no generally agreed upon set of cases, let alone theory, of PF processes that may reorder syntactically defined linguistic units.\(^\text{19}\) In fact, from the point of view of restrictiveness, it would in general seem desirable to keep such reordering possibilities to an absolute minimum, if not dispense with them altogether and derive all order relations directly from the syntactic component proper. Since I have no

---

\(^{18}\)See Blevins (1990) for a discussion of how the insistence on phrase structure (cum transformations) originated in Chomsky’s early works with a misconstrual of the limitations of previous immediate constituency (IC) analyses. Blevins shows that though universally accepted in the transformational literature since then, this position has never been justified by argumentation.

\(^{19}\)As Peter Culicover has pointed out to me (p.c.), one notable exception in this regard is Rochemont (1978). Incidentally, another indication of how little explicit attention has been paid to PF reordering operations in current transformational theories is the fact that virtually always it is assumed that a syntactic analysis can be given in terms of labelled brackets structuring the surface string. If any PF substantive operations had to be considered, this option would not be available.
evidence to the contrary, I will assume throughout this study that all the transformational analyses to be discussed are in this sense strictly phrase structure-based. For instance, the phonological string corresponding to the structure in (44a) from Chomsky (1986:11) is obtained directly as the terminal yield, given in (44b). That is, the string is constructed by traversing the terminal nodes of the tree in a left-to-right fashion.

(44) a. how did Terry want to fix the car

b. how did Terry want to fix the car
On standard transformational assumptions, linear order is largely, albeit not entirely, predictable from constituent structure. To fix possible orders completely, one still needs to know how the head of a phrase is ordered with respect to nonheads. There have recently been attempts to reduce the importance of the linear component even further by proposing to derive all precedence relations from structural notions such as c-command (cf. Kayne 1993). One of the premises of the current work—discussed and argued for in detail in Chapters 5 and 6—is that the linear component of a language like German to some extent has an existence that is independent of categorial distinctions or notions of constituency. This study can therefore be regarded as directly antithetical to Kayne's *Antisymmetry of Syntax* program, in as much as the latter still embodies claims about the hierarchical organization of syntax. In fact, in some respect the assumption of a directly linear level of organization should count as the null hypothesis, and to the best of my knowledge no similar conflation of linear and hierarchical notions is known from other domains, such as phonology or music. Therefore, and in light of the remarks made in the previous chapter, it is incumbent upon advocates of Kayne's position to show that the human mind can only effectively deal with linear structure in terms of hierarchical relations.

---

20 To forestall any confusion, by no means does this entail that the notion of constituency itself will be dispensed with, for instance in favor of entirely order-based models of language such as probability-based transition networks. Rather, what should be reconsidered is the role that constituency is generally taken to play vis-à-vis linear order.
1.6 Summary

In this chapter, I briefly sketched some of the basic ideas and technical tools for linguistic description assumed in HPSG. This is meant not as much as an introduction, but rather to highlight how constraints over sorted feature structures have been employed, in particular to model notions of constituency, linear order, and their interdependency. Thus it sets the stage not only for the HPSG-based approaches to German syntax that will be discussed in the next chapter, but it also forms the background for Reape's alternative syntactic model and its adaptation in Chapter 4 and following.
CHAPTER II

German clausal syntax

2.1 Background

In this chapter I review some of the main threads in generative approaches to the clausal syntax of German. As a kind of road map, I will use the traditional notion of Stellungsfeld or topologisches Feld ('topological field') in delineating the various approaches that have been advanced in both transformational and nontransformational theories. While such a tribute to traditional grammars seems customary in theoretical studies—cf. for instance Haider (1993:67)—the topological fields model bears a special significance in the present study, as I will attempt in later chapters to develop an approach to German clausal syntax that in crucial respects is probably more faithful to the spirit of the topological model than any theory in the generative paradigm to date.

Höhle (1986) presents an excellent review of the historical development of traditional thinking about German syntax which is nowadays known as the theory of topological fields.¹ Its basic tenet is that, leaving considerations of constituency and

¹As Höhle shows, roots of the topological approach go back as far as Herling (1821) and Erdmann (1886), even though it was not until Engel (1970) that a uniform terminology emerged. For a general discussion see also Askedal (1986). For an evaluation of topological fields vis-à-vis earlier versions of transformational grammar, see Olson (1982) and Reis (1980).
dependency completely aside, the sentence patterns of German can be described in
terms of particular classes of occurrence, some of which are shared among different
sentence patterns. Höhle is rather cautious in identifying the various fields with any
particular concepts known from generative theories, hence the rather nondescript la­
bles “K”, “X”, “Y”, etc. in (1) (after Höhle 1986:330), which exhibits some of the
assignments of syntactic material to topological fields for finite clausal structures:

<table>
<thead>
<tr>
<th></th>
<th>C</th>
<th>X</th>
<th>VK</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>ob</td>
<td>jemand den Hund</td>
<td>füttern würde</td>
<td>morgen abend.</td>
</tr>
<tr>
<td></td>
<td>whether</td>
<td>someone the dog</td>
<td>feed would</td>
<td>tomorrow night</td>
</tr>
<tr>
<td>b.</td>
<td>daß</td>
<td>du mir ja den Hund</td>
<td>fütterst!</td>
<td>feed</td>
</tr>
<tr>
<td></td>
<td>that</td>
<td>you me PART the dog</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>in dessen Hütte</td>
<td>eine Katze</td>
<td>gefunden wurde</td>
<td>found was</td>
</tr>
<tr>
<td></td>
<td>in whose shed</td>
<td>a cat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td>wer</td>
<td>kommt</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>who</td>
<td>comes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>K_L</th>
<th>FINIT</th>
<th>X</th>
<th>VK</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>würde</td>
<td>jemand den Hund</td>
<td>füttern</td>
<td>morgen abend?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>would</td>
<td>someone the dog</td>
<td>feed</td>
<td>tomorrow night</td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>kommen</td>
<td>die Leute denn</td>
<td>die eingeladen sind?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>come</td>
<td>the people PART</td>
<td>who invited are</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>hätttest</td>
<td>du mir doch</td>
<td>zugehört</td>
<td>damals!</td>
<td></td>
</tr>
<tr>
<td></td>
<td>had</td>
<td>you me PART</td>
<td>listened.to</td>
<td>then</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td>gib</td>
<td>mir mal die Axt!</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>give</td>
<td>me PART the axe</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td>den Hund</td>
<td>kann</td>
<td>man den</td>
<td>füttern?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>the dog</td>
<td>can</td>
<td>one that</td>
<td>feed</td>
<td></td>
</tr>
</tbody>
</table>
The three topological analyses above correspond to the three major sentential patterns in German. In (1), the finite verb—i.e. the verb inflected for tense and mood and exhibiting person and number inflection in agreement with the subject, if present—occurs toward the end of the clause in a field notated as “VK” for Verbalkomplex (‘verbal complex’), also known as rechte Satzklammer (‘right sentence bracket’), which I will refer to here as verb cluster. If a complementizer such as daß (‘that’) or ob (‘if’) is present, it will occupy the “C” field and the whole clause can occur as a subordinate clause, for instance as the complement of a propositional attitude verb like fragen (‘ask’):

(4) Er fragt [ob jemand den Hund füttern würde morgen abend].

‘He asked if someone is going to feed the dog tomorrow night.’

This sentence pattern will be called the “Vfinal” pattern, due to the characteristic clause-final occurrence of the finite verb. It is also instantiated by embedded constituent questions (1d) and relative clauses (1c).

The pattern in (2) is different from the first in that the finite verb occurs in the “FINIT” field, also known as linke Satzklammer (‘left sentence bracket’) at the
beginning of the clause, notwithstanding the possibility of elements appearing in left
dislocation constructions (in $K_L$), which I will not have much to say about here. If
there are nonfinite verbs, such as the past participle $zugehört$ ('listened to'), they
occupy the same field as they do in the $V_{final}$ cases, that is, the verb cluster. Again,
because of the characteristic initial position of the finite verb, this pattern will be
referred to here as $verb-first$, “$V1$”. Its typical occurrence is in polar questions,
imperatives, cf. (2), as well as antecedents of conditional sentences, as in (5):

(5) [Würde Otto das Buch lesen] dann hätte er keine Langeweile.
    would Otto the book read then had-SBJ he no boredom
    ‘If Otto read the book he wouldn’t be bored.’

Finally, sentences instantiating the pattern in (3) contain an element immediately
preceding the finite verb in what Höhle labels the “$K$” position (for *Konstituente
‘constituent’); here I will use the somewhat more descriptive term $Vorfeld$ (‘pre-
field, initial field’) following the ‘field’-based terminology first used in Drach 1937.
As a consequence of element occupying the $Vorfeld$, the finite verb occurs in second
position; hence this pattern will be referred to as $verb-second$, “$V2$”. It is commonly
used for declarative sentences (3b,c), constituent questions (3d). and occasionally
imperatives (3e). As is also demonstrated in (3), the $Vorfeld$ position is not exclusively
reserved for subjects, a property which is shared among all $V2$ languages (such as
Dutch and the Scandinavian languages), setting them apart from English. Apart from
hosting adjuncts such as *dann* (‘then’) the $Vorfeld$ is also the sole place of occurrence
for the “positional expletive” *es*:

(6) a. Es kamen drei Kinder.
    EXPL came three children
    ‘Three children came.’
b. daß (*es) drei Kinder kamen.
that EXPL three children came

In Höhle's characterization of the different sentence patterns, what is common among them is that besides the verb cluster, all three of them exhibit the fields labelled “X” and “Y”, which immediately precede and follow the verb cluster, respectively. This reflects the assumption that there is no difference among the patterns in terms of what can occur in those fields and what ordering constraints hold. In this study, I will refer to Höhle's X field as Mittelfeld ('middle field') while his Y field will be called Nachfeld ('after-field, final field').

As we will see in the next section, the commonality among the three clausal patterns in terms of the Mittelfeld, verb cluster, and Nachfeld is pretty much universally accepted in all theoretical approaches. Even if these terms are not used explicitly, this assumption is brought to bear in terms of the same configurational relationships among elements within the each of the fields regardless of sentence pattern. This position is by no means the only logically possible one, as one can easily imagine that the placement of constituents in the Mittelfeld is the result of a right-branching structure in Vfinal contexts, while in V1 clauses, they are part of a left-branching structure, cf.:

(7) a.  
```
  Otto  
  └── das Buch  
       └── liest
```

b.  
```
  das Buch  
  └── liest
       └── Otto
```

The reason that different structural assignments depending on verb placement are undesirable is because all the known generalizations about order and all other diagnostics which have been proposed for structural asymmetries among Mittelfeld constituents are identical in all sentence patterns. Any theory which is premised on a close link between hierarchical structure and linear order and which at the same time allows asymmetries of the sort seen in (7) is bound to make mispredictions or risk the loss of generalizations.\(^2\)

In contrast, there is considerably less agreement with respect to the status of Höhle's C, FINIT, and K fields; in particular, whether C and FINIT are actually the same position in Vfinal and V1/V2 clauses and whether clause-initial wh-phrases in embedded questions (and fronted constituents in relative clauses, which will be referred to as "d-phrases") actually instantiate the Vorfeld as opposed to the C field, as Höhle's characterization in (1c,d) suggests.

### 2.2 Topological fields and generative analyses

In this section, I will review some of the generative analyses proposed for clausal structures in German from the perspective of whether and how they map into the distinctions made by the topological field theory. It is interesting to note that while there is a considerable amount of convergence among different theoretical frameworks as to the basic approach to some phenomena (for instance, the filling of the Vorfeld position), there is quite a variety of assumptions regarding the treatment of others

\(^2\)The same point is argued in Netter (1992).
(for example the C and FINIT fields), some of which cut across different frameworks. Among the approaches surveyed are a number of proposals in the transformational tradition including the Government and Binding/Principles & Parameters (GB/P&P. Chomsky 1981 and Chomsky 1986) framework, as well as a range of works in standard versions of Generalized Phrase Structure Grammar (GPSG, Gazdar et al. 1985) and HPSC. While these frameworks differ with respect to the number of grammatical strata assumed necessary for the formulation of syntactic generalizations, crucially they are all phrase structure-based in their use of concatenative operations in relating the structural analysis of a phrase to the corresponding string of words. Approaches that give up this assumption and employ nonconcatenative operations will be discussed later in Chapter 4. The ideas surveyed here also have in common a reductionist commitment that attempts to deduce the distinctions made in topological models from other distinctions, in terms of constituent structure and/or combinations of binary-valued features. In contrast, the current proposal to be developed in Chapter 5 can be seen as nonreductionist in that it takes the topological division as not reducible to purely categorial or hierarchical properties.

2.2.1 Vorfeld

Almost all of the approaches to topicalization, that is, positioning elements into the Vorfeld, involve the assumption of some dislocation operation. In early works, this

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3 Relatively little attention will be devoted to the recent Minimalist descendant of Transformational Grammar (Chomsky 1992, Chomsky 1994) and works in Lexical-Functional Grammar (LFG).

4 One exception is Haider (1990), who proposes a base-generation analysis of sentences in which a partial VP occupies the Vorfeld. See Chapter 7 for a discussion of such constructions.
was achieved via a particular fronting transformation (cf. for instance Thiersch 1978), which simply adjoined the moved element to the clausal tree. With the advent of trace theory, however, it has become more common to think of fronting in terms of substitution. In the "classical" GB framework, the relevant position was identified as the Comp(lementizer) node (cf. Haider 1985). The expansion of X Syntax to include functional categories such as Infl and Comp adopted in Chomsky (1986) has made the Spec(ifier) of Comp ([Spec,CP]) the position of choice for analyses in the "classical" Barriers framework (cf. Fanselow 1987, Grewendorf 1988, von Stechow & Sternefeld 1988). An example of a derivation is given in (8):

(8)

\[
\begin{array}{c}
\text{CP} \\
\text{Spec} \\
\text{NP} \\
\text{Comp} \\
\text{V} \\
\text{I} \\
\text{Spec} \\
\text{NP} \\
\text{VP} \\
\text{Karl} \\
\text{V} \\
\text{NP} \\
\end{array}
\]

Here, the object NP *das Buch* moves into the [Spec,CP] position, leaving behind the trace \( t_i \). The subject is either base generated in the [Spec,IP] position as in (8) or

---

\( ^5 \)Here and in the following, I will ignore details pertaining to V-to-C movement, in particular the creation of adjunction structures such as \([\text{Infl } [v^e] [\text{Infl}]]\) as the result of head movement.
in many more recent studies VP-internally, for instance in the [Spec,VP] position (Haider 1993). If a subject occurs clause-initially in a V2 context, it gets there by essentially the same type of movement that fronts initial objects.

There have been a number of alternative proposals which apply the inventory of categories and positions developed for the most part in the study of English more directly to German. One early deviation of the classical analysis in (8) is suggested by Travis (1984), who takes the CP analysis of fronting in German only to hold in the nonsubject cases. If a subject is the initial element in a V2 clause, what we get instead is a projection of Infl, rather similar to standard assumptions for the analysis of declaratives in English—typically in conjunction with a VP-internal base position for the subject:

(9)

While this dual analysis of V2 sentences as CPs or IPs depending on the grammatical function of the fronted element has been rejected by some, the conclusions reached are somewhat different in each case. Schwartz & Vikner (1989) argue for a uniform CP analysis, while Kathol (1989) advocates an IP analysis in all cases. With the
now almost standard assumption that subjects are all base-generated within the VP (but cf. Kratzer 1989 for a different view and Haider 1993:220-226 for a rebuttal), the latter position seems to have gained some currency and has been adopted more recently for instance by Frey (1993:25).

One aspect of the movement operation that accounts for fronted material in V2 clauses which is shared by nontransformational approaches is its in-principle unboundedness. Thus, in GB/P&P, fronting is an instance of the general transformational rule Move-α. Hence it can apply anywhere and arbitrarily many times so long as it does not create an ill-formed structure or violate constraints on movement such as Subjacency. The source and target domains of a movement operation are subjacent as long as the movement does not cross two bounding nodes. As in English, bounding nodes in German are generally taken to be IP and NP (Grewendorf 1988:81), and—again as in English—it is generally believed that dislocations across sentential boundaries are to be accounted for in terms of cyclic successive movement in which the [Spec,CP] node of the embedded clause provides an intermediate landing site. An example of such a succession of movement operations is given in (10) below, in which a wh-phrase has been fronted out of an embedded V2 clause.

(10)  a. Wohin meint Peter [daß Maria gegangen ist]?  
      where thinks Peter that Maria gone is
      ‘Where does Peter think Maria went?’
The view of fronting into *Vorfeld* as in principle unbounded is also shared by the majority of nontransformational approaches. For instance, in Uszkoreit (1987), frontings are dealt with in terms of a SLASH feature, which records information about missing constituents within the phrase structure tree whose root is labelled with that feature. As one of the specific assumptions of the of the underlying framework of GPSG, Uszkoreit adopts the assumption that SLASH as a so-called "Foot Feature" will percolate up the syntactic tree until the missing category is matched by an appropriate overt category. As no special provisions have been made to block the feature from passing into a superordinate clause, the feature will be present on each node along a path originating with the extraction site and ending with the local tree containing the filler. This local tree is licensed by means of the following phrase structure rule (Uszkoreit 1987:76):
(11) $V^3[+AC,+FIN] \rightarrow \alpha[+TOP], \ V^3/\alpha$

Specifically, what this rule says is that a finite assertion clause ([+AC,+FIN]) is licensed if it contains another maximal V projection missing some constituent $\alpha$. and $\alpha$ itself. The ordering between the filler ($\alpha$) and its matching $\alpha$-less clause is achieved not by this rule itself, but instead via a Linear Precedence statement that orders constituents marked [+TOP] before their sisters in the local tree (Uszkoreit 1987:76):

(12) $+TOP \prec X$

While there a number of details in which more current nontransformational theories are different from the version of GPSG used by Uszkoreit, the basics of his analysis carry over fairly directly into frameworks such as HPSG. Two points in which the two differ are the use of schemata instead of phrase structure rules and the elimination of meta-rules in favor of lexical rules. However, on closer inspection, it turns out that the GPSG slash elimination rule in (11) is already rather schematic due to the fact that $\alpha$ is left unspecified, hence the corresponding HPSG schema is little more than a notational variant of the original GPSG rule.

Besides the issue of unboundedness, another aspect on which standard GB/P&P and G/HPSG analyses agree is the assumed constituency of the syntactic object that the filler combines with in the slash elimination rule in (11) above. That is, the VI string following the filler is thought to constitute the same kind of syntactic object as the corresponding VI string without a gap, in particular, a verb-initial clause, as

---

6Actually, the relationship between rules and licensed local trees according to Gazdar et al. (1985) is a bit more complicated, but this slight inaccuracy will be excusable for our purposes here.
can be seen in the phrase structure tree in (13). (Here, I abstract away from different encodings of sentences either as verbal projections with the highest bar-level (V^3. Uszkoreit 1987) or in terms of fully saturated valence specifications ([SUBCAT {]), cf. Pollard & Sag 1994).)

(13)  

\[
\begin{array}{c}
S \\
\text{NP[ACC]} \quad \text{S [SLASH NP[ACC]]} \\
das \text{Buch} \\
V \quad \text{NP} \quad \text{NP[ACC]} [\text{SLASH NP[ACC]}] \\
\text{liest} \quad Otto \quad e
\end{array}
\]

**CP vs. TP** Among the different theoretical approaches of how the Vorfeld is filled, one recurring idea has been that the very same position (or field) is involved in V2 clauses whether the initial element is a *wh*-phrase or something else. However, it has come to be a generally accepted view in transformational syntax that although English *wh*-question and topicalization constructions both exhibit diagnostics of A-movement, they nevertheless involve a different landing site for the dislocated element, i.e. (substitution into) [Spec,CP] in the first case and some position adjoined to the clause in the latter.

(14)  
a. What does Otto like?

b. Cats, Otto likes.

Similarly, it is not surprising that somewhat similar suggestions have been made in the case of German. Müller (1993:370) proposes to analyze topicalization in declarative

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7In Gazdar et al. 1985, the highest bar level is 2.
clauses as movement into the specifier of Topic Phrase (TP), while question formation involves fronting of a \textit{wh}-phrase into [Spec,CP]. His motivation for this move comes primarily from so-called "CP-recursion" constructions in English or Scandinavian, in which both a complementizer and some fronted constituent cooccur, as in (15):

(15) \texttt{I think [\textit{CP} that [\textit{CP}/\textit{TP} in no case will he give up.]]}

Here, if the lower clause is taken to be a TP, rather than a CP, it is no longer necessary to actually posit recursive CP structures. However, note that Müller's argument only goes through under the assumption that the syntactic phenomena in one language necessarily have a bearing on the analysis of another language, even if the effects are not visible in the latter. Thus, German does not have recursive embeddings corresponding to the one in (15):

(16) \texttt{Otto glaubt [("daß) Lisa ist schon gekommen].}
\texttt{Otto believes that Lisa is already come}
\texttt{‘Otto believes that Lisa has already arrived.’}

Furthermore, the convergence in V2 order displayed by the German constructions equivalent to (14) also casts doubt on the plausibility of the CP/TP distinction.

\textbf{2.2.2 Complementizer and FINIT fields}

While the issue of what accounts for a filled \textit{Vorfeld} has received rather similar answers across frameworks in terms of dislocation, the situation is rather different in the case of the complementizers and verbs in V1/V2 position. Here, we can distinguish among two families of approaches, the first involving verb dislocation and the second without dislocations of this kind. Within the first family, it is possible to distinguish between verb movement into Comp vs. other positions.
**Verb movement into Comp** The realization that what in (1) are identified as separate fields, C and FINIT, could actually be regarded as the very same syntactic position goes back to at least Koster (1975) and early work by den Besten, (cf. also den Besten 1983). If there is really only one position, we get an immediate account for why overt complementizers and finite verbs are in complementary distribution in Vfinal vs. V1/V2 clauses, cf.:

(17)  

a. *ich weif [dafi Otto das Buch liest].
    I know that Otto the book reads
    ‘I know that Otto is reading the book.’

b. *dafi liest Otto das Buch.
    that reads Otto the book

c. *dafi Otto liest das Buch.
    that Otto reads the book

d. Otto liest das Buch.
    Otto reads the book
    ‘Otto is reading the book.’

e. *Otto das Buch liest.
    Otto the book reads

Thus, whenever there is an overt complementizer (17a,b,c), the finite verb cannot occur clause-initially or in second position. Conversely, if the complementizer is missing, as in (17d,e), the finite verb must not occur in clause-final position. The intuition behind den Besten's movement analysis is that the Vfinal pattern is in some sense the more basic or “underlying” structure, where as V1 and V2 occurrences of the verb, which I will often refer to as “frontal”, have been derived from the Vfinal pattern via a movement transformation. Because of the basic uniform structure assumed for all three different clause types, this approach has often been referred to as the *Uniformitätsthese* ('uniformity thesis', Frank 1994) or *Symmetrie-Hypothese*
('symmetry hypothesis', Reis 1985). One correlated assumption that is often made by proponents of the uniformity thesis (cf. Grewendorf 1988, Fanselow 1987) is that the place from which the verb moves into Comp is the position at which inflectional features of the sentence are located, that is, Infl. In accordance with the clause-final occurrence of inflected forms in Vfinal contexts, it is commonly assumed that the Infl node is located after its VP complement, unlike in English. The derivation in (18) shows the two-step derivation (V-to-I, and I-to-C):

(18)

Verb dislocation into nonComp  The claim that the German equivalent of the English Infl node is clause-final and serves as an intermediate landing site for the verb on its way to Comp has been criticized for instance by Haider (1993:59) (see also (Frey 1993), (Höhle 1990), (Brandt et al. 1992) for related discussion). Haider argues, among other things, that a clause-final Infl node in German makes the wrong prediction that an extraposed constituent should be able to occur between VP and Infl, given that extraposition from VP is locally possible with topicalized VPs:
(19) a. [Gesprochen [mit ihr]] hat er schon lange nicht mehr.
   talked with her has he already long no more
   'He has not talked to her for a long time.'

b. *daß er [schon lange nicht mehr gesprochen vP] [mit ihr] hat.
   that he already long no more talked with her has

Haider instead proposes an analysis in which the maximal projection in a V1 or V2 clause does not involve Comp nodes. Instead, as in English, the clause corresponds to a projection of Infl, and hence the I-to-C part of the derivation in V1/V2 clauses is eliminated:

(20)

Because this view of the structure of V1/V2 clauses correlates with the assumption that all projections of Infl exclude the position of the complementizer, it follows that the three sentence patterns can no longer be given the same basic structure. For this reason, this position has been dubbed the Differenzthese ('difference thesis', Frank 1994) or Asymmetrie-Hypothese ('asymmetry hypothesis', Reis 1985).

The idea that the frontal occurrence of finite verbs is the result of some dislocation mechanism is by no means restricted to transformational schools of thought. For instance, Kiss & Wesche (1991), Kiss (1992) (cf. also Frank 1994) following a suggestion by Jacobson (1987) employ a “double slash” feature (DSL) whose value is
the empty set (in the Vfinal case) or a singleton set containing syntactic and semantic information of the gapped verb. The proposed structure for a V1 clause is given in simplified form in (21a) (cf. Kiss 1992:147). In (21b), I list Kiss' LP statement which achieves the ordering of the DSL filler before the constituent it has been extracted from.

(21) a. 

```
V[SUBCAT ()]  
DSL 0  

V[SUBCAT (V)]  
 DSL {V}  

liest  

V[SUBCAT (NP)]  
 DSL {V}  

NP  
Karl  

NP  
V[SUBCAT (NP,NP)]  
 DSL {V}  

das Buch  
t
```

b. $V[\text{SUBCAT} (V[DSL \uparrow])] \prec V[DSL \uparrow]$

There is an alternative analysis to the one in (21) by Netter (1992), which proposes a right-branching binary structure that is isomorphic to the one in (21). It also assumes an empty category (functional head) from which the clause is projected. However, instead of a nonlocal dependency, the placement of the frontal verb now results from the empty head raising all of the verb's complements (see Section 2.2.4 below) including the verb itself.
Thus, only head-complement relations are involved in the sequence of binary combinations. Also, since the frontal verb is now a complement, each local binary tree is strictly head-final.

**Verb positioning without movement** The view that the frontal position of finite verbs is not the result of dislocation or mediated by some invisible head, but instead one of the serialization possibilities permitted for the verb with respect to its arguments (and adjuncts) has only been advocated in nontransformational approaches to German syntax, such as Uszkoreit (1987) and Pollard (in press). In both analyses, the frontal occurrence corresponds to a particular setting of a feature with binary values: MC (‘main clause’) in the former and INV (‘inverted’) in the latter case. The use of INV in Pollard’s analysis deliberately alludes to the standard HPSG analysis of AUX-inversion constructions in English, as is demonstrated in (23), the only difference being the restriction of INV to auxiliaries in English, while is a feature appropriate for all verbs in German.
Implicit in this kind of analysis of V1 clauses is the assumption that a frontal finite verb bears a different structural relationship toward the rest of the clause than complementizer. Thus, whereas all the arguments in the Mittelfeld are direct sisters of the frontal verb, a clausal node intervenes between a complementizer and constituents in the Mittelfeld. This is the result either of a syncategorematic rule as in (24) (cf. Uszkoreit 1987:166) or an instantiation of the HPSG Marker-Head Schema, as proposed for English complementizers in Pollard & Sag (1994).

(24) \( V^3[+d\ddot{a}\ddot{f}] \rightarrow d\ddot{a}\ddot{f}, V^3[-MC] \)

In either case, a structure along the following lines results:

(25)

\[
\begin{array}{c}
\text{S} \\
\text{da\ddot{f}} \\
\text{NP} \quad \text{NP} \\
\text{Otto} \quad \text{das Buch} \\
\end{array}
\]
2.2.3 Mittelfeld

Besides the question whether some kind of dislocation is involved in frontal finite verbs, probably the most contentious area of German syntax is the structure of the *Mittelfeld*. Correlated with the different positions on how the finite verb takes its frontal position discussed in the previous section are different views on whether the *Mittelfeld* is separated, at least at its left edge, from the rest of the clause by a constituent boundary. Whereas in flat structure approaches such as Üszkoreit (1987), Pollard (in press), Hinrichs & Nakazawa (1994a), the answer to this question is negative, proponents of the dislocation approach assume a constituent boundary between the two, viz. S (Kiss 1992), IP (Grewendorf 1988), $V_{\text{max}}$ (Frey 1993), etc.

As for the elements within the *Mittelfeld* themselves, this division is mirrored in terms of how much, if any, structure is held to exist among the various dependents of the main predicate. Here, we have a whole host of different proposals ranging from totally flat to very elaborate structural analyses.

**Flat structures** As mentioned previously in connection with the status of finite frontal verbs, the canonical assumption regarding the structure of the *Mittelfeld* in “standard” HPSG, i.e. as defined in Pollard & Sag (1994), is that all of its constituents are sisters within the same flat tree. The German *Mittelfeld* (cum finite verb) can thus be viewed as instantiating the HPSG Schema 3 (Pollard & Sag 1994:33), by which all arguments of a head are discharged at the same time:
One advantage of this approach is that it immediately accounts for order variation among the different arguments, demonstrated in (27) below, so long as there are no LP statements which necessitate the ordering of particular elements before others (Haider 1993:197):

\[(27)\]
\[
a. \text{ wenn dem Subjekt die Anfangsposition das Objekt streitig macht.} \\
\quad \text{when the subj.-DAT the initial pos.-ACC the obj.-NOM debatable makes} \\
\quad \text{‘When the object challenges the subject in its initial position.’}
\]
\[
b. \text{ wenn dem Subjekt das Objekt die Anfangsposition streitig macht.} \\
\quad \text{when the subj.-DAT the obj.-NOM the initial pos.-ACC debatable makes} \\
\quad \text{c. wenn die Anfangsposition dem Subjekt das Objekt streitig macht.} \\
\quad \text{when the initial pos.-ACC the subj.-DAT the obj.-NOM debatable makes} \\
\quad \text{d. ...}
\]

As we saw in the previous chapter, the treatment of order variation in terms of underspecified LP statements embodies the assumption of GPSG and standard HPSG that all ordering in a language should be derivable from constraints on order (or lack thereof) within local domains. No elements from outside the local domain can be interspersed with its elements. One example that appears to present a challenge to this view, however, is the placement of adverbs as flanked by arguments within the German *Mittelfeld*, as for example seen in the following example:

\[(28)\]
\[
\text{daß Hans seiner Tochter gestern ein Märchen vorlas.} \\
\quad \text{that Hans his daughter yesterday a fairy tale read.to} \\
\quad \text{‘that Hans read a fairy tale to his daughter yesterday.’}
\]
If all the arguments of the verb are discharged at the same time and no crossing dominance lines are allowed, it should not be possible to place an adverb such as *gestern* amidst different arguments. At least two strategies have been suggested in recent years to cope with this problem in phrase structure-based frameworks. The first is to revise the Head-Argument schema introduced in the previous chapter so as to include not only complements but also adjuncts (Kasper 1994). As a result, the local tree not only contains complement daughters, but adjunct daughters as well, which gives rise to a structure such as in (29).

(29) $\text{S} \\
\text{C} \quad \text{C} \quad \text{A} \quad \text{C} \quad \text{H} \\
\text{NP} \quad \text{NP} \quad \text{Adv} \quad \text{NP} \quad \text{V} \\
\text{Hans} \quad \text{seiner Tochter} \quad \text{gestern} \quad \text{ein Märchen} \quad \text{vorlas}$

Another possibility, first suggested in Miller (1992), is to allow adjuncts to appear on the subcategorization frame of verbs (via lexical rule), and hence to be discharged at the same time as “true” complements (van Noord & Bouma 1994). In the current framework to be developed in Chapter 5 and following, interspersal of adverbs among complements does not present any particular problem since the mode of head-argument combination is binary and all major constituents of a clause are mapped into a transparent linear domain.

---

8This presupposes that the adverb combines with the entire clause; yet, similar problems arise if the adjunction is at the VP level; cf. Netter (1992) for a similar point. See also Hoeksema (1991:673–682) for a related discussion of constituency and adverbial placement in Dutch/German, arguing for a nonconcatenative approach along the lines surveyed in Chapter 4.

9This move also allows an account of extraction based entirely on lexical rules removing complements from SUBCAT frames as opposed to syntactic traces (cf. Sag & Fodor 1994).
"Dynamic" configurationality. Another class of approaches to the structure of the *Mittelfeld* will be referred to here, for lack of a better word, as "dynamically configurational". By this I mean the notion that the linear order directly reflects constituency, which in turn arises from strictly binary structures. As an example consider the following derivation based on Hinrichs & Nakazawa (1990) (but cf. also Nerbonne 1986, Nerbonne 1994)

(30) $V[\text{SUBCAT }\{\}]$

```
NP[ACC]   H[\text{SUBCAT }\{\text{NP[ACC]}\}]
das Nilpferd
```

```
NP[NOM]   H[\text{SUBCAT }\{\text{NP[NOM]}, \text{NP[ACC]}\}]
ein Junge  füttert
```

Here, the value of the \text{SUBCAT} feature is a set, which means that there is no intrinsic ordering on the elements, unlike in the case of lists. But then there is nothing that will prevent a subject (*ein Junge*) from being discharged off the \text{SUBCAT} set before the object. On the other hand, due to strict binary branching, each argument will bear an asymmetric structural relationship to the ones following it: the former c-commands the later, but not vice-versa. A similar kind of asymmetry has also been proposed for objects in hierarchically superior positions over subjects in Japanese by Yatabe (1993). In that work, however, the more conventional encoding of subcategorization information in terms of lists is maintained. Occasionally, there have also been proposals in the spirit of dynamic configurationality in GB-based work. cf. for

---

10 Here, I assume the standard definition of C-command: a node $A$ c-commands a node $B$ iff the lowest branching node $C \neq A, B$, such that $C$ dominates $A$ also dominates $B$. 
instance Bayer & Kornfilt (1990), but for the most part, that line of research assumes a basic configuration in which arguments are in a particular structural relationship, either according to general principles or with a certain degree of flexibility given lexical idiosyncracies among verbs. Any other orderings are then considered derived from that basic structure in terms of movement operations, that is, "scrambling" transformations.\footnote{While the term "scrambling" is often used as a descriptive term for order variability, we will restrict its use in this study to those cases, where a particular order within a bounded domain is attributed to an actual dislocation operation. Thus, with this use of the term, order variation within totally flat structures is never the result of scrambling as there is no dislocation.}

**Strict configurationality** What is striking about the debate that has been going on about how to account for order variability in the *Mittelfeld* under the assumption of strict basic structures is that the kind of movement needed to obtain the derived structures defies straightforward classification in terms of the ordinary A vs. $\overline{A}$-dichotomy of movement in GB.\footnote{Cf. also Mahajan (1990) on this question.} There are proponents for both positions, most notably Fanselow (1987) and Haider (1993) for the first and Müller (1993) for the second. Webelhuth (1992) actually takes a somewhat intermediate stance, as scrambling is for the most part demonstrated to have properties of A-movement, whereas certain parasitic gap constructions necessitate the assumption of properties usually found with $\overline{A}$-movement.

For the purposes of this study, however, a different distinction is more interesting. As Frey (1993:30) points out, scrambling theories differ fundamentally in terms of
whether the subject is base-generated in a designated position ([Spec,IP]) distinct from the projection within which objects occur ("strictly configurational" cf. Fanselow 1987, Grewendorf 1988) or whether it occurs under the same projection as objects do (Vₘₐₓ, "weakly nonconfigurational"). The latter position is advocated by Haider (1993) and Frey (1993). In order to ensure that the configurational hierarchy among the arguments in base positions is as from left to right, i.e. typically with a subject c-commanding the direct object, the structure is assumed to be strictly right branching.

The issue of the status of the subject has its correlate in HPSG in terms of the split of valence information into the selecting features SUBJ and COMPS. Thus, the licensing of subjects by means of a separate schema is rather similar to the notion of a designated structural position in transformational theories. Interestingly, however, if SUBJ and COMPS are separated, this separation is generally assumed to hold for nonfinite verb forms only. In the corresponding finite forms, the subject is generally taken to be a member of the COMPS list (cf. Kiss 1992, Pollard in press), so as to allow for ordering variability with other complements in a flat clausal tree.

2.2.4 Verb cluster

A discussion of the various proposals for the structure of the verb cluster necessitates reference to the larger issue of nonfinite complementation and Bech’s (1955) notion of "(in)coherence". Let us begin with the notion of incoherence, which is quite similar to the corresponding English construction type.

One diagnostic of incoherent construal is the occurrence of a nonfinite phrasal constituent after its clause-final governor. Thus, in (31), the VP argument sein Buch
zu lesen is positioned after its governor *empfiehlt*, hence we have an instance of an incoherent construction.

(31) daß der Professor den Studenten *empfahl* [dieses Buch zu lesen].
that the professor the students recommended *this book* to read
‘that the professor recommended to his students to read this book.’

Incoherent construals are in general only possible if the governed predicate is a VP\(^{13}\) with *zu*-infinitival morphology. In the vast majority of cases, the VP argument occurs clause-finally, but occasionally, it can also be placed inside the *Mittelfeld*, giving rise to the so-called *Intraposition* construction, as in (32):

(32) daß [dieses Buch zu lesen] der Professor den Studenten *empfahl*.
that *this book* to read the professor the students recommended
‘that the professor recommended to his students to read this book.’

The position of the subject *der Professor* and dative object *den Studenten* clearly show that the nonfinite VP complement *dieses Buch zu lesen* is not part of the verbal cluster, but rather of the *Mittelfeld*.

What categorial status is given to the verbal complement is largely dependent on the general assumptions of the framework considered. Analyses in the GB/P&P tradition tend to assign to the complement the status of a CP containing an inaudible, albeit syntactically present subject *PRO* which is linked to elements in the matrix clause by means of some indexing mechanism:

(33) daß der Professor den Studenten, *empfahl* [PRO\(_i\) dieses Buch zu lesen].
that the professor the students *recommended* *this book* to read
‘that the professor recommended to his students to read this book.’

\(^{13}\)For nonmaximal VPs occurring incoherently as part of the “Third Construction”, see Chapter 7.
Nontransformational approaches on the other hand tend to assign less syntactic structure and generally assume the complement to be a nonfinite VP whose missing, hence “understood”, subject is construed with a controller in the matrix clause.

*Mittelfeld*-internal verbal complements give rise to superficially unexpected serialization possibilities among nominal arguments. For instance, as Haider (1993:248) notes, pronominal accusatives are generally required to precede pronominal datives (34a); yet, the opposite order becomes available if the accusative is part of an intraposed VP, as in (34b):

(34) a. daß er ihn ihr vorstellte.
   that he him-ACC her-DAT introduced
   ‘that he introduced him to her.’

   b. daß er ihr [ihn zu vergessen] empfohlen hat.
   that he her-DAT him-ACC to forget advised has
   ‘that he advised her to forget him.’

What makes the analysis of VP *Mittelfeld*-internal verbal complements somewhat complicated is the fact that, as we will see shortly, the *Mittelfeld* is also the site where complements of verbs that exhibit the coherent construction type typically occur. Therefore, as Haider (1993:248) notes, the distinction between coherent vs. incoherent constructions does not line up directly with salient topological properties (cf. also Kiss 1992 on this point). Thus, occurrence of a verbal complement in the *Nachfeld* entails incoherence; but if a phrasal complement occurs before the finite clausal head, it is the topological status of the selecting head that determines the coherent/incoherent status of the construction.

Coherent constructions typically exhibit properties that are complementary to those of incoherent ones. Thus, they do not allow the governed verb together with
its nominal arguments to follow the governing predicate. Nor is it possible to have a
dependent VP argument inside the Mittelfeld, as shown in (35a,b), respectively:

(35) a. *dass Lisa soll [dieses Buch lesen].
    that Lisa shall this book read

b. *dass [dieses Buch lesen] Lisa soll.
    that this book read Lisa shall

Theoretical approaches to coherent constructions can be separated into roughly
two camps. The first is characterized in terms of the assumption that the embedded
verbal constituent at some level constitutes a clausal argument. This is reminiscent
of a long tradition in the syntax of English that treats subject raising constructions in
terms of biclausal structures which may or may not turn into monoclausal structures
as the result of some restructuring operation(s):

(36) a. dass Hans Maria zu kennen scheint.
    that Hans Maria to know seems
    ‘that Hans seems to know Maria.’
Representatives of such a view include for instance, von Stechow & Sternefeld (1988) and von Stechow (1990), who assume that the complement starts out as a CP. which in the course of the derivation is reanalyzed as a VP. Interleaving of constituents of the embedded verbal complement and material of the matrix clause is the result of scrambling out of the embedded phrasal constituent (cf. also Rambow 1994). This and similar kinds of analyses\textsuperscript{14} based on the assumption of underlying CP complements are discussed in detail in Kiss (1992:62–90) as well as in Haider (1991:10–14). Haider (1993:256–259). Both independently reject these types of analysis in favor of a treatment of the verb cluster as a (base-generated) complex predicate discussed

\textsuperscript{14}Cf. for instance Sternefeld (1991) for an approach in terms of head movement, not unlike the kind of cluster formation transformations assumed in Evers (1975).
Among nontransformational approaches, the sentential complement analysis is implemented rather directly by Uszkoreit (1987) (cf. also the discussion in Hinrichs & Nakazawa 1989). In that analysis, no attempt is made to construe any of the arguments in the most deeply embedded clause with any higher predicate. Thus, in the following example, all the arguments of finden are discharged before that constituent combines in sequence with the auxiliaries können and wird:

(37) a. daß Peter das Buch finden können wird.
   that Peter the book find can will
   ‘that Peter will be able to find the book.’

b. $V^3[++AUX, +FIN, -MC]$

$$
\begin{array}{c}
V^3[++BSE, +AUX] \\
V^3[++BSE] \\
NP \quad NP \quad V
\end{array}
$$

Wird können

In later work this type of analysis has been found empirically wanting, and a new way of thinking about coherent constructions has emerged which takes as its premise the idea that elements in the verb cluster form syntactic constituents to the exclusion of any dependent phrasal nominal arguments.

In Hinrichs & Nakazawa (1989), Uszkoreit’s proposal is rejected in part on the basis that it allows no straightforward account of the kind of order variation found in so-called “Auxiliary Flip” constructions. This phenomenon involves sequences of
two or more verbs in their base forms.\textsuperscript{15} In such cases, the embedding auxiliary verb precedes rather than follows the verbs it governs.\textsuperscript{16} As an example, consider (37a). Here, the auxiliary \textit{können} subcategorizes for a verb in bare infinitival form (\textit{finden}) and in turn bears infinitival morphology in accordance with the selectional properties of the finite tense auxiliary \textit{wird}. As a result, this auxiliary can indeed precede the sequence of two infinitivals, as shown in (38):

(38) daß Peter das Buch wird [finden können].

that Peter the book will find can ‘that Peter will be able to find the book.’

This phenomenon can be explained rather easily under the assumption that the highest auxiliary is placed either after (as in (37a)) or before a constituent, comprised of a number of verbs. The resulting structure advocated by Hinrichs & Nakazawa (1989) and Hinrichs & Nakazawa (1994a) is based on a proposal by Johnson (1986), in which the verbs in the verb cluster form a constituent of their own before combining with the respective arguments:

\textsuperscript{15}For now, I will neither be concerned about the class of embedding verbs that triggers this phenomenon optionally or obligatorily, nor with the phenomenon of \textit{Ersatzinfinitiv}, that is the occurrence of an infinitive in lieu of a past participle with the tense auxiliary \textit{haben} and concomitant Auxiliary Flip. For discussion, see Hinrichs & Nakazawa (1994a) and Chapter 7.

\textsuperscript{16}See Hinrichs & Nakazawa (1994a:16n.) for a brief discussion of the range of verbs that undergo the verb cluster-internal fronting in Auxiliary Flip constructions.
Other suggestive evidence that the verbs in the *verb complex* form a syntactic constituent comes from the fact that in general, it is not possible to interrupt the sequence of verbs in the *verb complex* for instance by means of an adverb such as *kaum* ('barely') (Haider 1993:250):

(40) a. daß sich Max kaum [zu konzentrieren vermochte].
that self Max barely to concentrate was.able.to
'that Max was barely able to concentrate.'

b. *daß sich Max [zu konzentrieren kaum vermochte].
that self Max to concentrate barely was.able.to

In Hinrichs & Nakazawa (1990) and Hinrichs & Nakazawa (1994a), this idea is cashed out in terms of “argument composition”, that is the formation of a complex predicate in which all the phrasal arguments of the embedded verbs are successively collected in the highest verb’s subcategorization frame. The following lexical description from Hinrichs & Nakazawa (1994a:21) demonstrates how this can be made precise
formally:17

(41) \textit{wird}

\[
\begin{array}{l}
\text{HEAD} \quad \text{MAJ V} \\
\text{VFORM \textit{fin}} \\
\text{AUX +} \\
\end{array}
\]

\[
\begin{array}{l}
\text{SUBCAT \{1\}} \quad \text{HEAD} \quad \text{MAJ V} \\
\text{VFORM \textit{hse}} \\
\text{SUBCAT \{7\}} \\
\text{NPCOMP -} \\
\end{array}
\]

The auxiliary's \textit{SUBCAT} list consists of the embedded infinitival verb ([\textit{VFORM \textit{hse}}]), \textit{appended} to the list containing all of the arguments subcategorized for by that verb ([7]). If an auxiliary specified along these lines is itself embedded by a higher auxiliary, these arguments are again passed on.

As a direct corollary of this analysis, when the phrasal arguments of the whole complex predicate are discharged, they should allow order variability of the same kind as that seen with arguments of a single verb. This is precisely what we find; thus unlike in the incoherent case where the embedded verb and its object form a single constituent, there is no requirement of adjacency in the coherent case, as witnessed by (42):

(42) \textit{dass es Peter finden k\ddot{o}nnen wird}.

that it Peter find can will

'that Peter will be able to find it.'

\footnote{17The description in (41) uses the feature \textit{NPCOMP}. Its purpose is to record whether a verbal projection has yet discharged any of its nominal arguments. If so, its value will be specified positively, otherwise negatively. Thus, this feature can be viewed as specifying a combination of verbs as (quasi-)lexical in the sense that the projection forms one complex predicate with a merged subcategorization frame.}
Note also that the description in (41) involves a quite straightforward extension of standard HPSG. Despite his assurances to the contrary, it is not totally obvious whether the same can be said with respect to common GB/P&P assumptions of the analysis of the verb cluster in coherent constructions proposed by Haider (1993). That study independently reaches a conclusion which is strikingly similar to Hinrichs and Nakazawa's argument composition approach. In particular, Haider proposes recursive \( V^0 \) structures with merged argument structures (p. 285). However, as this type of structure is not among the common inventory of syntactic entities licensed by standard \( \bar{X} \)-theory, he has to assume that coherent constructions constitute a wholly new type of syntactic structure, which he refers to as \textit{komplexe Projektionsbasis} ('complex projection basis') (p. 273). The fact that the valence properties of the whole constituent correspond to those of the respective \( X^0 \) complement is likened to the effect of functional composition known from Categorial Grammar.

\[
\begin{array}{c}
\text{\( V^0 \)} \\
\text{\( V^0 \rightarrow V^0 \)} \\
\text{\( V^0 \rightarrow V^0 \)} \\
\end{array}
\]

We can take the fact that a rather similar analysis has been independently advocated by proponents of different theoretical frameworks as suggestive evidence for some version of argument composition, as opposed to the sentential complement approach. This question will be taken up again in chapter 4, when we review the linguistic adequacy of Reape's analysis of the German \textit{Mittelfeld} and verb cluster (Reape 1993).

Hinrichs and Nakazawa's (and Haider's) intuition that the elements in coherent...
constructions are in some sense lexical is reflected even more directly in the variants of the argument composition approach proposed in Kiss (1992) and Rentier (1994). In the former, embedding verbs directly subcategorized for a lexical verb ("lexeme selection"), giving rise to a right-branching structure in the non-Aux Flip case:

(44)

One of the obvious drawbacks of this analysis is that the original account of Aux Flip in terms of alternative placements of the governing auxiliary is lost. In contrast, Rentier (1994) maintains a left-branching analysis, but also adopts, following Chung (to appear), a new valence feature GOV(ERNMENT) together with corresponding a schema that guarantees the value for the LEX feature to be positive for mother constituents licensed by it.

---

18Kiss (1992:295) indeed considers the alternative left-branching structure.
Finally, it should be noted that not all nontransformational approaches that employ a form of argument composition assume that the verb cluster in fact corresponds to a constituent. For instance, the following flat tree analysis is proposed in Pollard et al. (1993) and Baker (1994):

Here, all the elements belonging to the complex predicate are sisters of each other, together with respective phrasal arguments.

One proposal which assumes aspects of both the flat structure approach as well as some constituency within the verb cluster is Hinrichs & Nakazawa (1994b):
While the highest governing verb does not form a constituent with its verbal dependents to the exclusion to the phrasal nominal arguments, the integrity of the sequence of nonfinite verbs as one constituent is retained and no form of total "liberation" into a flat structure, as in (46), occurs.

Finally, one issue that needs to be addressed is to what extent coherent vs. incoherent construal can be predicted from the syntactic or semantic properties of the governing verb. As was already mentioned earlier, among the three German verbal statuses bare infinitive (inf), zu-infinitive (zu-inf), and past participle (psp), only the second is allowed to occur in incoherent constructions. As a corollary, the embedding behavior is not predictable from the status as a control verb. As is pointed out in Kiss (1992), wollen (‘want’) is clearly a subject control verb; yet due to its selection of a verbal complement with bare-infinitival morphology, it may only occur in coherent constructions. On the other hand, proper status government is not a sufficient condition either. Thus, although scheinen selects a zu-infinitival complement, it obligatorily occurs in coherently construed syntactic environments, hence the example in (48) is ungrammatical:

\[(48) \*\text{daß Lisa scheint zu schlafen.}\]

\[that Lisa seems to sleep\]

While it is a valid generalization that control verbs taking zu-inf verbal complements always allow for incoherent constructions, it is a well-known fact that some such predicates often also occur in coherent constructions as well (cf. Bech 1955:114). Thus, an optionally coherent predicate such as versuchen will in general allow both incoherent construals with the VP complement extraposed (49a) or intraposed (49b),
and the conherent construction in which on the Hinrichs & Nakazawa/Kiss/Haider approach it forms a syntactic unit with lexical complement zu lesen:

(49) a. daß er nur am Samstag versuchte [Bücher zu lesen].
that he only on Saturdays tried books to read
‘that he only tried to read books on Saturdays.’

b. daß er [Bücher zu lesen] nur am Samstag versuchte.
that he books to read only on Saturdays tried
‘that he only tried to read books on Saturdays.’

c. daß er Bücher nur am Samstag [zu lesen versuchte].
that he books only on Saturdays to read tried
‘that he tried only on Saturdays to read books.’

This topic will be taken up again in Chapter 7.

2.3 Summary

This concludes the survey of some of the main themes in the phrase structure-based approaches—both derivational and nonderivational—to the syntax of German. Viewed from the perspective of topological fields, an interesting asymmetry emerges: as far as the boundaries between different fields at the left periphery are concerned (i.e. between Vorfeld, linke Satzklammer, and Mittelfeld), there is a strong tendency, especially for those approaches that adopt some version of verb movement, to reduce such divisions to boundaries between constituents. On the other hand, notwithstanding the work on complex predicates by Hinrichs & Nakazawa and Haider, it still is a common assumption to regard the rechte Satzklammer/verb cluster as a heterogeneous collection of syntactic material in terms of its constituency relations with the rest of the clause—at least on the level of D-structure. In the Chapter 4, we will

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19 One field not covered yet is the Nachfeld, to which all of Chapter 8 below will be dedicated.
encounter another instance of a heterogeneous analysis of the verb cluster (Reape 1993), yet within a nonderivational theory. While the specifics of that analysis will be shown to exhibit some inadequacies, the overall model of how to relate syntactic structure and surface order will form the foundation of an attempt to reinstate the idea of topological fields as a linguistically reputable model for the description of German.
CHAPTER III

Conjunct-Internal Subjects

3.1 Introduction

Consider the sentence in (1):

(1) In den Wald ging der Jäger und lief der Junge.
    into the forest went the hunter and ran the boy
    'The hunter went, and the boy ran, into the forest.'

It is a commonly held assumption that coordination requires of the conjoined elements that they be "alike" in a certain way. This tenet has been embodied in various forms, such as the "Like Constituent Constraint" or Ross' "Coordinate Structure Constraint" (Ross 1967). According to an implicit, albeit pervasive conception, likeness is reflected in the strings of the conjuncts, hence in (1) it is manifested in terms of the fact that both conjuncts can be used to extend the initial string in den Wald to yield the well-formed German sentences in den Wald ging der Jäger and in den Wald lief der Junge. I refer to this diagnostic of likeness as the "String Continuation Criterion" (SCC). Contrast this now with sentences like (2):

(2) In den Wald ging der Jäger und fing einen Hasen.
    into the forest went the hunter and caught a rabbit
    'The hunter went into the forest and caught a rabbit.'

Applying the criterion here will predict that the sentence should be impossible because although in den Wald ging der Jäger is a well-formed sentence, there is no initial
substring of the material before the conjunction particle und that could be extended by the second conjunct. In other words, *in den Wald fing einen Hasen* does not yield a any kind of constituent in German, let alone phrase. Yet, the sentence is perfectly grammatical in that language and corresponding examples can be found in virtually all Germanic languages including, marginally, English (cf. Kathol & Levine 1992).

Sentences like those in (2) have been referred to in the literature in various ways, in particular as “SGF coordination”, after Wunderlich (1988), who coined this term as the English equivalent of the one used in Höhle’s first careful study (Höhle 1983) where they are called “SLF Koordinationen”, for “‚Subjektlücken in finiten/frontalen [Sätzen]‘” (‘subject gaps in finite/frontal sentences’). For convenience, I will adopt this usage for the time being, but propose a new terminology later that better reflects the crucial properties of the phenomenon.

Although there have been a number of studies of SGF constructions in various grammatical frameworks (cf. Wunderlich 1988, Höhle 1990, Steedman 1990, Heycock 1991, Heycock & Kroch 1993, Heycock & Kroch To appear, Fanselow 1991, Zwart 1991, among others), it can be shown that none has been fully adequate, even when they relax the interpretation of the Like Constituent Constraint, as Wunderlich’s and most GB-based accounts do. Before discussing these analyses in more detail, I first review a few facts about the construction type.

### 3.2 Facts about SGF sentences

The hallmark of SGF is that, intuitively, we find an initial sequence of words containing a subject (nominative) NP (such as *der Jäger* in (2)), whereas the other conjunct
(i.e. the material following the conjunct *und*) is lacking precisely this constituent.

In (2), the initial string corresponds to a V2 clause; however, a *Vorfeld* is by no means necessary as the following constructions with V1 clauses show, taken from Höhle (1983:12):

(3)  
   a. *[Stehen da schon wieder welche rum] und verteilen Flugblätter?*  
       stand there yet again some around and distribute leaflets  
       ‘Are there again some [people] standing around distributing leaflets?’
   b. *[Nimmt man den Deckel ab] und rührt die Füllung um,  
       takes one the lid off and stirs the filling around  
       steigen übelriechende Dämpfe auf  
       rise nauseating vapors up  
       ‘If one takes off the lid and stirrs the filling, nauseating vapors will rise.’
   c. *[Gehen Sie lieber nach Hause]  
       go you rather home  
       und bringen Ihre Angelegenheiten in Ordnung!  
       and get your affairs in order  
       ‘You had better go home and get your affairs in order.’

The three sentences exemplify the missing subject phenomenon in all of the main contexts in which V1 clauses are found in German: (3a) is a polarity question, (3b) a conditional, and (3c) an imperative. Other contexts licensing V1 clauses also allow SGF, for instance the complement of the subordinating particle *als* (‘as’):

(4)  
   Er tut so als [sei sie unaufmerksam gewesen]  
   he acts so as be she unattentive been  
   und habe den Unfall verursacht.  
   and have the accident caused  
   ‘He is acting as if she had been unattentive and caused the accident.’

It is clear that the topicless cases are just as much a problem for String Continuation as V2 clauses: what follows the finite verb crucially contains a subject in the first conjunct yet this argument is obligatorily missing in the second, thus no matching sequences can be found, contrary to the SCC.
Next, note that if the subject is missing in the second conjunct, it must not contain any other gap. For instance, in the following example, an object in the first conjunct is illicitly absent in the second, which results in strong ungrammaticality regardless of whether the object is contained inside the first conjunct’s Mittelfeld as in (5a,c) or in the initial Vorfeld position, as in (5b):^\textsuperscript{1}

(5) a. *Gestern zeigte Hansi die Briefmarkenj dem Onkel
   yesterday showed Hans-NOM the stamps-ACC the uncle-DAT
   und verkaufte ei ej der Tante
   and sold the aunt-DAT

b. *Die Briefmarkenj zeigte Hansi dem Onkel ti
   the stamps-ACC showed Hans-NOM the uncle-DAT
   und verkaufte ei ti der Tante
   and sold the aunt-DAT

c. *Hansi zeigte gestern die Briefmarkenj dem Onkel
   Hans-NOM showed yesterday the stamps-ACC the uncle-DAT
   und verkaufte ei ej der Tante
   and sold the aunt-DAT

While it seems that the badness of (5b-c) can be explained quite straightforwardly as a violation of the “Across-the-Board” constraint on extraction (cf. Williams 1978), it will not shed a light on why a single missing subject in the second conjunct is okay (cf. (2)), whereas a single missing object will result in ungrammaticality, as seen in (6)—for convenience I refer to examples of this sort as “OGF”, for “object gap in finite/fronted clauses”.

(6) *Gestern zeigte Hans die Briefmarkenj dem Onkel
   yesterday showed Hans-NOM the stamps-ACC the uncle-DAT
   und verkaufte Otto ej der Tante
   and sold Otto-NOM the aunt-DAT

\textsuperscript{1}For the purpose of exposition, the putative subject gap in the second conjunct is indicated by an indexed empty category “e”, while an “Across-the-Board” extraction site is indicated by “t”.
The generalization is that first, only the subject may be missing from the second conjunct, and second, if there is a subject gap, no filler-gap linkage must exist between the Vorfeld and the second conjunct. The second constraint is vacuously satisfied in the case of V1 clauses because of the absence of any topic. Similarly, the initial PP in den Wald in (2) can only be construed as a directional complement of the first verb ging. An initial adverbial such as gestern (‘yesterday’) will satisfy the requirement too, for the lack of selection by any verb will automatically make it impossible to construe the adverb as a syntactic argument of the predicate in the second conjunct.

As expected, (7) is perfectly grammatical:

(7) Gestern ging der Jäger in den Wald und fing einen Hasen.
yesterday went the hunter into the forest and caught a rabbit
‘Yesterday the hunter went into the forest and caught a rabbit.’

It is important to point out that the ungrammaticality of missing objects in the absence of subjects cannot plausibly be attributed to a possible adjunct status of the second conjunct. One reason for this kind of analysis is the lack of extractability out of nonfinite adjunct phrases.

(8) a. Hans hat Maria geküßt [ohne sie anzuschauen].
   Hans has Maria kissed without her to.look.at
   ‘Hans kissed Maria without looking at her.’

   b. *Hans hat Maria, geküßt [ohne e, anzuschauen].
   Hans has Maria kissed without to.look.at

   c. Hans hat Maria, [ohne e, anzuschauen] geküßt.
   Hans has Maria without to.look.at kissed
   ‘Hans kissed Maria without looking at her.’

While in (8a), the extraposed ohne-phrase is a full VP, there is an object gap in (8b), in analogy to the grammatical putative parasitic gap construction (cf. Felix 1985)
in (8c) where the PP adverb in the *Mittelfeld* contains a gap which is understood as linked to the preceding object *Maria*. One piece of evidence that the second conjunct in the SGF case does not fall into a natural class with adjuncts is the fact that—as with ordinary coordination—these conjuncts can be stacked, with only the last conjunct containing a conjunction particle:

(9) In den Wald ging der Jäger, [(und) fing einen Hasen],
into the forest went the hunter and caught a rabbit
[und kam am Abend wieder zurück].
and came in the evening again back
‘The hunter went into the forest, caught a rabbit,
and came back again in the evening.’

On the other hand, no comparable possibility exists with adjuncts, as the following ungrammatical example shows.

(10) Hans hat Maria geküßt [*(ohne) sie anzuschauen]
Hans has Maria kissed without her to look at
[ohne sich zu bücken].
without self to bend down

3.3 SGF’s challenge to phrase structure-based syntax

While I will not discuss all of the previous approaches to SGF in detail, I will try to focus here on some of the commonalities in the ways that this construction has eluded a satisfactory description for all accounts that in one way or other are based on the traditional concept of phrase structure.

3.3.1 Höhle 1990

The first formal account of SGF constructions to be discussed here is that of Höhle (1990). A detailed discussion of his proposal would require assessment of many theory-
internal assumptions which I am not prepared to engage in here. Thus, I only want to focus on the main thrust of his theory and highlight the most obvious drawbacks.

As was briefly mentioned in Chapter 2, Höhle adopts an analysis for German sentence structure in which V2 clauses are derived by verb movement into Infl and movement of a phrasal category into the sentence-initial [Spec,IP] position. He proposes the following revisions of case and theta theory (p. 231):

(11) 1. A position can only be \( \theta \)-marked if it is case-marked.
2. If in a given constituent a \( \theta \)-role \( R \) cannot be assigned, \( R \) must be externalized.
3. A constituent can assign at most one external theta role.
4. Assignment of structural case is optional

Nominative case assignment by Infl to the subject position to its right is taken to be a case of structural case assignment in German. Because of optionality, there are then two things that can happen in a configuration such as in (12), depending on whether or not Infl assigns case to the subject position, here marked as \( \Delta \):

(12) \[
\begin{array}{c}
\text{I} \\
\text{Infl} \\
\text{fing}_{\text{I}} \\
\text{Spec} \\
\Delta \\
\text{einen Hasen}_{\text{I}}
\end{array}
\]

If the position is assigned (nominative) case, it will also receive a \( \theta \)-role, hence there will have to be some lexical NP that can bear that role. This will then allow sentences as in (13) to be analyzed as in (14):

(13) \[
\begin{array}{c}
\text{I} \\
\text{Infl} \\
\text{fing}_{\text{I}} \\
\text{Spec} \\
\Delta \\
\text{einen Hasen}_{\text{I}}
\end{array}
\]
(13) Gestern fing der Jäger einen Hasen.
yesterday caught the hunter a rabbit
‘Yesterday, the hunter caught a rabbit.’

(14)

On the other hand, if no case is assigned, the position will not be able to bear the θ-role assigned to it (presumably by the verb), and according to clause 2 above, this role will then have to be externalized. Externalization of a θ-role has the effect of turning an I into a predicative category. Because Höhle considers “degree of saturation” as the crucial factor for determining likeness of category (pp. 229–31), this means that V and (predicative) I are now eligible categories for coordination. The structure for an SGF sentence is then as given in (15).²

²Höhle uses a different example; however, the one used here is isomorphic in its relevant structural properties.
Because only the first of the two conjuncts is the syntactic head of the conjunction, the second is exempted from the requirement that extraction has to affect all conjuncts. This is how Höhle can account for the fact that initial constituents in V2 SGF clauses cannot be construed as extracted out of the second conjunct. Also, since only subjects can be the recipients of external $\theta$-roles, a situation in which any argument other than the subject is shared among the conjuncts, such as the hypothetical OOF case in (6), cannot arise. Finally, although Höhle does not make this explicit, it seems plausible that this coindexation via externalization of the $\theta$-role ensures that agreement information is shared among the relevant elements.$^3$

Unfortunately, Höhle does not tell us much about how this process of externalizing

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$^3$Höhle does not relate the status of the empty category in subject position created by externalization to other empty categories assumed in GB theory, so it is not clear whether, given the taxonomy in terms of binding properties, this category will match any of the others proposed in GB.
a θ-role is supposed to work. For instance, in a case such as (16), in which the accusative object *sie* is placed to the left of the subject *der Jäger*, it is not immediately clear what prevents the externalized θ-role from being assigned to the structurally higher accusative NP.⁴

(16) Gestern sprach sie der Jäger an und zeigte ihr den Weg.

Yesterday spoke her-ACC the hunter **PART** and showed her-DAT the way

'Yesterday, the hunter spoke to her and showed her the way.'

As the following structure for (16) indicates, not only **Vorfeldbesetzung**, but also scrambling must be assumed to be a process that can only affect head conjuncts:

![Tree diagram](image)

⁴Examples such as the following are another potential class of counterexamples to biuniqueness of role-assignment:

(i) Otto fing einen Hasen und wurde vom Förster bestraft.

Otto caught a rabbit and was by the ranger punished

'Otto caught a rabbit and was punished by the ranger.'

Here, the subject appears to receive two roles at once, presumably agent and patient, in analogy to the illicit double role assignment in (16). However, as pointed out to me by Bob Levine (p.c.), this is only the case if one does not assume some version of coordination reduction, so that the two roles can be assigned to two distinct syntactic representatives of the subject, the second of which inaudible.
There are at least two more problems with Hohle's analysis, both independent of the technicalities of his proposal.

First note that Hohle's analysis for the standard SGF example can lead to the bizarre situation that one of the conjuncts in the coordination may be phonologically empty, as demonstrated in the following example:

(18)

Here, all the elements within the first V conjunct have been removed, in particular the PP complement *in den Wald* as well as the finite verb *ging*. This is rather surprising as conjuncts normally can never be left empty as is illustrated by the following examples from English:

(19)  
  a.*Who did you see [[e] and [friends of e]]?  
  b.*Who did you see [[friends of e] and [e]]?

Secondly, Hohle never explicitly states any ordering of the V and I conjuncts. This can be taken to mean either that any order should be allowed, or, alternatively, that
the order is in consonance with the commonly held principles governing the position of heads in German, in which case the head should come last. These two possible assumptions then imply that by virtue of being the head—Höhle makes it clear that he considers only the \( V \) conjunct (p. 233) the head in SGF sentences—the \( V \) conjunct \emph{can} or \emph{must} be ordered last respectively, as in the following variation of the structure in (15):

\begin{equation}
\begin{array}{c}
\text{IP} \\
\text{Spec} \\
\text{I} \\
\text{gestern} \\
\text{Infl} \\
\text{ging}, \\
\text{Spec} \\
\text{der Jäger,} \\
\text{I} \\
\text{und} \\
\text{V} \\
\text{fing}, \\
\text{V} \\
\text{in den Wald} \\
\text{SG} \\
\text{einen Hasen}
\end{array}
\end{equation}

However, such orders are ungrammatical to the point of being uninterpretable.

This suggests that not only will some amount of asymmetry with respect to the order of the conjuncts have to be provided for, but moreover, it is questionable whether this asymmetry should be linked to a difference in head status among the conjuncts.
3.3.2 Heycock & Kroch 1993

Among the more recent analyses couched in the framework of Government and Binding is that of Heycock & Kroch (1993). The authors pursue the idea—originally suggested in Heycock (1991), cf. also Haider (1993)—that categories can sometimes "conflate", as a consequence of their *Principle of Minimal Satisfaction*, which in effect imposes a nonredundancy condition on the licensing relations that heads can/must satisfy. In particular, Comp and Infl will conflate to Comp/Infl, C/I for short, in the case of German V2 clauses with subject topics:

(21) \[
\begin{array}{c}
\text{CP/IP} \\
\text{Spec} \\
\text{er} \\
\text{C/I} \\
\text{C/I} \\
\text{fing}_k \\
\text{einen Hasen } t_k
\end{array}
\]

Since conflation will result in C/I "inheriting" all of Infl's properties, this category and all its projections will become nondistinct from Infl and its projections, that is, specifically, \( \bar{I} \) will be conjoinable with \( \bar{C}/\bar{I} \). The proposed analysis for SGF sentences like (7) is shown in (22):
The first problem this account faces is the same noted earlier with Höhle’s analysis, namely that SGF sentences are perfectly fine if a constituent of the first conjunct is placed before the subject, as for example in (16), where the pronominal object sie occurs before the subject der Jäger. It is clear that scrambling cannot have an effect on the relationship between the overt subject and the second conjunct because of examples involving quantificational subjects, as in (23):

(23) Gestern sprach sie niemand an und zeigte ihr den Weg.
    'Yesterday, no one addressed her and showed her the way.'

Therefore, if scrambling were to occur before conjunction, as in (24), the quantificational subject would no longer be in a structurally higher position with respect to the predicate (\(C/\bar{I}\)) that it is associated with in the second conjunct.

(24) Gestern sprach, [ [sie, niemand \(t_j\) an \(t_i\)] und [zeigte ihr Weg] ].

As a consequence, scrambling must occur after conjunction, that is, asymmetrically out of the first conjunct:
But this immediately raises another question: why is scrambling out of the first conjunct permitted, while it is not for the second? Cf.:

(26) *Gestern sprach ihr [niemand [die Frau an tₐ] und [zeigte ihr Weg]].

While Heycock and Kroch do not discuss the issue raised by scrambling, they do note the asymmetry that their proposal has to accept with respect to topicalization out of the first conjunct. To motivate why this obvious CSC violation should be possible, they appeal to the fact that such asymmetries are known from topicalization in English, as for instance in:

(27) This advice, the committee [ [decided to follow tₐ] and [proceeded to set up a new subcommittee]].

What this referral to another unsolved problem does not consider, however, is the fact that such violations of the CSC in English can affect both initial and noninitial conjuncts, as evidenced by the following example, based on data from Lakoff (1986:153):

---

As Lakoff (1986:156) points out, extraction asymmetries differ in terms of their presuppositional behavior. Thus, Lakoff (1986:156) notes that a gap in the first conjunct, but lacking from subsequent conjuncts presupposes a cause-result scenario (beside a "violation of expectations" scenario which is not applicable here). This would explain why the reverse order of the conjuncts, as in (i) (due Chris Manning, p.c.) is unacceptable, because the arrangement does not fit into any of Lakoff’s scenarios:

(i) *This recommendation, the board had decided to set up a committee and follow.

The fact that the kind of presuppositional requirements found with extraction asymmetries is generally missing from SGF coordination also argues against assimilating the German construction to the English case.
(28) Sam, you [can't just sit there], [listen to ti] and [not want to punch ti in the nose].

In contrast, we already observed in Section 3.2 that German does not allow nonsubjects to be missing in noninitial conjuncts, unless they are also absent in the first, i.e. in ATB extraction contexts. In light of that finding, we expect topicalization from noninitial conjuncts to be categorically ruled out, which is precisely what we find:

(29) "Sami sitzt man nicht da
Sam sits one not there
und will (man) ti nicht auf die Nase hauen.
and wants to one not on the nose hit

Moreover, it is a conspicuous coincidence that not only topicalization, but also scrambling and I-to-C head movement (cf. (22)) should all simultaneously be exempt from the ATB constraint, and moreover be so only with regard to the first conjunct. If constraint violation is additive, as is often assumed (cf. for instance the discussion of n-subjacency in Chomsky 1986), an SGF sentence should be significantly worse than a simplex sentence, contrary to what we find.

3.3.3 Wunderlich 1988

The problem of asymmetric ordering possibilities does not arise in the analysis of Wunderlich (1988). At the heart of his proposal are the following GPSG-style metarule and LP statement:

\[
\begin{align*}
(30) \quad &\text{a. } VP \rightarrow W \Rightarrow V^\alpha [-SC] \rightarrow NP[NOM], W, (HP [CONJ \alpha_2]) \\
&\text{b. } X \prec [CONJ \alpha_2] (\alpha_2 \in \{\text{und, oder, ... }\})
\end{align*}
\]

\footnote{Wunderlich's sc feature for "subordinate clause" is the dual of Uszkoreit's MC feature. Thus, subordinate clauses will be marked \(+sc\), while V1/V2 clauses will bear a \(-sc\) marking.}
The rule in (30a) states that for each phrase structure rule expanding a VP category, there is another rule in which a nonsubordinate ([–SC]), i.e. V1, verbal projection expands the same set of categories as before (W), together with a subject NP, and an optional conjunctive phrasal head HP (=VP). Output rules of (30a) in which this VP is present will license phrase markers of the following sort for SGF constructions:

(31) V\textsuperscript{o} PP[+TOP] V\textsuperscript{o}/PP, –SC, +FIN

\hspace{1cm} in den Wald V\textsuperscript{o} NP[NOM] PP[NULL]/PP VP[CONJ und]
\hspace{1cm} ging der Jäger und \hspace{1cm} VP

The price Wunderlich has to pay for avoiding the ordering problem is that now the categories conjoined, viz. V\textsuperscript{o} and VP, are quite different in their level of saturation, and their exceptional conjoinability does not follow from anything.\textsuperscript{7}

It is interesting to compare the above approaches with respect to the question of whether the properties of SGF follow from, or are compatible with, what we consider the two main traditional tenets of coordination, viz. the String Continuation Criterion

\textsuperscript{7}Note also that it can be shown that his approach is insufficient to rule out the extraction of nonsubjects from both conjuncts (cf. (5b)). Wunderlich claims that this follows from the Head Feature Convention (HFC, cf. Gazdar \textit{et al.} 1985) in that any SLASHed category on the VP head would have to be matched by a SLASH on the V\textsuperscript{o} head, which, being a lexical category, of course cannot bear such a feature. However, this will not follow because the HFC as stated in Gazdar \textit{et al.} (1985) is a default principle, which means that it will only apply when it can. Therefore, it can be overridden and the extraction of material out of the second conjunct in SGF constructions is wrongly permitted. Thanks to Bob Levine for pointing this out to me.
and the Like Constituent Constraint. The complications arising from extraction and ordering asymmetries notwithstanding, both Heycock & Kroch's and Höhle's analyses tacitly presuppose the SCC in the determination of the conjuncts: crucially, the strings match in that the subject precedes both of them. At the same time they allow for an extension of what count as like constituents for the purposes of coordination. The same point holds very clearly for Wunderlich's analysis to the extent that the very issue of String Continuation is rendered moot by the great categorial differences among the conjuncts. I conclude that within phrase structure-based approaches to the relationship between syntactic structure and surface word order, it is impossible to treat SGF without compromising the Like Constituent Constraint, either by having to admit ATB extraction asymmetries or outright abandonment of categorial similarity among conjuncts.

3.3.4 Steedman 1990

Among all the approaches to be discussed here, Steedman (1990) devotes the least effort to an elaborate analysis, as his solution for SGF constructions is essentially a byproduct of his treatment of gapping in Categorial Grammar.⁸

The central feature of Steedman's approach to gapping is his introduction of a new rule into the categorial calculus which he calls "Left Conjunct Revealing Rule" (notated as "< decompose"): 

\[(32) \quad X \Rightarrow Y \Gamma X \not< Y\]

where \( X = S \)

⁸Although he demonstrates his proposal with a Dutch sentence, the general idea carries over unchanged to the case of German.
(and \( Y = \text{given}(X) \))

The effect of this rule is that a sentence \( S \) that has been obtained by the combination of other categories (in the usual ways, i.e. via Functional Application) can be decomposed into two categories, different from the original parts of \( S \) as long as these categories are possible elsewhere in the grammar and, if combined, yield a sentence again. In addition, the condition that the category \( Y \) in (32) be "given" captures the requirement that this revealed category be contextually supported or accommodated, hence comply with certain pragmatic constraints which, however, will not concern us here further. For a sentence containing a verbal gap we then get an analysis of the following sort:

(33) \[
\begin{align*}
\text{Harry} & \quad \text{[will buy] bread,} \quad \text{and Barry, potatoes} \\
\text{------------------------------------------} & \quad \text{------------------------------------------} \\
S & \quad \left[ S\left( (S/NP)/NP \right) \right] & \\
\text{------------------------------------------} \text{<decompose} & \\
\left( S/NP \right)/NP & \quad S\left( (S/NP)/NP \right) \\
\text{------------------------------------------} \text{<} & \\
S\left( (S/NP)/NP \right) & \\
\text{------------------------------------------} < & \\
S & 
\end{align*}
\]

The Left Conjunct Revealing Rule makes it possible to "extract" categories (such as the transitive verb, \textit{will buy}) which were originally embedded in the sentence and let the other part of the sentence conjoin with the remnants on the right before the whole is put together to form a sentence again. This rule then in effect permits combinations of categories that before were not possible because of the relative positions of the original categories in the surface string. It should also be noted as a minor point about (33) that Steedman assumes a syncategorematic treatment of the conjunction
particle and. This is done via the introduction of two new rules:

(34) a. Forward Coordination Rule: (> &)
    \text{conj } X \Rightarrow [X] &

b. Backward Coordination Rule: (< &)
    X [X'] & \Rightarrow X''

Now, for cases of SGF coordination, Steedman proposes to treat the subject as the gapped element, instead of the verb as in (33). The sentence in (2) will then be given the following categorial analysis:

(35) \begin{align*}
in \text{ den Wald ging der Jaeger} & \quad \text{und fing einen Hasen} \\ \\ S & \quad [(S\NP)] & \\
\begin{array}{c}
\text{decompose} \\
\text{NP} \\
S\NP \\
\end{array} & \quad < & \\
S\NP & \quad < & \\
S
\end{align*}

It is easy to see that Steedman’s proposal straightforwardly ensures that the subject agrees with the verbs in both conjuncts. The backward coordination rule in (34b) requires that both conjoined categories be identical, hence they must require the same agreement features of the (subject) NP they select. Next, Steedman’s system correctly predicts the impossibility of SGF coordination cooccurring with ATB extraction. Intuitively, what would have to be allowed in order for this to be possible is that a category missing an object is decomposed with the subject being “extracted” out of the Mittelfeld of the first conjunct and that the object is then combined to yield a sentence. However, the constraint in (32) allowing only sentences as decomposable categories rules this possibility out.
What is not ruled out is that categories other than subjects could be extracted by the rule in (32) giving rise to OGF constructions which, as we saw in (5) are ungrammatical. To see this, assume that something like the following derivation (using type-raising on the subject and a special category assignment for fronted constituents) is needed to yield an object-initial sentence:

\[
\begin{array}{c}
\text{fing} & \text{der Jaeger(nom)} \\
\text{-----} & \text{------------} \\
\text{VP/NPa} & \text{NPn} \\
\text{-------------} & \text{TR} \\
\text{einen Hasen(acc)} & \text{S/NPa} \setminus \text{(VP/NPa)} \\
\text{------------------------} & < \\
\text{S/(S/NPa)} & \text{S/NPa} \\
\text{------------------------} & < \\
\text{S} \\
\end{array}
\]

Then, crucially, the category for fronted objects will be one that "the grammar itself makes available" (p. 246), hence a sentence can be legitimately decomposed into any such fronted constituent and something else, regardless of the initial placement of the derived fronted element. But this means that objects in the Mittelfeld too can be extracted via (32) and following derivation of an ungrammatical sentence is allowed:

\[
\begin{array}{c}
*\text{damn zeigte Otto die Bilder} & \text{und verkaufte Hans} \\
\text{----------------------------------------} & \text{------------} \\
\text{S} & \text{[(S/NP[acc])]} \\
\text{=================================================} & < \text{decomp.} \\
\text{S/(S/NP[acc])} & \text{S/NP[acc]} \\
\text{----------------------------------------} & < \\
\text{S/NP[acc]} & \text{---------} \\
\text{----------------------------------------} & < \\
\text{S} \\
\end{array}
\]

One way to rule out this type of overgeneration is to add a restriction to the rule in (32) restricting gapped NPs to subjects, that is, bearing nominative case:
This will get the facts right, however, it does have the flavor of mixing fairly un-
restricted apples (verbal gapping) with very specific oranges ("missing" nominative
arguments), in other words, it is not clear that the elements effected by the rule
in (38) really form a natural class of any sort. Along similar lines it must be noted
that Gapping is generally considered to be a phenomenon of higher registers and re-
quires a specific intonation in the gapped sentence. This contrasts sharply with SGF
sentences which neither are restricted in occurrence (at least in German) nor exhibit
special intonational properties.

Note, however, that Steedman implicitly rejects String Continuation as a relevant
criterion for coordination; like constituents only emerge in the course of the derivation,
but there are clearly no corresponding matching substrings on the surface. As a
consequence, Steedman is able to achieve a perfect categorial match between the
conjuncts: both are VPs \((S\NP[nom])\). As we will show in the next section, there is
good reason to believe that this intuition is on the right track and this is also the idea
that will be pursued in Chapter 9.

### 3.4 The similarities between SGF and VP coordination

The significant overlap of properties among SGF and coordinations of what on the
surface appear to be VPs (in short "SVPC" for "surface VP coordination") was first
noted by Höhle (1983). However, as the discussion of his later work has shown (Höhle
1990), this insight was not taken as a point of departure toward developing a theoretic account of the phenomenon.

The first point of convergence involves the kinds of subject that occur in the two construction types. Both allow quantificational subjects such as wenige Jäger ('few hunters'), niemand ('no one'), or die meisten Jäger ('most hunters'), as shown in (39):

(39) a. Gestern gingen wenige Jäger in den Wald und fingen einen Hasen.  
yesterday went few hunters into the forest and caught a rabbit
b. Wenige Jäger gingen gestern in den Wald und fingen einen Hasen.  
few hunters went yesterday into the forest and caught a rabbit  
‘Yesterday, few hunters went into the forest and caught a rabbit (= caught rabbits).’

(40) a. Gestern ging niemand in den Wald und fing einen Hasen.  
yesterday went nobody into the forest and caught a rabbit
nobody went yesterday into the forest and caught a rabbit  
‘Yesterday, nobody went into the forest and caught a rabbit.’

(41) a. Daraufhin sind die meisten Jäger in den Wald gegangen  
upon.that are the most hunters into the forest gone  
und haben einen Hasen gefangen  
and have a rabbit caught
b. Die meisten Jäger sind daraufhin in den Wald gegangen  
the most hunters are upon.that into the forest gone  
und haben einen Hasen gefangen  
and have a rabbit caught  
‘As a result, most hunters went into the forest and caught a rabbit.’

I take this as significant evidence against any analysis (cf. Hartmann 1993, Brandner & Fanselow 1992) that attempts to treat the missing subject as some form of empty pronominal (pro) parallel to the one commonly assumed for pro-drop languages like
Further evidence against pro-based approaches comes from extraposition data. As was first observed by Höhle (1983:16), restrictive relative clauses can be extraposed from subjects to the right periphery of the whole sentence in both SVPC and SGF constructions, that is, independent of the subject’s position within the first conjunct. We exemplify this with the German version of a Dutch example from Heycock & Kroch (1993):

(42) a. Dann kam ein Mädchen; herein und begann zu reden,
    then came a girl in and began to talk
    [welches; ich noch nie vorher gesehen hatte].
    whom I never before seen had

    b. Ein Mädchen; kam dann herein und begann zu reden,
    a girl came dann in and began to talk
    [welches; ich noch nie vorher gesehen hatte].
    whom I never before seen had

‘Then a girl came in and began to talk whom I had never seen before.’

Incidentally, this contrasts with the markedly worse extraposition from nonsubjects

\(^{9}\)As convincingly argued by Wunderlich (1988), the possibility of true quantificational subjects in SGF also constitutes clear evidence against attempts to lump this construction type with instances of “asymmetric” coordination (Höhle 1990, Wesche 1991) such as in (i), where a verb-final conditional and a V1 clause are coordinated. As (iia) shows, such constructions do not permit quantificational subjects, in contrast to SGF (iib):

(i)  
[Wenn jemand nach Hause kommt] und sieht da den Gerichtsvollzieher, ...
    when someone to home comes and sees there the bailiff
    ‘When someone comes home and sees the bailiff there, ...’

(ii) a.*[Wenn uns keiner willkommen heißt] und schließt uns in die Arme. ...
    when us nobody welcome calls and takes us in the arms
    ‘When nobody welcomes us and embraces us, ...

    b. Uns hieß keiner willkommen und schloß uns in die Arme.
    us called nobody welcome and took us in the arms
    ‘Nobody welcomed us and embraced us.’

---

\(^{9}\)
in medial position across conjuncts, similarly independent of the placement of the subject. Again the example used is based on a Dutch sentence from Heycock & Kroch (1993):\textsuperscript{10}

\begin{itemize}
\item[(43)]
\begin{enumerate}
  \item a. "Mein Freund warf ein Spielzeug, weg und verließ den Raum, my friend threw a toy away and left the room
    \[\text{welches, kaputt war},\]
    which broken was
  \item b. *Dann warf mein Freund ein Spielzeug, weg und verließ den Raum, then threw my friend a toy away and left the room
    \[\text{welches, kaputt war},\]
    which broken was
\end{enumerate}
\end{itemize}

Intended reading: ‘Then my friend threw away a toy that was broken and left the room.’

Coming back to extrapositions from subjects, suppose that there were an empty pronominal in the second conjunct of SGF. We would then for instance arrive at a CP conjunction analysis along the lines in (44):

\begin{itemize}
\item[(44)]
\begin{enumerate}
  \item [cp Dann kam ein Mädchen, herein] und [cp pro\textsubscript{i} begann zu reden]
    then came a girl in and began to talk
    \[\text{welches, ich noch nie vorher gesehen hatte}.,\]
    whom I never before seen had
\end{enumerate}
\end{itemize}

‘Then a girl came in and began to talk whom I had never seen before.’

The problem is that since pro\textsubscript{i} is just a phonetically null pronoun, we should expect extraposition to be equally possible in the presence of an overt pronoun. Yet, as shown in (45), the resulting sentence is ungrammatical:

\begin{itemize}
\item[(45)]
\begin{enumerate}
  \item *[cp Dann kam ein Mädchen, herein] und [cp sie\textsubscript{i} begann zu reden]
    then came a girl in and she began to talk
    \[\text{welches, ich noch nie vorher gesehen hatte}.,\]
    whom I never before seen had
\end{enumerate}
\end{itemize}

\textsuperscript{10}It is not clear to me what causes the degraded acceptability of (43). On the account of extraposition developed in Chapter 8, this example should be grammatical.
In contrast, if both SGF and SVPC are treated as involving the same type of coordinated constituent, in particular VPs, the data can be subsumed under the generalization that extraposition from subjects must not proceed across sentences. Then the badness of (45) follows directly from the fact that the pronoun *sie* requires a sentential analysis of the second conjunct, which is arguably absent (or at least not necessary) in (42a).

The next piece of evidence for a fundamental parallelism in structure between SGF and SVPC comes from the scopal behavior of adverbials. As Hohle notes, temporal adverbials, for instance, tend to take wide scope if they are in the first SGF conjunct. However, they do not have to and it is possible to have another temporal adverbial in the second conjunct (cf. (46a)). The interpretation is precisely the same as if the subject were initial and both adverbials were placed in the *Mittelfeld* of each conjunct, as in (46b):^2

    yesterday have all their things packed and want today move.out

   b. Alle haben gestern ihre Sachen gepackt und wollen heute ausziehen.
      all have yesterday their things packed and want today move.out

   'All packed their belongings yesterday and want to move out today.'

Contrast this now with the example in (47) where the presence of a subject in both conjuncts forces the construal of the initial adverbial with both conjuncts:

---

^1^This is an immediate consequence of Ross’ “Right Roof Constraint”, and will follow directly from analyses of extraposition as a linearization phenomenon along the lines proposed in Chapter 8.

^2^The observation that in SGF contexts, the initial adverbial may be construed only with the first conjunct was made independently by Nerbonne (1983:139).
Here, the occurrence of another adverbial in the second conjunct is perceived to give rise to a contradictory statement, viz. that Karl wants to move out both today and yesterday.

As Höhle further points out, the ability to take scope over both conjuncts can be observed with other kinds of adverbials as well as negation. This is illustrated below in (48) with the negation particle *nicht* (‘not’). Again, the position of the subject does not affect the preference for a wide scope reading in each case.

On the other hand, contrastive contexts as for instance induced by *stattdessen* (‘instead’) as in (49), give rise to a preferred narrow scope reading; that is, only the first conjunct is understood as negated. Again there is no significant difference correlated with the placement of the subject.
b. Viele Teilnehmer hörten deshalb nicht zu many participants listened therefore not
und malten stattdessen in ihren Heften herum.
and doodled instead in their notebooks
‘Therefore, many participants didn’t listen
and instead were doodling in their notebooks.’

Finally, Höhle notes that certain bipartite conjunctions such as *weder ... noch*
(‘neither ... nor’) and *sowohl ... als auch* (‘both ... and’) are ungrammatical in SGF contexts:

\[(50) \quad \text{Gestern tränkte Karl weder den Ochsen noch fütterte den Hund.} \]
\[ \quad \text{yesterday watered Karl neither the ox nor fed the dog} \]
\[ \quad \text{‘Yesterday, Karl neither watered the ox nor fed the dog.} \]

But the same holds true for SVPC:

\[(51) \quad \text{Karl tränkte gestern weder den Ochsen noch fütterte den Hund.} \]
\[ \quad \text{Karl watered yesterday neither the ox nor fed the dog} \]

The badness of (50) and (51) is arguably due to a requirement to the effect that
the strings following *weder* and *noch* be parallel in terms of the kinds of categories
that occur in them. Thus, in order to match the sequence of verb and direct object
*noch fütterte den Hund* in the second conjunct in (50), *weder* would have to occur
before a parallel sequence in the in the first parts of (50) and (51). But crucially,
in (50) this is not possible because any final subsequence containing the finite verb
will automatically contain the subject—yet this is missing from the second conjunct.
In (51), again a single object is paired with a V + object sequence. The only way to
achieve parallelism in the first conjunct would be for the conjunction particle *weder*
to precede the verb; yet this is ruled out because *weder* when preceding a frontal verb,
unlike *und*, is topologically integrated in the sentence as a *Vorfeld* element, and hence
cannot cooccur with the initial subject:
(52)  *Karl weder tränkte den Ochsen noch fütterte den Hund.
    Karl neither watered the ox nor fed the dog

By contrast, the strings preceded by *weder* and *noch* in the following examples can be assigned matching category sequences: sentences in (53) and VPs in (54):

(53)  Weder [tränkte Karl gestern den Ochsen]
    neither watered Karl yesterday the ox
    noch [fütterte Otto den Hund].
    nor fed Otto the dog
    ‘Yesterday, Karl neither watered the ox nor did Otto feed the dog.’

(54)  daß Karl gestern weder [den Ochsen tränkte]
    that Karl yesterday neither the ox watered
    noch [den Hund fütterte].
    nor the dog fed
    ‘that Karl neither watered the ox nor fed the dog yesterday.’

Thus, it turns out that both SGF and SVPC sentences—albeit for somewhat different reasons—fail to meet the conditions on parallelism imposed by the conjunctions particles *weder ... noch*.13

Having looked at the evidence for the fundamental parallelism between SGF and SVPC, let us now turn to a case in which there is an asymmetry in behavior between the two. “Left Deletion” is the term Hohle uses to describe cases of coordination in which a string at the right periphery of the left conjunct is left out, similar to but more general than, Right Node Raising in English. As noted by Hohle, Left Deletion is only possible with SVPC, but not with SGF. Hence, in (55b), the head noun *Lautsprecher* is missing in the left conjunct, but if the same constituent is left

---

13Notice, incidentally, that the explanation given here accounts for the ungrammaticality of the examples in (50-51) in a more principled way than the solution given by Wunderlich, who simply stipulates that the value for the feature *CONJ* on *V°*, contained in the category variable *W*, be set to NIL in the output rules of (30a).
out as in (55a), the result sounds fairly degraded. As shown in (55c), the coordination of whole sentences also allows Left Deletion:

(55) a2?Morgen überprüft sie den großen _

tomorrow checks she the large

und repariert den kleinen Lautsprecher.

and repairs the small speaker

b. Sie überprüft morgen den großen _

she checks tomorrow the large

und repariert übermorgen den kleinen Lautsprecher.

and repairs the day after tomorrow the small speaker

'She will check the large speaker tomorrow and repair the small one the day after tomorrow.'

c. Morgen überprüft sie den großen _

tomorrow checks she the large

und repariert sie den kleinen Lautsprecher.

and repairs she the small speaker

'Tomorrow, she'll check the large speaker and repair the small one.'

There is reason to believe, though, that this contrast does not indicate a fundamental difference in structure, but rather is due to some surface constraint on parallelism that is at work in Left Deletion. Hohle himself observes that the following sentential coordination example is ungrammatical, where the two conjuncts differ in the number of arguments:

(56) *Karl erblickte _ und Heinz zeigte der Tante etwas ganz besonderes.

Karl saw and Heinz showed the aunt-DAT something very special

'Karl saw, and Heinz showed to the aunt, something very special.'

Left Deletion seems to be contrained in such a way that not only must the material missing in the first conjunct have a match in the second (such as der Lautsprecher

---

14Wunderlich reaches a similar conclusion.
above), but there also has to be a correspondence between the conjuncts with regard to other elements preceding the shared material. Thus, for instance in (55c), überprüft/repariert, sie/sie, and den großen/den kleinen form matching pairs, while the noun Lautsprecher is missing from the first conjunct. The intrusion of an adverb such as danach (‘thereafter’) in the sequence of adjacent matched constituents is sufficient to severely decrease acceptability:

(57) *?Morgen überprüft sie den großen  
   und repariert sie danach den kleinen Lautsprecher
   tomorrow checks she large
   and repairs she thereafter the small speaker
   ‘Tomorrow she’ll check the large speaker and afterwards repair the small one.’

It then becomes obvious why Left Deletion should always be worse with SGF than with SVPC. In the former, the conjoined sequences will always differ at least in the number of arguments: whereas the string corresponding to the first conjunct contains a subject, the second conjunct crucially does not. It is also important to note that the subject cannot be “skipped” (i.e. if the sequence of matched constituents were to include only material following the subject in the first conjunct) because finite main verbs appear to obligatorily be part of the matching sequences.15

15 Auxiliaries behave differently in this regard, as the following example shows:

(i) Vielleicht hat sie gestern kleine  und heute große Lautsprecher repariert.  
   maybe has she yesterday small and today large speakers repaired
   ‘Maybe yesterday she repaired small speakers and today, large ones.’

But sentences like these do not constitute counterexamples to the claims above because the non-finite main verb is part of the deleted material, hence we are strictly speaking not dealing with an instance of SGF here.
3.5 Conjunct-internal factors in verb-final contexts

So far, the literature we have reviewed only considered the case in which the violations of the SCC occurred either in V1 or V2 contexts. As we noted above, there are potentially three ways in which the String Continuation Criterion can be violated by means of linear relations that hold among the initial string and the first conjunct, but not the second:

(58) 1. Vorfeldbesetzung (i.e. topicalization)  
2. verb placement  
3. pre-subject elements in Mittelfeld

By definition, the first is restricted to V2 contexts, whereas the second is the defining property of both V1 and V2 clauses. The third type was exemplified by a V2 in (23) above, but the presence of a topic is by no means necessary, as the following variant of that sentence shows:

(59) Sprach sie gestern jemand an und zeigte ihr den Weg?  
spoke her-ACC yesterday someone PART and showed her-DAT the way  
'Did someone address her yesterday and show her the way?'

What the entire literature on SGF seems to have overlooked is that the violation of the SCC can arise from order variation within the Mittelfeld. As we noted already in Chapter 2, the ordering constraints within the Mittelfeld are the same regardless of whether the Mittelfeld constitutes part of a larger V1, V2, or Vfinal sentence. For that reason, we expect to see a similar kind of discontinuity effect with Vfinal clauses as well, which is indeed what we find:

(60) daß sie gestern niemand ansprach und ihr den Weg zeigte.  
that her-ACC yesterday no none PART.spoke and her-DAT the way showed  
'that yesterday, no one addressed her and showed her the way.'
For that reason, the same kind of problem that Mittelfeld order variability poses for the V1/V2 cases also carries over to the Vfinal contexts. I propose the umbrella term “Conjunct-internal Factor” constructions (CIF) for verb-final constructions such as (60) as well as V1/V2 SGF cases.

There is, however, on aspect in which the Vfinal case is different from the V1/V2 ones. The following example shows that not only the subject, but other constituents too may be shared:

(61) daß ihr das Hans gezeigt hat und später an Otto verkaufen wird

that her-DAT that-ACC Hans shown has and later to Otto sell will

‘that Hans showed it to her and will later sell it to Otto.’

Here, the shared constituents are the subject Hans as well as the accusative object das (‘that’). However, the initial indirect object ihr clearly belongs only to the first conjunct, yet it prevents the subject and accusative object from occurring outside of the conjuncts they are shared by. As we saw in the beginning of this chapter, however, a similar constellation is not possible in the subject-CIF cases. The shared subject bars the sharing of any other constituents across conjuncts.

Before closing this section, a brief comparison with Dutch is illustrative. While SGF-type constructions exist in that language with pretty much the same properties as in German, in addition there are constructions that are unparalleled in German. For instance, Zwart (1991:338) lists the following examples involving an initial NP which bears a different grammatical relation with each of the conjuncts: in (62a),

die trein is a direct object in the first conjunct and a subject in the second, while in (62b), the grammatical relations within each conjunct are reversed.
(62) a. Die trein had ik makkelijk kunnen halen, 
    that train had I easily could catch
    maar is veel te vroeg vertrokken. 
    but is much too early left
    'That train I could have caught easily, but (it) left far too early.'

b. Die trein is veel te vroeg vertrokken, 
    that train is much too early left
    maar had ik anders makkelijk kunnen halen. 
    but had I otherwise easily could catch
    'That train left far too early, 
    but I would otherwise have been able to catch it easily.'

What this suggests is that the mismatch in valence properties between the two conjuncts is significantly ameliorated if the construction as a whole is in accordance with the String Continuation Criterion. The existence of such constructions is presumably correlated with the fact that nonpronominal NPs in Dutch are never distinguished morphologically in their case values, contrary to the situation in German.

Interestingly, if the shared NP occurs inside the first conjunct, both valence matching and String Continuation are violated, resulting in ungrammaticality, as witnessed by the following example from Zwart (1991:340):

(63) *Na Zwolle zal deze trein alleen stoppen te Assen
    after Zwolle will this train only stop in Assen
    en moet je dus niet nemen als je in Meppel moet zijn.
    and must you PART not take if you in Meppel must be

3.6 Conclusion

I this chapter, I hope to have shown that SGF presents a challenge to common phrase structure-based models syntax in as much as it forces them to compromise the Like Constituent Constraint at one level or another. In the chapters that follow, a model of
German syntax will be developed which is linearization-based, i.e. in which there is a loser link between syntactic structure and linear order. In Chapter 9, this model will be employed to separate constraints on constituent structure from those on linear order. Based on the evidence adduced in this chapter, SGF will be treated as an instance of VP coordination with two totally symmetric (VP) conjuncts. It is only in terms of the linearization conditions that an asymmetry occurs.

In the next chapter, I review some models of syntax that defy the common notion of deriving linear order directly from phrase structure and which set the stage for the approach pursued here.
CHAPTER IV
Non-Phrase Structure-Based Models of Syntax

4.1 Introduction

In this chapter, I review a number of proposals that offer alternatives to the traditional conception of linking the linear order of a given syntactic unit to the terminal yield of the phrase marker encoding that unit’s structure. The first is Pullum and Zwicky’s notion of “liberation”, which extends the expressive power of ID/LP grammars to allow for a greater degree of ordering variability and/or ordering relations among nonsisters. This basic idea developed further in the work of Dowty and Reape, who propose a level of linear syntactic organization which may only indirectly be connected with the syntactic constituency relations manifested in the combinatorial structure of a constituent.\(^1\) Finally, since Reape’s model will be taken as the basis for the model adopted in this study, it will be given special attention both regarding extensions proposed by Pollard et al. (1993) as well as Reape’s particular linguistic assumptions.

\(^1\)One important line of inquiry that is inspired by a rather similar intuition is the tradition of “tangled tree” analyses, cf. Blevins (1990), McCawley (1982), McCawley (1987) Ojeda (1987). A full assessment of these frameworks vis-à-vis the current model will have to await future study.
4.2 Liberation

The first extension of purely phrase structure-based models of syntactic description is the concept of "liberation" in Generalized Phrase Structure Grammar (Gazdar et al. 1985). In its original formulation, liberation simply results in the addition of new ID rules, hence it still leaves the GPSG formalism in the domain of phrase structure grammars—at least as far as its weak generative capacity is concerned. However, later versions of liberation implicitly move beyond the range of context-free phrase structure grammars, a step which is made explicit in later nonconcatenative models. Thus, it is natural to include in this survey the early version of Liberation as the intellectual predecessor to the frameworks to be developed about a decade later.

Liberation was first introduced into GPSG by Pullum (1982) in the form of a metarule which has the effect of substituting for some nonterminal $X$ in an ID rule with $X$ as a daughter, the set of daughter categories that can be derived from $X$ by some other ID rule(s). For example, given the rules in (1a,b), a third rule in (1c) can be derived.\(^2\)

\begin{enumerate}
  \item a. $\text{VP} \rightarrow \text{V NP}$
  \item b. $\text{NP} \rightarrow \text{Det N}$
  \item c. $\text{VP} \rightarrow \text{V Det N}$
\end{enumerate}

Since linear order is defined with respect to local trees, this means that in the absence of linear precedence constraints, the rule can now license a tree of the sort in (2). in

\footnote{This is actually an inaccurate rendition of Pullum's proposal, where the rule in (1c) is obtained directly from that in (1a), cf. Pullum (1982:215). The variant presented here is closer in spirit to a later reformulation of the indirect liberation approach by Zwicky reported in Zwicky (1986).}
which V intervenes between Det and N—an ordering ruled out by the original two rules in (1a,b):

\[\text{(2)}\]

\[
\begin{array}{c}
\text{VP} \\
\downarrow \\
\text{Det} \quad \text{V} \quad \text{N}
\end{array}
\]

The liberation metarule thus serves to describe order variation among categories that are not sisters in trees produced from the original rule set. As Pullum argues, this avoids the need for an entirely different set of rules for configurational languages on the one hand and those exhibiting “free word order” on the other. Instead, the two can be described with a very similar set of ID rules, but differing LP statements and liberation possibilities.

However, the price to pay for more flexible word/constituent order is a potentially large set of additional ID rules. This is not only antithetical to lexicalist frameworks such as HPSG or CG that strive toward a small set of very general combinatorial schemata. But it also raises some conceptual problems. In general, the schemata in HPSG give rise to what could be called “homogeneous” phrase structure. That is, only one grammatical relation is involved in each schema (e.g. head-argument, head-adjunct relations). However, this distinction is potentially blurred in the new rule. For instance, in the output of Wunderlich’s metarule in the last chapter, which in essence is another instance of a liberation metarule of the kind proposed by Pullum, it is far from clear what relation the second head bears with respect to the other

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3 However, the Head-Subject-Complement Schema of Pollard & Sag (1994:388) to some extent constitutes a departure from this idea. See also Kasper (1994) for a discussion of a single phrase structure for complements and adjuncts.
Moreover, there is another respect in which liberation metarules run counter to some of the guiding principles behind lexicalist theories like HPSG. This pertains to the idea of restrictiveness, i.e. that linguistic descriptions should include all and only the information relevant to a particular category. For instance, the grammar should state that verbs are in principle ineligible for selecting determiners via the SPR feature. However, if the construction of constituent structure is head-driven, a liberated rule such as Pullum's (2) would require verbs to exhibit selectional properties for which there is no independent evidence.

One area where the idea of derivative constituent structure has found wide-spread acceptance is in the form of Argument Composition, where the role of the liberation metarule is played by the argument structure of the governing verb that controls how the arguments from lower predicates are integrated into its own valence. This, however, is a rather conservative extension well within the range of possible arguments for verbs in general. Furthermore, as will be shown in Section 4.4, there is evidence (agreement, passive) that the attracted arguments do indeed act as dependents of the higher predicate, which lends justification to the liberated constituent structure.

Furthermore, Pullum (1982:212) proposes the ECPO (Exhaustive Constant Partial Ordering) principle for natural languages which states that if $X$ and $Y$ are required to occur in some linear order in some category, they cannot occur in the reverse linear order in some other category. While the strong version of ECPO as a universal principle has later been abandoned, note that in the context of libera-
tion, ECPO entails that if two nonterminals are obligatorily ordered with respect to each other, they will also exhibit this ordering in any constituent licensed by an ID rule derived by liberation. This idea of monotonicity holding for ordering constraints bears close resemblance to Reape's concept of order-preserving operations on order domains (cf. Section 4.4), even though the specific implementation chosen by Reape is rather different.

A version of liberation that does not share some of the conceptual drawbacks is proposed by Zwicky (1986). Instead of what he calls an "indirect liberation" approach such as Pullum's, he suggests to do away with the intermediate step of creating a liberated ID rule and instead license liberated syntactic trees directly from the ID rule set via a "liberation" operation. While Heycock and Kroch do not discuss the issue raised by scrambling, they do note the asymmetry that their proposal has to accept with respect to topicalization out of the first conjunct. To motivate why this obvious CSC violation should be possible, they appeal to the fact that such asymmetries are known from topicalization in English, as for instance in:

4See also Hoeksema (1991:662-664) for a brief introduction as well as Kuh (1988) for a comparison between different "styles" of liberation.

5As Lakoff (1986:156) points out, extraction asymmetries differ in terms of their presuppositional behavior. Thus, Lakoff (1986:156) notes that a gap in the first conjunct, but lacking from subsequent conjuncts presupposes a cause-result scenario (beside a "violation of expectations" scenario which is not applicable here). This would explain why the reverse order of the conjuncts, as in (i) (due Chris Manning, p.c.) is unacceptable, because the arrangement does not fit into any of Lakoff's scenarios:

(i) *This recommendation, the board had decided to set up a committee and follow.

The fact that the kind of presuppositional requirements found with extraction asymmetries are generally missing from SGF coordination also argues against assimilating the German construction to the English case.
(3) This advice, the committee [decided to follow $t_i$] and [proceeded to set up a new subcommittee].

What this referral to another unsolved problem does not consider, however, is the fact that such violations of the CSC in English can affect both initial and noninitial conjuncts, as evidenced by the following example, based on data from Lakoff (1986:153):

(4) Sam; you [can't just sit there], [listen to $t_i$] and [not want to punch $t_i$ in the nose].

In contrast, we already observed in Section 3.2 that German does not allow nonsubjects to be missing in noninitial conjuncts, unless they are also absent in the first, i.e. in ATB extraction contexts. In light of that finding, we expect topicalization from noninitial conjuncts to be categorically ruled out, which is precisely what we find:

(5) *Sam; sitzt man nicht da
Sam sits one not there
und will (man) e; nicht auf die Nase hauen.
and wants.to one not on the nose hit

Nonterminals in ID rules are separated into those that combine via concatenation and those that involve liberation, notated in (6) by square brackets:

(6) a. VP $\rightarrow$ V [NP]
   b. NP $\rightarrow$ Det N

This has the effect that the correspondence in GPSG between ID rules and local trees licensed by these rules no longer holds. Instead the local tree in (2) is in effect licensed by both ID rules in (6) simultaneously. As a result, ID rules function as the sole locus for expressing grammatical relations, not the trees (“branchings”) produced from them.
One way in which direct liberation differs quite significantly from the earlier, metarule-based formulation is in its weak generative capacity. As Hoeksema (1991:668) points out, it is possible to write grammars that produce languages known to be beyond the context-free class.

\[(7)\]
\[
a. S \rightarrow [S], a, b, c \\
b. S \rightarrow a, b, c \\
c. a < b < c \\
d. [\]

\[
\begin{array}{c}
a_1 \ldots a^n \\
a^n \ldots b^n \\
b^n \ldots c_1 \\
c^n
\end{array}
\]

The important point is that nothing would seem to block liberation to occur an indefinite number of times if we have recursive rules of the kind in (7a). That is to say, the same rule (7a) may be used an arbitrary number of times to license a local tree of the sort shown in (7d) with no upper limit on the number of branches that are allowed. Unless we assume some prohibition to rule out cases of multiple licensing, then together with the LP constraint in (7c), we can generate the language \(a^n b^n c^n\), which cannot be generated by a context-free grammar. On the indirect liberation approach, this is not possible because strings are still derived by one rule at a time. Thus to have an arbitrarily large domain over which liberation has occurred, one needs an arbitrarily large number of ID rules. Therefore, if we only have a finite number of ID rules, then \(a^n b^n c^n\) can never be generated. While in the context of GPSG, the

---

\(^6\)While Zwicky does propose an instance of an ID rule with recursion on the liberated nonterminal, he remains silent on the issue of whether the same rule may be used more than once in the licensing of a particular tree. He does conjecture, however, that his formalism is does not move beyond context-free in generative capacity.
increased descriptive power of direct liberation may appear to be undesirable, that view is not taken here. After all, the assumption of universally context-free languages has generally since been abandoned and considerations of weak generative capacity have been subordinated to other criteria of linguistic adequacy.

There is, however, an issue with the direct liberation approach that is in orthogonal to weak generative capacity. If liberated constituent structure is not a reflection of the grammatical relations holding between the elements contained in a tree, then this raises the question of its role in syntactic description. After all, it seems that the place where grammatical relations hold is within a given sentence among the elements occurring in it, not just in the rules that produce that sentence. In HPSG, these levels are taken to be essentially isomorphic, as the combination of two signs is licensed by matching selectional requirements and in turn the relative status of the elements is reflected by the respective DTRS-subfeatures that represent them in the constituent structure.\(^7\) Therefore, a conceptually cleaner approach is to leave the combinatorial structure intact, but locate possibilities for order variation and discontinuities in the linear component. This is precisely the way that Dowty and Reape implement the idea of liberation in the lexicalist frameworks CG and HPSG, respectively.

\(^7\)In fact, the representation of constituent structure via DTRS is eliminable, as will be shown in the next chapter.
4.3 Dowty's Minimalist Theory of Syntactic Structure

Dowty's version of minimalist syntax\(^8\) is part of a well-established tradition within categorial grammar of pairing semantic combinatorial schemata with nonconcatenative operations in a corresponding syntactic component. A typical example of such operations is head-wrapping, as proposed for instance by Bach (1981). The novel aspect of Dowty's proposal is the explicit adoption of a level for the linear sequence corresponding to a phrase and a very general operation of combining categories in a nonconcatenative way.\(^9\) This in effect turns the status of discontinuous constituency on its head: while in earlier approaches, concatenation is taken to be the default with a few nonconcatenative operations added, Dowty assumes that the default method of building linear representations is to merge linear sequences into an unordered list via set union. Nodes in a syntactic derivation consist of a category label and an unordered set. The elements of this set can either be phonological representations of some sort\(^10\) or again be sets. From this level of representation, which Dowty, following Curry, calls "phenogrammatical structure", all those linear sequences can be derived that comply with the LP statements of the grammar. This level is separated conceptually

---

\(^8\) The use of the term "minimalist" is not to be confused with the brand of transformational grammar it has recently been known to denote, cf. Chomsky (1992) and Chomsky (1994). What is minimal there is for instance the number of projections along a head path or more generally the number of principles taken to derive the relevant properties of human language—certainly in comparison to earlier incarnations of transformational syntax.

\(^9\) A rather similar proposal, also based on categorial grammar, is made in Hoeksema (1991).

\(^10\) Dowty is not explicit about the data structure of such elements. But in order for LP statements to work, one has to assume that the phonology is minimally paired with categorial information; see also Reape (1993:125) on this.
from “tectogrammatical structure”, that is, “the steps by which a sentence is built up from its parts, but without regard to the actual form that these combinations of parts take” (Dowty in press:2). This is then where a clear separation from phrase structure-based models occurs. In the latter, the linear representation is always obtained as the terminal yield of the syntactic tree encoding the constituent structure of the phrase in question.

Consider, for instance, the example derivation of a German V1 sentence in (8):

(8) a. \{ liest, \{Hans\}, \{das, Buch\}\}_S

\{Hans\}_NP \quad \{ liest, \{das, Buch\}\}_S/\NP

\{liest\}_S/\NP/\NP \quad \{das, Buch\}_NP

b. V \prec \NP
Det \prec N
c. liest Hans das Buch
c.' liest das Buch Hans

Here, the phenogrammatical structure associated with the clausal level consists of a set of three elements. The element corresponding to the direct object \textit{das Buch} is itself a set. Note that in the transition from the VP- to the S-level, the VP-set is unioned with the (set containing) the linear string of the subject. Because of the union of both sets, the subject and object become elements of the same set which in turn allows the discontinuous serialization in (8c). However, the contents of the argument’s string set is not unioned, hence, determiners and Ns are not liberated on the sentential

\textsuperscript{11}The terms “phenogrammatical” and “tectogrammatical” have a different denotation in Prague School models of topic/comment structuring of sentences. Therefore, in the model adopted in this study, I will use the terms “composition structure” and “order domain” instead; see Section 4.4.
level. This is a consequence of the fact that in a language like German. NPs in general are bounding categories, that is, categories whose linear make-up stays intact when they combine with a functor.\textsuperscript{12} Bounding categories are essentially equivalent to constituents in traditional grammar in that they behave as a syntagmatic unit.

Another way to get syntactic elements to behave like a unit is by means of the "attachment" operation. If a rule of syntactic combination specifies that two elements are to combine via attachment, for which Dowty uses "+", then they must obligatorily occur in the order given and, more importantly, must not be interrupted by any other element. For instance, if the combination between a verb and its (direct, though not necessarily primary) object is via attachment, we have an account of why no adverb or parenthetical may intervene between the two:

\begin{equation}
\begin{array}{c}
\text{give}+\{\text{Harold}\}, \{\text{a book}\}
\end{array}
\end{equation}

\begin{equation}
\begin{array}{c}
\text{give}+\{\text{Harold}\}
\end{array}
\end{equation}

\begin{equation}
\begin{array}{c}
\text{a, book}
\end{array}
\end{equation}

\begin{equation}
\begin{array}{c}
\text{give}
\end{array}
\end{equation}

\begin{equation}
\begin{array}{c}
\text{Harold}
\end{array}
\end{equation}

Dowty is never explicit about the formal status of this operation. If it is taken to form a new element in the phenogrammatics, then this raises the problem that this level of representation is no longer built up in a monotonic fashion, because the mother node contains an element not contained in any of the daughters. Alternatively, one can think of attachment as a binary relation on phenogrammatical elements that has to be factored in when a sequential representation is formed from phenostructure. The

\footnote{\textsuperscript{12}Actually, Dowty qualifies this assumption somewhat in his treatment of extraposition; cf. Chapter 8 for discussion.}
clausal node in (9) could then be decomposed as follows:

(10)   a. \{\text{give, \{Harold\}, \{a book\}} \}\text{VP}
   b. attach(give, \{Harold\})

The main issue with attachment, however, is that the different criteria used by Dowty do detect when attachment relations hold, do not necessarily converge. Thus, as evidence for attachment, he takes the impossibility of intrusion of adverbs or parentheticals. For instance, it is argued that no parenthetical can intervene between a determiner and an $\overline{N}$ constituent:

(11)   "The, however, big dalmatian may take the prize.

However, Espinal (1991:752) notes that the acceptability depends on the kind of parenthetical involved. Hence, while (12a) is judged as fairly degraded, the examples in (12b,c) are generally taken to be grammatical:

(12)   a. "He sent congratulations to all the member of the—between you and me—losing team.
   b. He sent congratulations to all the members of the—get this!—losing team.
   c. I will concentrate on the, to my mind, more interesting question of constituency relation.

It seems that whether or not syntactic combinations can be broken apart is not as much of a cut and dried matter as Dowty's attachment relation would make it appear. If we try to accomodate this situation by postulating different levels of bonding strength, there is no guarantee that we might not need even more levels of distinction. But then the whole notion of attachment loses its power to state meaningful generalizations. For that reason, I will not try to accomodate this concept.
in the model assumed here. While there do seem to be certain adjacency effects within the verb cluster in German and Dutch, as will be discussed in Chapter 7, they can arguably be accommodated without bringing in a different kind of linear relation. Similarly, in Chapter 8, I propose an alternative solution to Dowty’s employment of attachment in extraposition from NP. Future research will have to show to what extent all other instances of adjacency constraints are amenable to such reanalysis.

Leaving attachment out of the picture, the problem with Dowty’s system lies not as much in its conception—as will become clear soon, the model adopted here, to a large extent following Reape, is very much in the same spirit. Rather, what makes this system difficult to work with is the rudimentary state of its formalization. For instance, it is not entirely clear what the data structure of elements in phenogrammatical structures are. In order for LP statements to have any force, phonological strings must be paired with categorial information. But categorial information must also be added to those elements which are themselves sets. Also, if the sets in phenogrammatical representations are taken to be unordered sets, a separate translation procedure has to be assumed that transforms them into actual ordered phonological representations, an assumption that is explicitly made in Hoeksema’s (1991) rather similar version of a nonconcatenative categorial grammar. This extra step becomes unnecessary if linear representations are taken to always be ordered while the indeterminacy lies completely in the operation(s) that license the construal of linear structures. It also makes it possible to build a notion of monotonicity of ordering relations into the construction of linear representations. This is precisely the route taken in Reape’s
work.

4.4 Reape’s Word Order Domains

A proposal that is very similar in spirit to Dowty’s brand of minimalism has been advanced independently by Mike Reape in a number of papers (Reape in press, Reape 1993, Reape 1994). Working within the framework of HPSG, his central idea is to augment the types of information usually associated with a sign by a level of representation serving as a fairly direct encoding of a constituent’s linear string. This is done by means of the \textit{sign}-level feature \textsc{dom}, for “word order domain”. One can draw a rather close correspondence between such word order domains and Dowty’s notion of phenogrammatical structure. However, unlike in Dowty’s system, which uses unordered sets to be ordered by a separate linearization step, the value of Reape’s \textsc{dom} feature is always a totally ordered list of signs. Order freedom arises by virtue of the fact that at the point when the domains of the constituent daughters are put together, the resulting domain of the mother may be only one choice among various candidate domains each of which constituting a valid linearization. Constraints on word/constituent order emerge from two sources: first, whenever a domain is constructed, all the LP statements that can apply are enforced. Second, if the contents of two order domains are merged, the respective orders among elements of the same original domains must be preserved. This is achieved by means of the \textit{shuffle} or \textit{sequence-union} operation, which can be defined as the following recursive relation:

\footnote{This is different from the way that Dowty’s system is set up in that LP constraints are only enforced at the top level in the latter theory.}
As a result, the lists in (14a) and (14b) are in the shuffle relation with any of the lists in (14c), but not with those in (14d):

(14) a.  \((a,b)\)

b.  \((c,d)\)

c.  \((a,b,c,d)\)

d.  \((b,a,c,d)\)

(13) \[\text{shuffle}(\{1,2,3\}) \equiv \]

\[\forall \, (\{1\} : \{\} \land \{2\} : \{\} \land \{3\} : \{\})\]

\[\lor \, (\{1\} : \{1\} \land \{2\} : \{1\} \land \{3\} : \{1\}) \land \text{shuffle}(\{1,2,3\})\]

\[\lor \, (\{2\} : \{1\} \land \{3\} : \{1\} \land \{1\} : \{1\}) \land \text{shuffle}(\{1,2,3\})\]

Alongside the combination of categories according to their valence properties, it is necessary to control the constructions of the corresponding domains in the right way. The feature that Reape centrally employs to this end is \textsc{unioned}. It indicates whether an argument's order domain will be shuffled (in Reape's terminology, \textit{domain-unioned}) with the singleton list containing the functor\(^\text{14}\) ([\textsc{unioned} +]) or inserted as a single domain element ([\textsc{unioned} -]). This is specified in the \textit{Domain Principle} on functor-argument structures (Reape 1993:203, Reape 1994:155), where "\textcircled{O}" indicates the nondeterministic two-place \textit{operation} corresponding to the relational definition in (13):

\(^{14}\)Here, "functor" denotes the head in a head-complement structure, the adjunct in an head-adjunct structure, and the specifier in a head-specifier structure. Whichever element is not the functor is the argument.
Implicit in this formulation is the assumption that functors never domain-union their \text{DOM} values, but always contribute just one element, i.e. the functor sign, to the mother's order domain. This also requires totally flat head-complement schemata for clauses, i.e. all arguments of a finite lexical verb need to be discharged at once (cf. Reape 1994:156, Rule 3) without an intermediate VP level. If we allowed a categorial grammar-style discharge of one argument at a time, the domain formation specification in (15) would result in highly structured order domains as each intermediate verbal projection qua functor category would give rise to a separate domain element, thus replicating a binary phrase structure tree and barring arguments from occurring in different orders. As a terminological convenience, I introduce the term "domain insertion" for the obvious counterpart of domain union, i.e. the case where the whole sign, as opposed to its domain value, is added to the mother domain. Thus we say that in (15), \[\boxed{1}\] through \[\boxed{\ell}\] have all been domain-inserted into the domain of the mother.

At each step of the derivation, a sign's \text{PHON} value is computed from the \text{PHON} values within its order domain in a straightforward way via the following implicational constraint, where "\text{o}" is a quasi-functional notation for the ordinary \textit{append} relation (Reape 1994:155):
Reape introduces the DOM attribute in order to be able to account for certain discontinuity effects between elements in the verbal cluster and their respective nominal arguments. Consider the example in (17a):

(17)  a. daß es ihm jemand zu lesen versprochen hat.
          that it-ACC him-DAT someone-NOM to read promised has
          'that someone promised him to read it.'
    b. daß ihm es jemand zu lesen versprochen hat.
    c. daß jemand es ihm zu lesen versprochen hat.
    d. daß jemand ihm es zu lesen versprochen hat.
    e. daß es jemand ihm zu lesen versprochen hat.
    f. daß ihm jemand es zu lesen versprochen hat.

First, note that stylistic considerations notwithstanding, all the permutations of the nominal arguments in (b-f) are acceptable, as one would expect, given the relative freedom of constituents within the Mittelfeld. But note also that in cases such as (17a), verbs are ordered in discontinuous fashion with their respective arguments if we consider the head-argument relations indicated in (18), which is essentially parallel to the analysis for inverted sentences in English in standard HPSG (Pollard & Sag 1994:42-43, cf. also (24) on page 135 below):

(16) \[
\begin{array}{l}
\text{[phrasal-sign]} \\
\downarrow \\
\text{[PHON} 1 \circ \ldots \circ n] \\
\text{DOM} \langle \text{[PHON} 1], \ldots, \text{[PHON} n] \rangle
\end{array}
\]
Such a representation in which only the underlying combinatorial structure for a clause is given is referred to by Reape as “syntax tree”. It is important to note that such syntax trees are unordered, that is to say, no linear relations can be deduced from the way that the combinatorial ingredients are given in (18).

This is where the concept of word order domain becomes relevant, as it allows the derivation of a surface string such as in (17a) in a way that remains faithful to the presumed combinatorial structure in (18). In Reape’s terms, we have a system that has D-structure—that is, level at which head-argument relations are translated rather directly into syntactic constituency—without S-structure, as there is no longer a direct link between hierarchical structure and surface linearization. The inspiration behind this approach is to be able to have syntactic constituents in which head-argument relations hold that directly correspond to the ones argued for by Evers (1975). However, in order to get the right linear relations, Reape does not have to adopt transformations such as Evers’ Verb Raising to create structures in which the verbs form a single syntactic constituent at the right periphery.
In (19), the “domain tree” for the sentence in (17a) is given, in which the nodes are annotated with the domain that has been computed at that point in the derivation.¹⁵

(19)

\[
\begin{align*}
S & \\
\text{DOM} & \left\langle \left[ \begin{array}{c}
\text{NP} \\
\text{(es)}
\end{array} \right], \left[ \begin{array}{c}
\text{NP} \\
\text{(ihm)}
\end{array} \right], \left[ \begin{array}{c}
\text{NP} \\
\text{(jemand)}
\end{array} \right], \left[ \begin{array}{c}
\text{V} \\
\text{(zu lesen)}
\end{array} \right], \left[ \begin{array}{c}
\text{V} \\
\text{(versprochen)}
\end{array} \right], \left[ \begin{array}{c}
\text{V}
\end{array} \right] \right\rangle
\end{align*}
\]

\[
\begin{align*}
\text{NP} & \quad \text{(jemand)} & \quad \text{V} & \quad \text{(hat)} & \quad \text{VP} & \quad \text{DOM} & \left\langle \left[ \begin{array}{c}
\text{NP} \\
\text{(es)}
\end{array} \right], \left[ \begin{array}{c}
\text{NP} \\
\text{(ihm)}
\end{array} \right], \left[ \begin{array}{c}
\text{V} \\
\text{(zu lesen)}
\end{array} \right], \left[ \begin{array}{c}
\text{V}
\end{array} \right], \left[ \begin{array}{c}
\text{V}
\end{array} \right], \left[ \begin{array}{c}
\text{(versprochen)}
\end{array} \right] \right\rangle
\end{align*}
\]

\[
\begin{align*}
\text{NP} & \quad \text{(ihm)} & \quad \text{V} & \quad \text{(versprochen)} & \quad \text{VP} & \quad \text{DOM} & \left\langle \left[ \begin{array}{c}
\text{NP} \\
\text{(es)}
\end{array} \right], \left[ \begin{array}{c}
\text{V}
\end{array} \right], \left[ \begin{array}{c}
\text{V}
\end{array} \right], \left[ \begin{array}{c}
\text{(zu lesen)}
\end{array} \right] \right\rangle
\end{align*}
\]

\[
\begin{align*}
\text{NP} & \quad \text{(es)} & \quad \text{V} & \quad \text{(zu lesen)}
\end{align*}
\]

Note that for Reape, the value of the DOM attribute is a list of signs. For purely expository purposes, I follow the convention here of distinguishing signs as part of a domain list from signs at nodes in the domain tree in terms of the order in which categorial and phonological information is stated.

A derivation such as (19) bears a close resemblance to Dowty's tectogrammatical structure, as both are representations of the combinatorial “history” of a syntactic

¹⁵It should be clear that terminology such as “computation” and “derivation” is used only for convenience but is not meant to suggest in any way a commitment to a procedural perspective, as all the structures shown are the result of purely declarative constraints. In that sense, one can view the type of derivation depicted by syntax or domain trees as on a par with proof trees in categorial grammar.
entity. In the following, I will refer to representations of this kind as "composition structure".

So far, nothing has been said about what ensures only the well-formed permutations of the heads and their arguments in (17), while preventing, for example, any nominal from occurring inside the verb cluster. This is achieved by means of the two LP statements in (20) (Reape 1994:156):\(^\text{16}\)

\[
\begin{align*}
\text{(20) } & \quad \text{a. } \left[ \text{dom} \right] \rightarrow \left[ \text{dom} \text{ NP } \prec \text{ V } \right] \\
& \quad \text{b. } \left[ \text{dtrs|head-dtr} \text{ inv} \right] \rightarrow \left[ \text{dom} \text{ V } \prec \text{ i } \right]
\end{align*}
\]

While the first ensures that NPs always precede verbs in any domain, the second requires that a verbal head marked \([\text{inv} -]\) is placed to the right of any other verbal constituents in the domain. In the derivation in (19), these LP constraints, together with the order monotonicity imposed by sequence union, make sure that at each stage in the derivation, the respective head is placed last in the domain, with all the dependent verbal and nominal arguments preceding.

Reape also considers extraposition of VPs. Crucially, given word order domains, it is not necessary to derive the right-peripheral placement in terms of some adjunction structure,\(^\text{17}\) but instead, it can be described as a linearization effect within a clausal

\[\text{---}\]

\(^\text{16}\)While the intended meaning is reasonably straightforward, the technical details are somewhat murky. For one thing, the implication in (20a) can only be interpreted as constraining a type, not just a feature such as dom. Moreover, the linear precedence statement as the value of the dom feature in the consequents of both (20a,b) can only be interpreted as a shorthand for a yet to be defined relational constraint on the values of the respective dom attributes. In the next chapter, a formally precise characterization of LP constraints in the HFSG description language will be given in terms of such relational constraints over dom values.

\(^\text{17}\)Whether or not there is assumed to exist a nonlocal dependency between the extraposed constituent and the clause it has been extraposed from is immaterial, because either way the placement is defined in terms of tree configurations. See Chapter 8 for further discussion.
domain. For Reape, an extraposed constituent is one which is ordered after its finite verbal head in the initial order domain and remains right-peripheral in all the larger domains projected from it, cf. (Reape 1994:162):

\[
(21) \quad \left[ \begin{array}{c}
S \\
\text{DOM} \left( \left[ \begin{array}{c}
\text{NP} \\
\text{(der Mann)}
\end{array} \right], \left[ \begin{array}{c}
\text{V} \\
\text{(versucht)}
\end{array} \right], \left[ \begin{array}{c}
\text{V} \\
\text{(hat)}
\end{array} \right], \left[ \begin{array}{c}
\text{VP[EXTRA +]}
\end{array} \right] \right) \right]
\]

\[
\begin{array}{c}
\text{NP} \\
\text{(der Mann)}
\end{array} \quad \\
\begin{array}{c}
\text{V} \\
\text{(hat)}
\end{array} \quad \\
\begin{array}{c}
\text{VP} \\
\text{DOM} \left( \left[ \begin{array}{c}
\text{V}
\end{array} \right], \left[ \begin{array}{c}
\text{(versucht)}
\end{array} \right], \left[ \begin{array}{c}
\text{VP[EXTRA +]}
\end{array} \right] \right) \right)
\end{array}
\]

\[
\begin{array}{c}
\text{V} \\
\text{(versucht)}
\end{array} \quad \\
\begin{array}{c}
\text{VP[EXTRA +]} \\
\text{(das Buch zu lesen)}
\end{array}
\]

In (21), the extraposed VP is marked as [EXTRA +], for which the following LP statement ensures rightmost occurrence:

\[
(22) \quad \left[ \text{DOM} \right] \rightarrow \left[ \text{DOM [EXTRA -]} \leq [\text{EXTRA +}] \right]
\]

Reape also makes the assumption that only VPs can bear the specification [EXTRA +]; however, as will be discussed at length in chapter 8, there are clearly other categories such as sentences or PPs that can occur extraposed. Since Reape does not present any arguments why extraposed non-VP constituents should be handled via another kind of mechanism, it would seem that this restriction is wrong the way it is stated.

---

\[18\] The intent of this constraint seems to be to prevent lexical verbs from being extraposed.
However, if other kinds of extraposable constituents are also treated in terms of an [EXTRA +] marking, we are faced with a rather undesirable consequence: because of the great categorial heterogeneity of the class of extraposable constituents, not only does EXTRA have to be an appropriate feature for virtually every major category, but any constituent of a category that in principle can be extraposed will have to bear a negatively specified EXTRA attribute when it occurs in nonextraposed position. For this and related reasons, features such as EXTRA or INV will be given up in Chapter 5 in favor of an analysis that takes topological properties of a domain element to be primitive rather than derived from the combination of binary-valued features.

Besides VP, the other argument category which is eligible for domain union is S. This is the basis of Reape's analysis of raising verbs whose only argument—similar to the standard GB analysis—is a nonfinite sentence. As a result, we have the following typology of nonfinite complementation in German consisting of three types of verbs embedding nonfinite complements:\textsuperscript{19}

\begin{align*}
\text{(23)} & \quad \text{a. Raising, e.g. } \text{\textit{scheinen}} \\
& \quad \left[ \text{SUBCAT} \left( \text{V \{UNIONED + \}} \right) \right] \\
& \quad \text{b. Control, coherent, e.g. } \text{\textit{versuchen}} \\
& \quad \left[ \text{SUBCAT} \left( \text{NP}_{\text{1}}, \text{V \{UNIONED + \}} \right) \right] \\
& \quad \text{c. Control, incoherent, e.g. } \text{\textit{bezweifeln}} \\
& \quad \left[ \text{SUBCAT} \left( \text{NP}_{\text{1}}, \text{V \{UNIONED - \}} \right) \right]
\end{align*}

\textsuperscript{19}Note that in the encoding of syntactic argument structure used throughout this study, I will not follow much of the recent literature (cf. Pollard in press, Kiss 1992) that suggests a separation of \text{SUBCAT} into \text{SUBJ} and \text{COMPS}. This issue will be discussed at greater length in chapter 5.
The three classes are characterized in terms of first, the level of projection (S vs. VP) and, second, whether or not the argument's DOM value is domain unioned or not. Nonfinite clauses which are not domain-unioned constitute a gap in the German paradigm in Reape's typology, as Raising-to-Object type constructions\textsuperscript{20} are analyzed in terms of an NP and VP complement (Reape 1993:136), quite parallel to the treatment of Raising-to-Object constructions in standard HPSG.

The initial appeal of this view of nonfinite complementation is that it allows an analysis of the German constructions of interest which, notwithstanding the differences in linearization, is remarkably similar to the constituency commonly proposed for the equivalent English sentences in nontransformational approaches—with the exception of Reape's analysis of German raising as S-embedding. Thus, to bring out the parallelism, if we give the syntax tree in (18) an English order, we get the very same nonfinite VP constituents (VP\textsubscript{2}, VP\textsubscript{3}) as in the corresponding English sentence. It is only in the analysis of noninverted finite sentences in terms of an entirely flat structure that Reape's analysis of the German example has to part company with its English counterpart, assuming a standard NP-VP analysis in the latter case. However, considering the standard HPSG analysis for English inverted clauses, the syntax trees become again isomorphic for both languages:

\textsuperscript{20}These are typically referred to among German grammarians as “Acl” (for *accusativum cum infinitivo* ‘accusative with infinitive’).
Despite its promise of a cross-linguistically uniform typology of nonfinite complementation, however, there are a number of reasons to believe that this line of analysis is fundamentally flawed and should be abandoned in favor of an argument composition approach for German. The shortcomings can be characterized in terms of the different kinds of arguments that Reape's typology prevents selectional access to.

4.4.1 Subjects in nonfinite complements

As Reape himself notes (Reape 1993:136), if a raising verb subcategorizes for a whole sentence, then a subject contained in that sentence will no longer be directly accessible to the embedding verb. However, whether that clause contains a subject, and if so, how it is specified, determines the agreement marking on the governing verb. If there is no subject, as in (25a,b), the raising verb invariably shows 3rd singular inflection, otherwise, it agrees with the subject in number and person, cf. (25c):

   today seems worked to be
   ‘There seems to be work going on today.’

b. Den Mädchen scheint/*scheinen schlecht zu werden.
   the girls-DAT seem-3RD SG/seem-3RD PL ill to become
   ‘The girls seem to be getting ill to the stomach.’
It is standardly assumed in HPSG accounts of agreement (cf. Pollard & Sag 1994, Kathol to appear, Kiss 1992, and others) that subject-verb agreement can be captured in terms of a dependency between a verb’s morphology and its valence properties. Other kinds of agreement, such as NP-internal concord in case, number, gender, and to some extent, declension type, can be described in equally local terms. However, Reape is forced to abandon this well-established paradigm of explanation in lieu of an approach that needs to take other kinds of information, such as syntactic constituency into account. It is far from clear that anything can be gained by this move, especially since a syntax-based account of agreement has to take into account, for instance, the effect of intermediate sentential adjuncts in the determination of the subject daughter of a clause.

A somewhat more severe criticism pertains to the classification of auxiliaries such as the tense auxiliaries haben and sein. While they are characterized as VP-embedding in Reape’s example, they behave in essentially the very same ways as raising verbs, including the fact that they do not require subjects:

\[(26) \quad \begin{align*}
    a. & \text{ Gestern ist gearbeitet worden.} \\
        & \text{yesterday is worked been} \\
        & \text{‘There were people working here yesterday.’}
    \\
    b. & \text{Ihnen hat an einem schnellen Abschluß gelegen.} \\
        & \text{them-DAT has at a quick completion be.important.to} \\
        & \text{‘A quick completion was important to them.’}
\end{align*}\]

For this reason, raising verbs and tense auxiliaries should be characterized in terms of the same complementation class. If they are both specified as VP-embedding, then...
raising verbs will in effect instantiate class b. in (23), leaving no representatives of verbs that domain-union their nonfinite complement clauses. On the other hand, if tense auxiliaries are taken to be S-embedding, then—unless we assume lexical ambiguity according to complement type—another problem looms, as was first noticed by Sailer (1993:20-21). In German, certain modal verbs such as wollen allow their complements to occur with infinitival perfect, i.e. with a perfect auxiliary, consider for instance (27):

(27) weil er (schon längst) gekommen sein will.
    because he already come-PSP be-INF wants-FIN
    'because he claims to have come already.'

In such contexts, the modal takes on a meaning similar to English ‘claim’, which requires the subject to be accessible to establish the obligatory link between the utterer of the claim and the subject of the state of affairs thus claimed to hold. However, that subject is unavailable to the modal if the tense auxiliary is S-embedding. This means that the grammatical sentence in (27) cannot be derived, as demonstrated in (28):

(28) \[
\begin{array}{c}
\text{will} \\
\text{[SUBCAT ()] [SUBCAT (\{\text{T}, V[SUBCAT (\{NP})]\})]} \\
\text{[SUBCAT ()] [SUBCAT (S)]} \\
\text{[NP] [SUBCAT (NP)]} \\
\text{er gekommen}
\end{array}
\]

It follows, therefore, that there is little support for fully sentential complements whose constituents are liberated into the matrix clause.
4.4.2 Direct objects in nonfinite complements

Besides subjects, it can be shown that direct objects too should in principle be accessible to the embedding predicate. Evidence for this comes from a phenomenon known as "distant" or "long" passive (cf. Höhle 1978, Kiss 1992:222-228). In (29), the NP der Wagen is the direct object of the embedded verb zu reparieren, yet its nominative case marks it as the subject of the passivized predicate wurde versucht.

(29) Der Wagen wurde zu reparieren versucht.
    the car-NOM was to repair tried
    'Someone tried to repair the car.'

There is significant variation in the acceptability of such constructions, both across different speakers and for different predicates. A possible line of explanation for this may lie in the fact that unlike more typical instances of passive, in cases like (29), the passivized constituent der Wagen does not bear a direct thematic role within the predicate undergoing the passivization, zu reparieren versuchen.}

What is important for our purposes here, is that if all predicates of the versuchen-class invariably embed VPs, as suggested by Reape, the direct object of the embedded verb (den Wagen in (29)) would never be "visible" to the passivization of versuchen. To see this, consider that if we are to account for passives in terms of a lexical rule, it can only apply to single lexical items, which means that the rule has to operate either on the valence specification of reparieren or to versuchen. The infinitival, active morphology on the first clearly makes this possibility implausible, especially in the absence of a modal interpretation that accompanies combinations of sein and

---

21 For discussion on this point, see Kiss (1992:226).
zu-infinitive in “modal passive” constructions:

\[(30) \text{Der Wagen ist zu reparieren.} \]
\[
\text{the car-NOM is to repair} \\
\text{‘The car can be/has to be repaired.’}
\]

On the other hand, if control verbs such as versuchen are taken to only take VP complements, arguments within that VP become inaccessible to valence changing operations on argument structures, rendering the nominative on the NP der Wagen inexplicable. That distant passives exist at all makes a good case for why the arguments of embedded predicate should—at least in principle—be able to become arguments of the governing verb. Reape’s typology on the other hand, very clearly predicts, wrongly, that distant passives should not be grammatical under any circumstance.

In contrast, as Kiss first pointed out, argument composition does yield a straightforward account. Suppose for the moment that we are to treat passives by means of a lexical rule along the lines in Pollard & Sag (1987:215):

\[(31) \left[ \begin{array}{c}
\text{PHON} [1] \\
\text{PAST-PART} [2] \\
\text{SYNSEM}\text{LOC} \\
\text{CAT}\text{SUBCAT} \langle \langle [3], \langle [4], \langle [5], \ldots \rangle \rangle \rangle \\
\text{CONTENT} [3] \\
\end{array} \right] \]
\[\downarrow \]
\[\left[ \begin{array}{c}
\text{PHON} f_{\text{PSP}}[1:2] \\
\text{SYNSEM}\text{LOC} \\
\text{CAT}\text{SUBCAT} \langle \langle [3], \langle [4], \ldots, (\text{PP}\langle \text{VON} [5] \rangle) \rangle \rangle \\
\text{CONTENT} [3] \\
\end{array} \right] \]

Among the arguments that versuchen will attract from its complement zu reparieren will be the accusative NP. But then, if versuchen with its expanded valence specification is fed to a lexical rule like (31), the accusative complement will undergo the case alternation and be realized as the nominative der Wagen.
4.4.3 Indirect objects in nonfinite complements

Once the case is made for VP-internal arguments being accessible to the embedding predicate, the question arises whether other kinds of complements can also be shown to participate in valence changes that are not strictly localized within the VP. I want to argue that there does indeed exist indirect, yet highly suggestive evidence in favor argument composition involving indirect (dative) objects.

Consider the phenomenon of "recipient passives" or "dative passives", i.e. a type of dative-nominative alternation extensively discussed in Kathol (1994) and Webelhuth & Ackerman (1992).

   I present the boy-DAT a book-ACC
   'I present the boy with a book.'

   b. Der Junge bekommt/kriegt/erhält (von mir) ein Buch geschenkt.
      the boy-NOM receives by me a book-ACC presented
      'The boy is presented with a book by me.'

Such sentences involve a case alternation that affects the dative argument, unlike the case of the usual passive, where it is the direct (accusative) object that undergoes an ACC/NOM alternation. As has been argued in Kathol (1994) (cf. also Webelhuth & Ackerman 1992), a treatment of passive in terms of lexical rules manipulating the participle's argument structure similar to the one in (31) above will necessitate diacritics (or "invisible affixes") to differentiate the participles that can occur in either the regular or the dative passive along the following lines:

(33) a. werden
    \[
    \left[ \text{SUBCAT} \text{I} \circ \left( V \left[ \text{VFORM pas-a} \right] \right) \right]
    \]
This is so because if the respective passive auxiliary—i.e. *werden* in the ACC/NOM alternation and *bekommen*, *kriegen* or *erhalten* in the DAT/NOM alternation—only selects the complement according to its participial morphology (*psp*), it will be impossible to rule out the wrong combination of auxiliary and participle, as in (33):

(34) a. *Der Junge wird ein Buch gegeben.*
   the boy-NOM is a book-ACC given

   b. *Das Buch bekommt dem Jungen geschenkt.*
   the book-NOM receives the boy-DAT presented

In other words, without diacritics like *pas-a* and *pas-d*, one cannot tell which of the two argument alternations has taken place. The alternative solution suggested in Kathol (1994) is to make the passive auxiliaries the "locus" of the case alternation by having them attract and change the arguments of the governed participle, which obviates the need for diacritics and lexical rules (for a somewhat similar proposal, cf. Heinz & Matiasek 1994).  

(35) *bekommen*

\[ \text{SUBCAT} \left[ \text{NP}[\text{ACC}] \right] \circ \left( \text{V FORM psp} \text{SUBCAT} \left[ \text{NP}[\text{DAT}] \right] \circ \left( \text{NP}[\text{ACC}] \right) \right) \]
While it is the case that those who otherwise advocate argument composition (cf. Kiss 1992) have proposed to treat passive in terms of lexical rules, it is only by argument composition that the alternative analysis is possible in the first place. In contrast, if we were to follow Reape’s lead and only allow VP (or S) complements, an auxiliary-centered analysis would not even be an option and therefore, a solution using diacritics on the participle would be inevitable. Thus, under the premise that a diacritic-free approach is to be preferred, we have an argument that not only accusative objects, but dative objects too should—at least in principle—be accessible to governing verbs. But if both accusative and dative objects are in principle attractable, we have little reason to doubt that one of the possible argument structures for verbs indeed involves attraction of all of the embedded verb’s arguments.

Another piece of evidence suggesting that this conclusion is on the right track comes from considerations of what motivates the choice of auxiliary in either of the two types of case alternation. As Webelhuth & Ackerman (1992) point out, there seems to be an interesting correlation between the valence found with these verbs in their passive and nonpassive forms. For instance, *bekommen* as a main verb is a monotransitive verb whose subject bears the thematic role of a recipient or beneficiary:

(36) Der Junge bekommt ein Buch.
the boy receives a book
‘The boy receives a book.’

(37) \[
\begin{array}{c}
\text{CAT|VAL|SUBCAT} \left[ \text{NP}_1, \text{NP[ACC]}_2 \right] \\
\text{CONTENT} \left[ \text{REC/BEN}_1 \right] \\
\text{THEME}_2
\end{array}
\]
Now, if we compare this argument structure with the one for *bekommen* as a passive auxiliary in dative passive constructions like (32b) above, given again in (38), it turns out that the fully instantiated argument structure is almost identical, except that in addition to the accusative object, we now also select for an additional verbal complement.

(32) b. Der Junge bekommt ein Buch geschenkt.
    The boy receives a book presented with
    'The boy is presented with a book.'

(38) \[
\begin{array}{l}
\text{...|SUBCAT} \left\langle \text{NP}_1, \text{NP[ACC]2} \right\rangle \text{ V [SUBCAT} \left\langle \text{NP}_3, \text{NP[DAT]1} \right\rangle; \{4\}] \\
\text{CONTENT} \{4\} \text{ THEME} \{2\} \text{ AGENT} \{3\}
\end{array}
\]

In Chapter 7, it will be argued that verbal complements in coherent constructions in German should be selected via a separate valence feature, \text{VCOMP}. This move renders the argument structures, that is, more specifically the nominal arguments on the \text{SUBCAT} lists of (37) and (39), exactly parallel:

\[
\begin{array}{l}
\text{CAT|VAL} \left[ \text{SUBCAT} \left\langle \text{NP}_1, \text{NP[ACC]2} \right\rangle \right. \text{ V [SUBCAT} \left\langle \text{NP}_3, \text{NP[DAT]1} \right\rangle; \{4\}] \\
\text{CONTENT} \{4\} \text{ THEME} \{2\} \text{ AGENT} \{3\}
\end{array}
\]

On the other hand, if we were to instead treat *bekommen* essentially as a copula taking a predicative (dative-)passivized VP as its complement, the associated argument structure is rather different from that of mainverb *bekommen*, as the former no longer qualifies as a transitive verb, which comes out very clearly if we again make a distinction between \text{SUBCAT} and \text{VCOMP}:

\[\text{Cf. also Chung's (to appear) gov(erned), adopted for the description of Dutch by Rentier (1994).}\]
Thus, from the perspective of argument composition, the fact that *bekommen* and semantically similar verbs seem to have been appropriated as ingredients for the dative passive constructions is eminently plausible under an argument composition approach, as the necessary adaptations leave the fundamental properties of *bekommen* as a transitive verb with a recipient/beneficiary subject unaffected. This also illuminates another aspect of dative passives, pointed out by Webelhuth & Ackerman (1992), namely that they do not permit impersonal construals, in contrast to the ordinary ACC/NOM variety of passive, cf. (41b):

(41) a.*weil einen Blumenstrauss bekommmt.*
    because a flower bouquet-ACC receives.

   b.*weil einen Blumenstrauss geschenkt bekommmt.*
    because a flower bouquet-ACC given receives.

This restriction is precisely what one would expect if the argument structure of the passive auxiliary is required to match that of the main verb in all relevant respects, which in turn does not permit a missing subject either, cf. (41a).

As Webelhuth and Ackerman point out, by the same token, the fact that impersonal instances of the regular ACC/NOM passive exist can be accounted for along very similar lines.²⁴ They note that in general, the auxiliaries involved in the two varieties of the ACC/NOM passive in German, *werden* and *sein*, do not impose any thematic

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²⁴ For an account of impersonal passives in HPSG, see for instance Pollard (1994) and Kathol (1994).
requirement on their subject, in fact they do not even require a subject. For that reason, one can find them in lexically impersonal constructions such as the following, with an argument structure along the lines in (43).

(42) a. weil dem Jungen schlecht wird.
    because the boy-DAT sick becomes
    'because the boy is getting ill to the stomach.'

    b. weil dem Jungen schlecht ist.
    because the boy-DAT sick is
    'because the boy is ill to the stomach.'

(43) \[
\begin{array}{c}
\text{CAT|VAL} \\
\text{VCOMP (ADJ [SUBCAT (T)])}
\end{array}
\]

It is this lack of thematic requirements on the subject that makes werden and sein perfect candidates to occur in constructions in which passive can only effect the demotion of a subject, but in which there is no direct object to be promoted to subject. As a result, the impersonal passive constructions in (44) are correctly predicted to be grammatical.

(44) a. weil getanzt wurde.
    because danced was
    'because there was dancing.'

    b. weil zu tanzen ist.
    because to dance is
    'because people must dance.'

As in the nonpassive case, the lack of subject selection on the part of the passive auxiliaries is reflected directly in the argument structure of the impersonal versions of werden/sein employed in (44), given in (45):

(45) \[
\begin{array}{c}
\text{CAT|VAL} \\
\text{VCOMP (VFORM psp/inf)}
\end{array}
\]
4.5 Pollard et al.'s Adaptation of Order Domains

Even though the previous discussion has shown that Reape's particular linguistic application of word order domains at best falls short of accounting for the full range of data (extraposition) and at worst makes empirically wrong predictions (nonfinite complementation), this thesis is an attempt to show that the basic proposal, i.e. a fundamental dissociation between syntactic structure and linear order, does indeed have its merits. In this sense, the current undertaking is fully in the spirit of Pollard et al. (1993), who view word order domains as crucial ingredients of a theory of linear order in HPSG.

Despite its programmatic status, the study in Pollard et al. (1993) does make a variety of important suggestions, chief among them a reorganization of the feature architecture for the description of signs. Thus, while standard HPSG employs an organization of the various kinds of linguistic information along the lines in (46a) (cf. Pollard & Sag 1994), phonological and syntactic/semantic information, as the values of the PHON and SYNSEM attributes, respectively, is clustered into a separate feature structure, which in turn is the value of a new feature, DOM(AIN)-OBJ(ECT):

\[\text{(46) a. \hspace{1cm} sign} \]
\[\begin{array}{l}
\text{PHONOLOGY (phonological information)} \\
\text{SYNTAX-SEMANTICS (morphosyntactic, valence, and semantic content information)} \\
\text{DAUGHTERS (information about phrase structure)} \\
\text{QUANTIFIER-STORE ...}
\end{array}\]

\[25\text{In Pollard et al. (1993), the name of this feature is NODE; however, because of the potential for confusion with full signs occurring as nodes in tree-based representations of composition structure, I prefer the alternative term first introduced in Kathol (1993).}\]
The feature organization in (46b) represents a first attempt to constrain Reape's word order domains in a substantive way. Remember that for him, such domains are lists of full-fledged signs which in turn contain, in the phrasal case, a full representation of their syntactic derivation (in the form of the DTRS attribute) as well as the details of their own linear representation (as the value of their DOMAIN value). Yet, one does not seem to find ordering constraints that, for instance, pay attention to whether a domain element is syntactically derived from two, as opposed to three, constituents, or to how many elements form part of its linear representation. In an intuitive sense then, once we have determined that some linguistic object should become part of a certain domain, all we care about is its categorial specification (including valence) and what it contributes to the whole domain's phonology. Note that this fairly closely matches the data structure that Dowty indicates for the elements of his phenogrammatical structure. This intuition is directly cashed out in (46b) in that domains are taken to be lists of objects of sort dom-obj which retain neither the internal syntactic structure (DTRS) nor the linear representation (DOM) of the signs they are derived from.

Note that from the feature architecture in (46b), we can also derive the effect of Dowty's bounding categories. To see this, consider the combination of two categories, for instance a determiner and a noun, which form a single domain object once the
resulting NP is selected for instance by an intransitive verb:

(47)

In (47), as throughout this thesis, I assume with Calcagno (1993) (pace Reape) that lexical words are specified for a (typically one-element) word order domain and moreover, that this domain contains precisely the information that is projected from the lexical entry to larger domains. The important point to note is that once a domain object corresponding to the NP the boy is in existence, there is no way that other domain objects could be interleaved between the determiner and the noun. Since only phonology, but no internal structure, is represented in a domain object, such interleaving would have to break up what only exists as a phonological string with no reference to internal constituency left. But any such operation could only be defined in violation of (a sufficiently precise formulation of) the principle of phonology-free syntax (cf. for instance Pullum & Zwicky 1988).

However, there is a cost hidden in the adoption of the DOMAIN-OBJECT attribute, pointed out to me by Carl Pollard (p.c.). While in general, the function of this attribute is to "package" in one place the information that the constituent in question
will contribute if domain-inserted into the larger domain, there is no guarantee that this will actually ever take place. Thus, consider, for the sake of the argument, Reape’s analysis of extraposition in (21), repeated in slightly adapted form in (48):\(^{26}\)

\[(48)\]

\[
\begin{align*}
\text{DOM-OBJ} & \left[ \text{PHON}(\text{der Mann versucht hat das Buch zu lesen}) \right] \\
\text{DOM} & \left[ \right. \\
\text{NP} & \left( \text{(der Mann)} \right) \\
\text{V} & \left( \text{(hat)} \right) \\
\text{VP} & \left[ \text{EXTRA +} \right]
\end{align*}
\]

The DOM-OBJ value of the VP *versucht das Buch zu lesen* also contains a phonological representation obtained, roughly, from the concatenation of the PHON values of the members of the VP’s two-element oder domain. Yet, this information will never be used because at the next stage in the derivation, the domain object for *hat* is placed between those for *versucht* and *das Buch zu lesen*. This problem becomes even more acute if one considers more involved constraints on phonological construal, such as external sandhi phenomena. It is far from clear in which way the spurious phonology of intermediate stages of derivation corresponds to the linguistic knowledge a speaker has about a given utterance. For that reason it seems preferable to try to ensure

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\(^{26}\)As there is no grounds for confusion, the DOM-OBJ feature is for the most part omitted from the category labels.
that the value for the PHONOLOGY feature is only computed if the corresponding constituent is domain-inserted or if the sign constitutes a complete, independent utterance. This desideratum will be taken up when I offer a somewhat different approach to domain construction in the next chapter.

Pollard et al. (1993) also offer an explicit formulation of the monotonicity of ordering relations among domain objects at different stages of domain construction. This is done by means of their Persistence Constraint given in (49) (cf. Pollard et al. 1993:7):

\[(49) \text{Persistence Constraint:} \]
\[\text{If } x, y \in \text{DOM}(\gamma) \text{ and an ordering relation } \mathcal{R} \text{ holds on } \text{DOM}(\gamma) \text{ such that } \mathcal{R}(x, y), \]
\[\text{then } \mathcal{R}(x, y) \text{ holds on all domains to which } x, y \text{ belong.} \]

The kinds of ordering relations \(\mathcal{R}\) that this constraint covers include simple linear precedence as well as precedence constraints involving adjacency (Pollard et al. 1993:15), such as those arising from Dowty's attachment operation. Thus, we can consider (49) a metaconstraint on the output of domain formation operations. Reape's sequence union is just one valid instance of a domain formation operation as it preserves order among the elements of the shuffled lists. Note also that domain-insertion does not require any special mechanism as it merely constitutes the subcase of sequence-union in which one of the argument lists consists of a single domain object, be it of type \textit{sign} as in Reape's work or as the value of a sign's DOM-OBJ feature as proposed in Pollard et al. (1993) and Kathol (1993). However, since I will not make use of any attachment operation for the kinds of phenomena considered in this thesis, it should be noted that the condition in (49) does not strictly add any substantive constraint
to the expressive power of a formalism using sequence-union.

Finally, there is another kind of monotonicity condition on domain objects which is not covered by the Persistence Constraint. Implicit in both Reape's original proposal and its adaptation by Pollard et al. (1993) is the assumption that once a domain object is part of some domain, it must not be altered nonmonotonically within that domain or extensions thereof. This amounts to an inalterability condition on domain objects and prohibits any kind of domain formation operation that involves a nonmonotonic change of a domain object. As we will see in Chapter 8, this issue plays a role in the treatment of extraposition in a order domain-based framework. If we limit our attention to sequence union, it is clear that it satisfies inalterability since none of the domain objects within any of the lists to be joined is affected by this type of domain formation.
CHAPTER V

Topological Fields Revisited

In this chapter, I will develop a theory of German clausal syntax which dispenses with phrase structure as the primary device for expressing syntactic generalizations about order. The alternative framework is to a large extent inspired by Reape's work discussed in the last chapter, but goes beyond it in a number of respects, in particular in assuming a flat, yet partitioned order domain on the clause level.

5.1 (Putative) evidence for verb dislocation

I begin with a critical look at the standard accounts of one of the most salient features of German syntax, namely the different placement possibilities for the finite verb, in particular in V1 and V2 clauses. As we saw in Chapter 2, there is a major disagreement, crosscutting different frameworks, about whether the frontal placement should be treated as derived, with the clause final occurrence counting as "basic" or "nonderived". There are at least six main arguments which have been adduced in favor of the derivational view.

1Cf. Grewendorf (1988:213): "Nun ist klar, daß eine Hypothese, die davon ausgeht, daß zwischen den verschiedenen Verbstellungstypen des Deutschen systematische strukturelle Korrelationen bestehen, diese Korrelationen transformationell repräsentieren wird.” (‘Now it is clear that a hypothesis that assumes that there exist systematic structural correlations among the different verb order types will represent these correlations transformationally’).
5.1.1 Separable prefixes

A great many verbs in German can be divided into a proper verbal part which bears inflection and can occur in both frontal and clause-final position and a particle, often derived historically from prepositions or nouns. Such particles typically give rise to important, yet for the most part unpredictable meaning differences in the predicates they occur with. Crucially, these so-called “separable prefixes” (SEPR EF) can only occur in the verbal cluster. If a verb requiring a separable prefix occurs finally, it is merged with the latter in the orthography; otherwise the two occur discontinuously as two separate words, cf. the following example from Uszkoreit (1987:81–82):

(1) a. Peter wird Paul anrufen.
   Peter will Paul SEPR EF.call
   ‘Peter will call Paul up.’

   b. weil Peter Paul anruft.
   because Peter Paul SEPR EF.calls
   ‘because Peter will call Paul up.’

   c. Peter ruft Paul an.
   Peter calls Paul SEPR EF
   ‘Peter calls Paul up.’

   d. Ruft Peter Paul an?
   calls Peter Paul SEPR EF
   ‘Does Peter call Paul up?’

It is argued in Frank (1994:7) that the positioning of the separable prefix is “most plausibly explained” if in the discontinuous cases in (1c,d), one assumes a derivational process that dislocates the finite verb from its base position right-adjacent to the stranded prefix. Even though separable prefixes are not discussed in (Pollard in press), Frank further claims, without argumentation, that such a nonderivational, flat structure approach “cannot account for the data [...] on separable prefixes” (Frank
Yet, it is quite easy to disprove this assertion. Note that orthography is a notoriously unreliable guide to morphological wordhood, so there seems no convincing reason to insist on analyzing the contiguous occurrences of prefix and verb as a single verb. As soon as we make this move, though, it becomes clear that separable prefixes form a syntagmatic natural class with governed nonfinite verbs. For instance, the following examples, *sprechen* ('speak') is embedded under the modal *wollen* ('want'). What we find is that *sprechen* occurs in precisely the same position as the separable prefix *an* in (1) above:

(2) a. Peter wird Paul sprechen wollen.  
   Peter will Paul speak want  
   'Peter will want to speak to Paul.'

b. weil Peter Paul sprechen will.  
   because Peter Paul speak wants  
   'because Peter wants to speak to Paul.'

c. Peter will Paul sprechen.  
   Peter wants Paul speak  
   'Peter wants to speak to Paul.'

d. Will Peter Paul sprechen?  
   wants Peter Paul speak  
   'Does Peter want to speak to Paul?'

The parallelism extends to other properties such as the placement of adverbials, which can neither intervene between prefix and verb nor between governing and governed verb:2

(3) a. *weil* Peter Paul an bald ruft.  
   because Peter Paul SEPREF soon calls

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2However, as we will see in Chapter 7, in some dialects a sequence of verbs in a government chain may be interrupted by a certain class of governing verbs, while this is never possible for prefix + verb combinations in (Standard) German.
Thus, one can account for the order of separable prefixes by subsuming them under the same ordering principles that account for the clause-final occurrence of verbs. In the theory of Pollard (in press), this is straightforwardly done by assigning them the specification [−INV], while finite verbs are lexically underspecified with respect to their INV marking. This convergence between separable prefixes and governed nonfinite verb is also supported by stress facts. Thus, broad focus is realized on the governed element, regardless of whether it is a nonfinite verb, as in (4a) or a separable prefix (4b):

(4) a. weil Peter Paul sprechen will.
   because Peter Paul speak wants
   ‘because Peter wants to speak to Paul.’

b. weil Peter Paul dmfährt.
   because Peter Paul SEPR. EF.
   ‘because Peter is knocking Paul down.’

c. weil Peter Paul umfährt.
   because Peter Paul PR. EP.
   ‘because Peter drives around Paul.’

In contrast, when the prefix is not separable, as in (4c), it is the verbal part that bears stress. This suggests that separable prefixes pattern with independent words rather than bound morphemes, and hence as independent syntactic units. They should be amenable to ordering via similar constraints as elements whose word status is rather uncontroversial such as governed nonfinite verbs.

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3While our own analysis of separable prefixes developed below will look somewhat different as binary-valued features such as INV will be dispensed with, it is nevertheless in the same spirit as the one just outlined here. The elimination of binary distinctions also preempts a potential conceptual problem with Pollard’s INV feature, viz. what the placement of separable prefixes has to do with “inversion” if elements of this category only exist specified as [−INV].
5.1.2 Complementary distribution

As we saw in Chapter 2, it has been a commonly subscribed to position that the complementary distribution of finite verb and complementizer should be captured in terms of the Koster/den Besten proposal of verb movement into Comp. Of course, on the nonderivational theory championed by Pollard and others, this type of analysis is unavailable as there is no notion of position that could host a finite verb in the V1/V2 cases. But assuming that the intuition is right that the Comp/Vfinite distribution ought to be expressed in terms of competition for a single position, it is by no means a necessary conclusion that frontal verbs occupy this position as the result of a dislocation process, specifically one that involves head-to-head movement.

If other means of expressing syntagmatic commonality become available—as I will show below—the need for postulating a derivational relationship between clause-final and frontal placements of finite verbs disappears.

\[\text{As von Stechow & Sternefeld (1988:11.8) point out, it is somewhat misleading to talk of the distribution of complementizers and finite verbs as "complementary" in the same sense that allophones of the same phoneme can be said to be in complementary distribution. The problem is that unlike in the phonological case, it is not quite clear in which way the (immediate) environments of occurrence in syntax form complements of each other. On the other hand, the notion of complementary distribution suggests the concept of competition among candidates for a single phonetic expression. In this sense, it is quite similar to the competition for a single syntactic position seen in German root and subordinate clauses, and therefore, I will continue the usage for lack of an equally descriptive term.}\]

\[\text{Note also that in "pure" instances of the difference thesis (cf. Höhle 1990, Kathol 1989, Travis 1991), complementizers and frontal verbs, occurring in Comp and Infl respectively, will equally fail to capture the complementarity directly; see Brandt et al. (1992:21–23) for discussion.}\]
5.1.3 Inflected complementizers

There has been a longstanding idea that complementizers and finite verbs share certain finiteness features (cf. for instance den Besten 1983:116). This is thought to manifest itself by the fact that in many dialects of West Germanic, complementizers may bear what appears to be finite inflection. Consider for instance the following set of data from Zwart (1993):⁶

(5) South Hollandic
   a. dat ze kom-t
      that she come-3RDSG
   b. dat-(t)-e ze kom-(m)-e
      that-PL they come-PL

(6) Brabantish
   a. dat ik kom
      that I come
   b. dat-de gullie kom-t
      that-2PL you come-2PL

In these two Dutch dialects, the inflected complementizer in the (b.) example is paired with the uninflected one in the corresponding (a.) case. While the first instantiates the case in which the inflection on the complementizer and the final finite verb is the same (-e), the Brabantish data exemplify the possibility of there being a phonological difference in the inflection the two exhibit (-de vs. -e). Note also that in these Dutch variants, the subject can in general cooccur in (weak) pronominal form with the inflected complementizer. In similar cases in Bavarian and nonstandard varieties of German, the subject is either optional or obligatorily missing (Bayer 1984:249–250):

(7) Bavarian
   a. wenn ich komm
      if I come
   b. wenn-st komm-st
      if-2PL come-2PL
   c. wenn-st du komm-st
      if-2PL you come-2PL

(8) Colloquial Standard German
   a. wenn ich komm-e
      if I come-1SG
   b. wenn-ste komm-st
      if-2SG come-2SG
   c. *wenn-ste du komm-st
      if-2SG you come-2SG

The examples in (8) also constitute another instance of a dialect in which the inflection on the complementizer and the finite verb do not seem to match phonologically.

As mentioned earlier, there is a pervasive idea that data such as these argue that the complementizer and the finite verb share certain features; more specifically that the verb has to move to Comp in order to exhibit the agreement. However, the assumption of movement is neither sufficient nor necessary to explain the phenomenon. First of all, note that in all dialects of West Germanic, complementizers show a deficient paradigm, that is, it is only found with certain slots in the paradigm, most prominently for the 2nd person forms. It is anything but clear how this can be made

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7In the system of Zwart (1993), this amounts to the claim that “complementizer agreement [...] is a morphological reflex of Agr-to-C movement”. 
to follow from any movement-based account. In fact, finite verbs clearly differ from complementizers in this regard because they exhibit the full verbal paradigm independent of whether they occur in V1/V2 position or clause-finally. Next, note that the range of inflection on complementizers is very limited; the only features that can ever be manifested on a complementizer are person and number. But complementizers never show distinctions according to tense or mood, quite unlike finite verbs in the same position. Again, it is anything but clear how the assumption of verb movement can shed any light on facts like these. Next, consider the way that inflectional markings manifest themselves on the initial element in Comp. For verbs, finite inflection is always manifested finally on a verb in German. This by itself could be an instance of inflectional marking on the head or of edge-inflection on a head-final phrase (cf. Miller 1992). There are two pieces of highly suggestive evidence that the first, rather than the second mode of expressing inflection is present with verbs. First, note that on the assumption that Aux Flip constructions of the type seen in Chapter 2 (see also Chapter 7) argue for a complex verbal constituent, then clearly finite inflection is borne by the head, and not the right edge:

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8In Dutch dialects, this picture is complicated to some extent by the fact that 2nd sing. forms in frontal position are sensitive to whether or not a pronominal subject is following.

9Nevertheless, there may indeed exist a few cases of edge-inflection in very particular nonfinite environments in which an Aux Flip auxiliary occurs, cf. Reis (1979:14). As (ib) shows, it appears that if the syntactic head haben precedes the sequence of infinitival governed verbs in an Aux Flip configuration, the zu-infinitival morphology, required by the preposition ohne, is no longer borne by the head, but instead by the rightmost element in the sequence of governed verbs.

(i) a. ohne zuvor Fritz [[sehen gekonnt] zu haben] without earlier Fritz see-INF could-PSP to have-ZU-INF ‘without having been able to see Fritz before’
The other piece of evidence arguing for inflection being realized on the head comes from prefix + verb combinations. As we saw earlier, the two can be separated if the verb occurs in V1/V2 position. This makes such combinations unlikely candidates for morphological wordhood. Yet, as is shown in (10), the participial marker ge- and the infinitival morpheme zu are realized on the head, and not on the whole prefix + verb cluster. This is immediately predicted if verbal inflection is realized on the head.

If we turn our attention now to inflected complementizers, there are two striking observations that are important. First, as has frequently been observed, for instance in Bayer (1984:235), the kind of inflection seen on complementizers above is by no means restricted to lexical complementizers, but can also occur on fronted wh-expressions in embedded questions or semi-questions. As will be discussed at greater length in the next chapter, this by itself is already a problem for syntactic approaches that assume the split into Comp and [Spec,CP] made prominent in Chomsky (1986). What is
important for our purposes here is the fact that in such cases, the inflectional marking is not on the head of the phrase, i.e. the preposition *in* or *mit* in (11,12), but instead on the right edge:

(11) a.*Du sollst song [[in-st wāicha Schul] du wuist].
you should say in-2SG which school you want

you should say in which school-2SG you want

You should say into which school you want to go.'

(12) a.*Ich will wissen [[mit-ste wem] weggegangen bist].
I want know with-2SG whom away.gone are

b. Ich will wissen [[mit wem-ste] weggegangen bist].
I want know with whom-2SG away.gone are

'I want to know who you left with.'

The standard transformational analysis takes the occurrence of the same morphology on both complementizers/*wh*-expressions and frontal finite verbs as a diagnostic of a movement process one of whose side-effects is the realization of tense/agreement features by the element in the Comp position. However, this assumption is clearly not sufficient to explain the distribution of inflectional morphology in more complicated cases. As far as I can tell, there are no properties of movement from which the edge vs. head inflection difference would be predicted. Consequently, postulating some syntactic dislocation process that occasions verbs to occupy the same position as complementizers will not provide us with any explanatory gain over other modes of accounting for the positional uniformity. What I want to pursue here as a possible alternative mode of explanation instead focuses on the types of phonological mergers that can be seen between a finite verb in frontal position and an immediately following subject pronoun. Thus, the very same inflection seen on the complemen-
tizer in Colloquial German and Bavarian above can also be seen in V + pronoun combinations.

(13) a. kumm-st (du) noch Minga?
   come-2SG you to Munich

   b. kumm-t *(er) noch Minga?
   come-3SG he to Munich

As (13) from Bayer (1984:239) shows, the pronominal subject may be missing in precisely the same environment in which it may be absent in the complementizer-initial cases, viz. with 2nd singular (and 2nd plural) subjects. Similarly, in Colloquial German, the initial verb may show the very same inflection with the concomitant missing subject pronoun as in the complementizer-initial cases:

(14) a. komm-ste (*du) endlich?
   come-2SG you finally

   b. kommt *(er) endlich?
   come-3SG he finally

What is important, I want to argue that the particular forms found with inflected complementizers can only be explained if we consider their origin in the phonological merger between a frontal verb and a pronominal subject. That is to say, the form in (14a), kommste, is clearly the result of the direct combination of kommst+du. Thus the form wennste could not have arisen on its own as the combination of wenn+du—which for many speakers yields wenndu—but is only motivated in analogy to the merger forms seen with the finite verbs. But this predicts that one will only see inflected complementizers in those parts of the paradigm in which a finite verb exhibits phonological merger with a pronominal subject. This prediction is in fact borne out and explains the apparent mismatch between the form on the complementizer
and on clause-final finite verb (-ste vs. -st). This holds for Colloquial German, but as the following data from Brabantish and East Netherlandic (similarly for West Flemish) from Zwart (1993) show, in such dialects as well, the inflection on the complementizer is matched precisely by the form of the frontal finite verb if it is followed by a pronominal subject:

(15) Brabantish
   a. dat-de gullie kom-t
      that-2PL you come-2PL
   b. Wanneer kom-de/*kom-t gullie?
      when come-2PL you

(16) East Netherlandic
   a. dat-(t)e wij speul-t
      that-1PL we play-1PL
   b. Wat speul-e/*speul-t wij
      what play-1PL we

In dialects such as these, what seems to have happened is that the merger form of the finite verb and the pronominal subject has been reanalyzed as part of the inflection on the verb and has come to be associated more generally with the cf position regardless of its occupant.

Similarly, in dialects such as Colloquial German, it appears that we have a stem alternation for eligible subjects which incorporates part of the verbal morphology (-ste for du). This would explain why dialects differ in the extent that the merged morphology apparently interacts with the argument structure. Thus, in Colloquial German the contracted pronominal form obviates the nonreduced pronoun. By contrast, in Bavarian and other dialects such as West Flemish and Frisian, this “incorporation” occurs optionally which may be due to an indeterminacy between a construal of
the inflection as a reduced subject (no pronominal subject) or as part of the verbal morphology (pronominal subject). In some of the other Dutch dialects such South Hollandic, only the second option seems available, hence the pronoun is obligatory despite the morphology on the element in cf.

Independent of whether obviation of the pronominal subject takes place, we have to distinguish between two classes of finite forms: those like *kommtst, komde, speule that merge the pronominal subject morphologically, and those that do not, like kommtst, komt, speult. Moreover, we can take it as an indication of the historical origins of the morphological marking that if an overt subject is possible with a merged form, the former must not precede the latter, as can be observed with the following data from Brabantish and East Netherlandic, respectively:

(17) *Gullie kom-t/*kom-de
you come-2PL

(18) *Wij speul-t/*speul-e
we play-2PL

Complementizers pattern just like finite verbs at the left-periphery and exhibit inflection only in those case in which finite verbs show morphologically merged forms, including the precedence condition regarding pronominal subjects.\(^\text{10}\) The analysis

\(^{10}\)However, the opposite implication does not necessarily hold, i.e., different morphology on the finite verb does not always translate into inflected complementizers. Standard Dutch provides an immediate counterexample in that it does not have inflected complementizers, yet there is a distinction in the 2sg forms depending on whether it linearly precedes a pronominal subject, cf. (ia.b). Moreover, as John Nerbonne (p.c.) has pointed out to me the criterion does not include adjacency, as shown in (ic)—yet, this may also be due to a focus effect as has been suggested to me by Peter Culicover (p.c.):

(i) a. dat jij naar huis gaat/*ga.
that you to home go-2sg
‘that you go home.’
that the above facts suggest is that the inflection shown by finite verbs in frontal position has been reanalyzed as edge-inflection applying to whatever element occupies the same position as the finite verb, i.e. complementizers and \textit{wh}-expression. Further evidence that something along these lines is essentially correct comes from the behavior in coordination contexts. As is shown in (19-20), it is possible for the inflection only to appear on the last conjunct. This clearly disproves the claim in Zwart (1993:172) that complementizer agreement is manifested on heads\textsuperscript{11}.

(19) a. Ich will wissen [[was und wen-ste] gesehen hast].
   I want know what and who-2SG seen has
   'I want to know what and who you saw.'

   b.*Ich will wissen [[was-ste und wen] gesehen hast].
   I want know what-2SG and who seen has

(20) a. Ich will wissen [[ob und wann-ste] dich entschuldigen wirst].
   I want know if and when-2SG you apologize will
   'I want to know whether and when you will apologize.'

   b.*Ich will wissen [[ob-ste und wann] dich entschuldigen wirst].
   I want know if-2SG and when you apologize will

However, as far as the morphology on frontal verbs is concerned, it still is head-inflection, as coordination does not give rise to the same type of peripheral inflection as in the nonverbal cases.

\textsuperscript{11}The example in (19b) does not strictly constitute coordination of complementizers, as \textit{wann} is commonly taken to be a fronted adverbial \textit{wh}-phrase. Similar examples will be taken up again in the next chapter, when the positional status of fronted \textit{wh}-expressions is discussed at greater length.
(21) a. [Kann-ste oder mus-ste] dich ihm vorstellen?
can-2SG or must-2SG you him introduce
‘Can or must you introduce yourself to him?’
b. *[Kann oder mus-ste] dich ihm vorstellen?
can or must-2SG you him introduce

Whatever the exact details of an account may be that realizes agreement morphology on complementizers and wh-expressions as edge inflection (cf. Miller 1992), the important factor is that the latter set of elements bear the same syntagmatic relationship as finite verbs with the rest of the clause, in particular with respect to pronominal subjects. However, whether or not the positional commonality is expressed in derivational terms is prima facie immaterial to the issue and hence, inflected complementizers cannot possibly provide an argument in favor of a theory that derives V1/V2 clause types via verb movement.

5.1.4 Verum Focus

As has been noted by Hohle (cf. Hohle 1988, Hohle 1991), there is a difference between frontal and clause-final occurrences of finite verbs in terms of the interpretation of prosodic prominence. Thus, stressing a finite verb in verb-second position, as in (22), results in emphasizing the truth of the assertion, hence Hohle’s term “Verum” or “polarity” focus.

(22) Hört sie dir zu oder nicht?
listens she you PART or not
‘Does she listen to you or not?’
a. Sie HÖRT mir zu.
she listens me to
‘She does listen to me.’
This effect immediately goes away if the stressed verb instead occurs in the verb cluster (Höhle 1991:166):

(23)  
a. Du siehst doch [daß er mir zuHÖRT].
     you see PART that he me to.listens
b. Du siehst doch [daß er mir ZUhört].
     you see PART that he me to.listens

While the sentences in (23) are not ungrammatical, they cannot be interpreted as emphasizing the truth of the proposition 'he is listening to me'. Instead the stress is only felicitous in contexts that allow a contrast of some sort with other possible salient predicates such as zuSTIMMT ('agrees') or WEGläuft ('runs away') respectively.

Verum focus is, however, available if the complementizer of an embedded clause is stressed: (Brandt et al. 1992:9)

(24)  
a. Ich weiß [DASS er kommt], jedoch nicht WANN.
     I know that he comes however not when
     'I know that he will indeed come, but I don't know when.'
b. Ich weiß nicht [OB er mich besuchen kommt].
     I know not if he me visit comes
     'I don't know whether he will come visit me.'

A rather similar phenomenon can be found in English; however, there, it seems that the desired effect can only be obtained if the stress falls on an auxiliary. cf.:

(25)  
a. Yes, he IS listening to me.
b. Yes, he HAS paid his bills.

For many speakers, a main verb does not in general seem eligible for this kind of focus, in which case emphatic do will have to be inserted to carry the intonational prominence:

(26)  
a#H e SMOKES regularly.
b. He DOES smoke regularly.

The facts in German have been adduced against a pure version of the difference thesis (cf. Chapter 2), and therefore implicitly in favor of a single (Comp) position which, if made intonationally prominent, will induce a focus of the truth of the clause (cf. the discussion in Brandt et al. 1992:23–26). But as before, this argument only carries weight if it can be shown that the only way to express the commonality of occurrence of complementizer (or fronted *wh*-phrase in embedded contexts, cf. the discussion in Chapter 6) and finite verb is by means of a syntactic dislocation process.

A somewhat more subtle argument, again based on Verum-focus data, pertains to scope relations. Höhle (1991:167) observes that on one reading, examples such as (27b), containing a negation particle or a negative quantifier, are interpreted—according to the paraphrases—with the quantificational NP taking wide scope over the Verum meaning element, having the “effect of an emphatic denial of the truth of [27a]”:

(27) a. Es hört mir jemand zu.
   EXPL listens me someone to.
   ‘Someone is listening to me.’

b. Aber es HÖRT mir keiner zu.
   but EXPL listens me-DAT no one to
   ‘But no one does listen to me.’

c. Aber dir HAT nicht jeder zugehört.
   but you-DAT has not everyone listened to
   ‘But not everyone actually listened to you.’

Höhle’s reasoning is that since the element bearing Verum-focus in (27b,c) is in a position structurally higher than the negation, there must be another “piece” of the
verb which establishes the scopal relationship with respect to the negation. This piece is readily supplied if we assume a clause-final trace which is in a structurally lower position with regard to negation.\(^{12}\)

Thus, while Verum otherwise has the appearance of an operator indicating illocutionary type, examples like these appear to argue against such an analysis because such operators by nature do not allow different scopal relations, but always take wide scope over all clausal constituents (Höhle 1992:125). Similarly, Höhle argues, the classification as an illocutionary operator is inconsistent with the occurrence of Verum in embedded clauses such as in (24).

However, do examples such as (27b,c) indeed have to be analyzed in terms of negation somehow taking scope over the Verum element, as Höhle claims and suggests in the paraphrases? If negation and Verum were indeed able to interact in such a way, then given what Verum contributes in nonnegated declarative sentences, we would expect wide scope to indicate uncertainty about the truth of the assertion. In other words, if Verum can be scoped over by a truth-conditionally defined operator like negation, the result should be characterizable in nontrivial truth-conditional terms or else the assertion of scope differences becomes meaningless. Therefore, (27b) would have to be paraphrasable as ‘for no x is it the case that x does listen to me’. That is to say that someone may indeed be listening, but we feel that this cannot or should not be emphasized. Clearly, this is not a reading that (27b) has (at least for me).

\(^{12}\)“As VERUM is associated with FIN and FIN is not s-commanded by \textit{keiner} ‘no-one’ [sic], we must assume that VERUM is in the scope of negation by virtue of the fact that the verb in FIN \textit{A}-binds a trace that is s-commanded by negation.” Höhle (1991:167) (“In a tree T, \(\alpha\) s-commands \(\beta\) if and only if \(\beta\) is contained in a sister of \(\alpha\).” p. 158).
In that respect, it seems ill-advised to draw any conclusions from the paraphrases in the examples in (27b,c). While these give the appearance of wide scope negation, they do not adequately reflect the consequences that such an analysis would have. In fact, it can be argued that the negation in declarative sentences is irrelevant for the Verum part. This is so because the interpretation of “emphatic denial” for sentences like (27b) in contexts such as (27a) can be construed as a primarily pragmatic effect. Emphatically asserting a negated statement is one of the less direct ways of expressing contradiction. In fact, (27b) can with equal accuracy be paraphrased as ‘but it is established fact that no one listens to me’, in which case there is no appearance of wide-scope negation.

One piece of evidence that this is a more accurate characterization of the contribution of Verum focus in negated contexts is the fact that such cases do not always occur in contradiction contexts. In the following example, speaker B uses (28B) to assent to and in fact strengthen, a suspicion that speaker A expresses in (27A). It is far less felicitous to follow up (28A) with the type of genuine emphatic denial we get by focussing the negative constituent, as in (28B’):

(28) A: Viele Studenten scheinen während meiner Vorlesung geschlafen zu haben. 'Many students seem to have slept during my lecture.'

B: Da hast du recht. Es HAT dir keiner zugehört. 'You are right about that. In fact, no one was listening.'

B’#Da hast du recht. Es hat dir KEINER zugehört. 'You are right about that. In fact, no one was listening.'

The reinterpretation of the role of scope applies equally to the other examples of wide-scope negation over Verum in declarative sentences cited by Höhle (Höhle
(29)  a. Es heißt, daß Karl ein Drehbuch geschrieben hat.
    'It is rumored that Karl wrote a movie script.'
    b. Aber Karl HAT kein Drehbuch geschrieben.
    'But it is not the case that Karl wrote a movie script.'
    'But it is (certainly) the case that Karl wrote no movie script.'

    'Hanna will certainly finish you off.'
    b. (aber nein,) sie MACHT mir nicht den Garaus.
    'But no, it is not the case that she will finish me off.'
    'But no, it is certain that she will not finish me off.'

In fact the whole question of scope becomes moot once we take on the perspective that
whatever the propositional content of the declarative sentence, Verum focus simply
conveys the speaker’s emphatic assent to the truth of that proposition.

The situation appears at first sight to be different in the case of negated questions:

(31)  a. Karl hat die lächerliche Behauptung gemacht daß Anna damit aufhört.
    'Karl made the ridiculous claim that she is quitting.'
    b. Wieso lächerlich? HÖRT Anna denn nicht damit auf?
    'Why ridiculous? Stops Anna PART not there with PART
    'Why ridiculous? Is it not the case that Anna will quit?'

By itself, the second sentence in (31b) is ambiguous. On one reading, the speaker is
genuinely interested in whether the proposition ‘she will not quit’ is true. However,
in the context of the preceding sentences, the preferred reading is one in which the
speaker wants to know whether Anna will quit while conveying that he/she suspects
that Anna will indeed. In this respect, (31b) constitutes a “biased question”.13 Again,

13Thanks to David Dowty (p.c.) for pointing this out to me.
the paraphrase given for this reading in (31b) suggests that the negation has wide scope. But it is anything but clear that the effect of this bias is directly reducible to questions of scope of the truth-conditionally defined negation operator. The paraphrase in (31b) is a red herring as it does nothing to illucidate the scope relations but instead represents itself a biased question and hence is in equal need of an explanation of how negation in yes/no questions gives rise to this kind of bias. As Peter Culicover has pointed out to me (p.c.), this bias appears to be a property of polar interrogative contexts in general, including subordinate contexts. As a result, (32) is ambiguous in a way quite similar to (31b). On one interpretation, what is at stake is the proposition of John not wanting to win, while the biased question reading conveys an expectation on the part of the speaker that John expects himself to win:

(32) I wonder whether John doesn't want to win.

The second possibility disappears when the embedded question does not have interrogative force, as in (33), where the proposition ‘John does not want to win’ is at stake with no particular expectations on the part of the utterer:

(33) Bill knows whether John doesn't want to win.

The very same behavior can be observed with the equivalent sentences in German:

(34) Ich frage mich ob Hans nicht gewinnen will.
I ask myself whether Hans not win wants
‘I’m wondering: does Hans not want to win?’
‘I’m wondering whether Hans wants to win and I suspect that he does.’

(35) Otto weiß ob Hans nicht gewinnen will.
Otto knows whether Hans not win wants
‘Otto knows whether Hans does not want to win.’
These facts warrant the conclusion that whatever explains the bias effect of negation in question contexts has nothing to do with issues of scope, let alone special properties of Verum focus. Rather, Verum focus appears to be connected to such notions as speaker attitude which is intrinsically orthogonal to purely truthconditional notions such as scope. The reason why Höhle does not consider this possibility more closely (Höhle 1991:127–128), is that for him, the only alternative to a truthconditional characterization of Verum appears to be that of an illocutionary operator with all the problems raised by embedded contexts as in (24). However, this limitation seems unfounded. While I will not speculate on the precise nature of Verum focus here, note that presupposition is typically not associated with a truthconditional operator either and hence is invisible to scope distinctions, while at the same time it is associated with, and projected from, nonroot constituents. For that reason, a scope-indifferent analysis of Verum focus, which does not involve illocutionary operators would not be without precedent. We can therefore conclude that there is no convincing case for verb movement based on putative scope alternations in Verum focus contexts.

14In fact, the status of negation as a “hole” for presupposition projection is the very basis for the one of the popular presupposition tests (constancy under negation).

15As Höhle (1992:124–125) points out, negated Vfinal and V2 complement clauses display different presuppositional effects in the case of Verum focus. Thus, a sentence such as (ia) can be followed by (ib), in which Hanna’s thoughts on the issue are reported. However, the dass-clause in (ic) presupposes that Hanna’s negative attitude regarding Karl’s listening to her has already been established in previous context, but this is incompatible by what is said in (ia). Finally, as (id) shows, a contradiction interpretation is also available for focused negation as in (id).

(i) a. Ich hoffe, daß Karl ihr zuhört.
   I hope that Karl her listens to
   ‘I hope that Karl is listening to her.’
5.1.5 Scope of modals

A somewhat similar argument for verb movement based on scope considerations is presented for instance in Frey (1993:200) (cf. also Höhle 1991:165-166):

(36) Dennoch mag Hans nicht in Urlaub fahren.

'Still, Hans does not like to go on vacation.'

Here, the negation particle *nicht* ('not') takes scope over the modal auxiliary, as though the latter was in its putative clause-final base position.

One of the problems with this approach has been pointed out by Nerbonne (1994:122-123). He observes that similar to the situation in English, cf. (37), modals behave rather idiosyncratically with respect to the scope relations they bear with negation. In the default case, i.e. without a special prosody or any particular assumptions about context, the pattern we get is as in (37-38):

(37) a. Hans must not go on vacation. (Narrow scope negation: \(\square \neg\))

b. Hans need not go on vacation. (Wide scope negation: \(\neg \square\))

(38) a. Du sollst nicht töten.

'You shall not kill.' (\(\neg \square\))

While I have little of insight to offer regarding the reason for this discrepancy, it seems that the explanation should be derived not in terms of purely *syntactic* differences between *daß* and V2-complement clauses, but rather as a result of the different constraints on context associated with these two ways of relating propositional attitudes.
b. Du mußt nicht töten.
   you must not kill
   'You do not have to kill.' (¬□)

Notice in particular, that English and German constitute exact opposites in the way that the cognate modals müssen/must pattern. As Nerbonne points out, it is far from clear how a general configurationally-based theory can be reconciled with these facts. Whatever choice we make—either scope determination at the trace position (D-structure) or at S-structure—the behavior of the other modal will not be captured.

Along similar lines, if relative scope possibilities are associated so directly with structural configurations, we would expect that fronting the modal gives rise to a reading that the nonfronted version does not have. Frey shows that this is indeed the case as far as scopal relations among quantificational NPs are concerned (cf. Frey 1993:179ff). Thus, the sentence in (39a) has only one reading with the object taking narrow scope. In contrast, (39b) is ambiguous having an additional reading in which the fronted object takes wide scope. In order to preempt interference from prosodic prominence on any of the quantificational NPs, Frey uses Verum focus intonation on the finite verb in these examples:

(39)  a. Viele Männer HABEN mindestens eine Frau hofiert.
   many men have at.least one woman courted
   'For many men there is at least one woman that they courted.'

   b. Mindestens eine Frau HABEN viele Männer hofiert.
   at.least one woman have many men courted
   'For many men there is at least one woman that they courted.'
   'There is one woman such that many men courted her.'

If scope relations for modals and negation were determined in an analogous fashion, one would expect that whenever a modal takes narrow scope with respect to negation
fronting that modal should make a reading available in which is absent in verb-final environments. Yet, what we find is that V2 and Vfinal placements make absolutely no difference with regard to scope possibilities: the wide scope reading is as little available in V2 clauses as it is in Vfinal ones.16

But even if we assume that modals may lexically choose among scope relations made available configurationally, a severe problem remains. On the configurational view, whenever a modal takes wide scope over negation, we should only expect to see it in V1/V2 contexts. If the modal occurs clause-finally, no part of the verb is in a structurally higher position than the negation, and hence, only the narrow scope of the modal should be possible. However, what we find clearly counterexemplifies this claim. For instance, a wide scope reading for deontic sollen ('shall/should/be under the obligation') is available in both verb-final contexts (40b,41) and in V2 clauses (40a,38):

16The same kind of reasoning applies to cases similar to (36) in which a modal and a negated quantificational NP interact in scope: (cf. Höhle 1991:165-166)

(i) daß Karl irgendjemand kein Buch zeigen möchte.
that Karl someone no book show wants
'that there is a person x such that Karl does not want to show a book to x.'

If tree configurations are primarily responsible for determining scope relations, one would expect that the corresponding V2 sentence in (ii) should allow the modal to take scope over the negation—a reading that seems unavailable in (i). Yet, as Höhle observes, one does not get the extra scopal possibility if the verb is placed in second position:

(ii) Karl möchte irgendjemand kein Buch zeigen.
Karl would.like someone no book show
'There is a person x such that Karl would not like to show a book to x.'
a. Dennoch soll Hans nicht in Urlaub fahren.
nevertheless should Hans not in vacation go
‘Still, Hans is not supposed to go on vacation.’

b. Ich weiß [daß Hans nicht in Urlaub fahren soll].
I know that Hans not in vacation go should
‘I know that Hans is not supposed to go on vacation.’

Du weißt [daß du nicht töten sollst].
you know that you not kill shall
‘You know that you shall not kill.’ (□−)

Evidence like this is highly suggestive that configurational considerations are irrele­
vant in the determination of scope with modals and negation. But then it directly
follows that scope-related considerations cannot be adduced to support verb move­
ment.

5.1.6 Coordination

As is observed for instance in Frank (1994:6), Höhle (1991:153-154), it is possible
to have grammatical instances of coordination in which a single finite verb is shared
among two conjuncts:

Den Kindern zeigt weder Karl ein Buch noch Heinz einen Film.
the children-DAT shows neither Karl a book nor Heinz a film
‘Karl does not show the kids a book nor does Heinz show them a film.’

The argument is that since the two sequences Karl ein Buch and Heinz einen Film
are coordinated by the compound conjunctive particle weder ... noch, they have to
each form a constituent of some sort, yet these sequences of NPs normally do not
form constituents. The puzzle seems to be solved once one assumes that the frontal
verb zeigt has been ATB-extracted from its final occurrence in each conjunct, which
are hence analyzable as full clauses:
This kind of reasoning is based on the assumption that constituency is a necessary condition for coordinatibility. However, there are famous counterexamples to this premise, for example English Left Node Raising cases such as the following:

(44) Peter gave [a book to Mary] and [a record to Sue].

While there have been proposals that actually assign constituencethood to the sequences coordinated here, most notably Dowty’s Categorial Grammar (Dowty 1988) and Larson’s “VP shell” approach (Larson 1988), it is not clear that their conclusions are in any way necessary. Instead, it seems that coordination can really only form the basis of an argument in refuting constituencethood: if two elements do not allow coordination, then all other things being equal, they are not constituents. Of course, on that view, the reverse conclusion does not hold: coordinability does not necessarily entail constituencethood. Given this, the coordination construction in the example above allows no conclusion regarding “underlying” constituents, let alone clausal ones.

Moreover, it can be shown that the assumption of an ATB-like verb movement process is not sufficient to account for the data. This becomes obvious once one considers how coordination interacts with verbal complex formation. Thus, prima facie, coordination seems to support analyses such as those in Haider (1993) and Hinrichs & Nakazawa (1994b) in favor of a verbal complex, cf. Chapter 2:

---

\(^{17}\)Cf. also Nerbonne (1994:120-121) for related discussion.
While the datum in (45a) may be a case of Left Deletion (cf. Chapter 3) and hence not say much about constituency, the case for conjoined constituents in (45b) is significantly stronger. But now consider data such as in (46):

(46) Peter hat das Buch gekauft und es dann seiner Schwester geliehen.
    Peter has the book bought and it then his sister lent
    ‘Peter bought the book and lent it then to his sister.’

Here, the auxiliary hat is shared among two conjuncts. There are two possible analyses of examples such as (46). The first is to assume that what are coordinated here are VPs, as indicated in (47):

(47) Peter hat [vp das Buch gekauft] und [vp es dann seiner Schwester geliehen].
    Peter has the book bought and it then his sister lent

This is not a very appealing possibility, as it contradicts the evidence that there are verbal complexes. It also would require different subcategorization schemes for auxiliaries such as haben: one attracting the arguments of its verbal complement and a new one taking a VP complement.

Alternatively, one can take Höhle’s idea of ATB-like verb movement and assume a structure roughly as in (48):

(48) Peter hat [das Buch gekauft t₁] und [es dann seiner Schwester geliehen t₂].
    Peter has the book bought and it then his sister lent
In such an analysis, the auxiliary *hat* would still form a verbal complex with *gekauft* and *geliehen* in the first and second conjunct, respectively, but is dislocated from both complexes simultaneously by a transformation or some filler-gap dependency. However, note that the auxiliary still acts as an argument attractor, i.e. it is the finite predicate whose SUBCAT list “realizes” the arguments of the verbal complements it combines with. But then we are faced with a dilemma: *hat* has a transitive argument structure as far as its relation with *kaufen* in the first conjunct is concerned, while it counts as ditransitive with respect to the arguments attracted from *verkauft*. This means that any theory that assumes that in ATB-like constructions the same element is in relation with two syntactic positions (for instance by means of structure sharing of DSL values) will predict constructions such as in (46) to be impossible. This also entails that V1/V2 clause types with shared verbs cannot be derived from the usual assumptions about movement/filler-gap relationships, but additional assumptions have to be brought in to reconcile the mismatch in properties associated with different dislocation sources. Yet, this in effect refutes Höhle’s earlier claim that verb movement will derive coordination constructions as a by-product. What is needed is a theory of coordination that permits the construal of a single item in a number of possibly different syntactic relations.\(^{18}\) But since there is nothing specifically movement-related about such a theory, it would be completely compatible with a syntactic approach of verb placement in terms of linear properties. as opposed to movement.

\(^{18}\)Hence, the factor must to some extent be licensed *independently* by each of the conjuncts.
5.2 Verb placement without movement

In this section, I will begin developing an approach to the clausal syntax of German which in effect dispenses with phrase structure in favor of a more direct encoding of the linear representation of a sentence. The focus of this section will be the different placement possibilities if finite verbs in V1, V2, and Vfinal clauses.

While the model to be developed is based to a great extent on the work of Reape (1993) discussed in the last chapter, there are a number of important differences and refinements. Like Reape, I assume that signs contain a level of representation in which information about linear order is encoded, and the corresponding feature will also be called (ORDER) DOM(AIN). Unlike in Reape’s model, where the value of DOM is a list of signs, the inhabitants of domains, which correspond to the new sort dom(ain) obj(ect) contain considerably less information in our model. In particular, the feature DTRS is not appropriate for entities of sort dom-obj. As was mentioned in the previous chapter, one of the immediate predictions of this move is that one should not find any LP statement that orders elements depending on the number or kind of syntactic entities that a domain object of some sort is constructed from. On the other hand, there is one new feature on domain objects, TOPO(LOGY). Schematically, a word order domain will look as follows:

\[ \text{^®Cf. for instance the formulation of Reape’s Domain Principle (Reape 1993:203), which legislates how different argument daughters (i.e. signs in the HPSG ontology) are embedded into the mother’s domain.} \]
In languages like German, the function of the TOPO feature is to facilitate the description of syntagmatic regularities for which a variety of mostly binary-valued features have been proposed in the past:

\[(49)\]

\[
\text{DOM} \left< \begin{array}{c}
\text{dom-obj} \\
\text{PHON} \\
\text{SYNSEM} \\
\text{TOPO}
\end{array} \right>, \left< \begin{array}{c}
\text{dom-obj} \\
\text{PHON} \\
\text{SYNSEM} \\
\text{TOPO}
\end{array} \right>, \ldots \]

The choice of values for TOPO is deliberately reminiscent of the terminology commonly used in the traditional model of German clausal syntax in terms of topological fields. If we think of lists as sets with a total order, then the value of the TOPO feature induces a partition on the set of domain objects in a given domain. The members of this partition are the equivalence classes according to the TOPO value.\(^{20}\) There are

\[\text{[TOPO } v_f \text{]} \quad \text{"Vorfeld"} \]
\[\text{[TOP +]} \quad \text{(Uszkoreit 1987, Kathol 1993, Wechsler 1986)}\]

\[\text{[TOPO } c_f \text{]} \quad \text{"linke Satzklammer" (Comp)} \]
\[\text{[MC +]} \quad \text{(Uszkoreit 1987)} \]
\[\text{[INV +]} \quad \text{(Pollard in press, Baker 1994)}\]

\[\text{[TOPO } v_c \text{]} \quad \text{"rechte Satzklammer", verb cluster} \]
\[\text{[MC -]} \quad \text{(Uszkoreit 1987)} \]
\[\text{[INV -]} \quad \text{(Pollard in press, Baker 1994)}\]

\[\text{[TOPO } n_f \text{]} \quad \text{"Nachfeld"} \]
\[\text{[EXTRA +]} \quad \text{(Reape 1993, Nerbonne 1994)}\]

\(^{20}\)Other means of encoding topological structure have been proposed in the literature, but the one pursued here is arguably the simplest and requires the fewest number of additions to the basic HPSG framework enriched with order domains. For instance, Ahrenberg (1994) assumes each topological field to correspond to one (possibly list-valued) member of a list of fields, which in turn is given as the value of the new attribute PATTERN, projected lexically. Oliva (1992) imposes topological structure on a string via a binary tree in which node labels indicate the topological status of the dominated string. See also Chapter 10 for some discussion of Ahrenberg’s (1989) LFG-based implementation.
two facts about this partition that need to be captured: first, members of the same equivalence class (i.e. of the same topological field) are always contiguous, and second, the relative order of the different fields with respect to each other is rigid. This can be accounted for straightforwardly by the following Topological LP Statement (TLPS):

\[(51) \ \text{Topological LP Statement}
\ \ [\text{TOPO } vf] \prec [\text{TOPO } cf] \prec [\text{TOPO } mf] \prec [\text{TOPO } ve] \prec [\text{TOPO } nf]\]

This LP constraint requires, for instance, that each domain object assigned the value \(mf\) for Mittelfeld will have to be ordered before each domain element belonging to the topological equivalence class defined in terms of the value \(nf\) (Nachfeld) for their TOPO feature. Incidentally, note that \(mf\) does not occur in the chart of correspondences in (50). This is no oversight, but rather has to do with the fact that the Mittelfeld is in some sense the default place to put things in a German clause. In descriptions based on binary-valued features, this fact is often implicit in the fact that only the positively marked cases are mentioned in LP statements, e.g.:

\[(52) \ \ a. \ [\text{TOP } +] \prec X \ (\text{Uszkoreit 1987}) \]
\[b. \ [\text{INV } +] \prec [\ ] \ (\text{Reape 1993})\]

Yet, this should not mislead us to believe that binary-valued features are in any...

---

\(^{21}\)This formulation is actually an abbreviation for the transitive closure over the relation defined as:

\[(i) \ \ [\text{TOPO } vf] \prec [\text{TOPO } cf] \]
\[ [\text{TOPO } cf] \prec [\text{TOPO } mf] \]
\[ [\text{TOPO } mf] \prec [\text{TOPO } ve] \]
\[ [\text{TOPO } ve] \prec [\text{TOPO } nf] \]

Also, it should be noted that the set of topological assignments considered here does not include additional placement possibilities at the left periphery such as Höhle's \(K_L\) field for left-dislocated constituents preceding \(vf\) (cf. Chapter 1). However, extending the basic framework developed here to cover such constructions should be rather straightforward.
sense less costly than to specify a topological marking such as *Mittelfeld* directly. If a phrase can be topicalized at all, then the feature **TOP** has to be appropriate for it regardless of whether the phrase is fronted or not. But then every noninitial phrase will gratuitously be specified as \([\text{TOP} -]\). If one is to combine this account of fronting with Reape’s treatment of extraposition in terms of the binary-valued **EXTRA** feature as in (53), one immediately has to specify each phrase for *both* topic and extraposition.\(^{22}\)

(53) \([\text{EXTRA} -] \prec [\text{EXTRA} +]\) (Reape 1993)

But this means that the *Mittelfeld* will comprise phrases all of which are specified in a doubly negative way: \([\text{TOP} -, \text{EXTRA} -]\), while the combination \([\text{TOP} +, \text{EXTRA} +]\) can never be instantiated. Unlike other examples of feature decomposition—the classic example being the decomposition of phonemes into combinations of features or Chomsky’s analysis of major categories in terms of \([\pm N, \pm V]\)—it is far from clear what *natural class* is denoted by an expression such as \([\text{TOP} -]\). The only unifying property of elements thus marked is that they all follow the topic; however, apart from this linear fact, there is no other substantive linguistic generalization that makes reference to this property. Therefore, it seems that there is essentially nothing to be gained from a feature decomposition approach for topological distinctions. In the framework adopted here, we will always mention assignments to *Mittelfeld* explicitly. However, it should be understood that if we were to have available an adequate default mecha-

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\(^{22}\) Reape himself actually does not use a **TOP** feature for topicalized elements, but instead has his filler-head schema place the topic directly before the clausal domain from which the filler has been extracted (cf. Reape 1993:210).
nism for HPSG descriptions, [TOPOmj] would be the default topological assignment for nominal arguments or adjuncts, which would be overridden by specifications such as [TOPOnf].

5.2.1 On the formal interpretation of LP statements

Before we proceed to look at how the LP constraint in (51) can be used for the description of the linear clause structure in German, let us briefly consider the formal characterization of LP statements. Recall from the discussion in Chapter 1 that in standard HPSG, an LP statement such as \( D_1 < D_2 \) does not actually directly order objects satisfying the descriptions \( D_1 \) and \( D_2 \), but instead requires their respective PHON values to stand in a precedence relation to each other. The adoption of order domains, however, makes it possible to revert to a system in which LP statements directly order the entire objects that match their descriptions, and not just subparts thereof such as PHON values. As a result, if we allow domains to only comprise immediate daughters and only allow concatenative domain formation operations, we can use order domains as a means to order local trees similar to the way originally proposed in GPSG (modulo the distinction between the sorts sign and dom-obj). The LP component can thus be thought of as an implicational constraint on objects of type sign, which introduces a one-place predicate order-constraints on the sign’s order domain:

\[
\text{[sign]} \rightarrow [\text{DOM} [\text{[1]}] \land \text{order-constraints([1])}]
\]

This relational constraint order-constraints is recursively defined as given in (55). It trivially holds of the empty list and any singleton list. In case more than one element
is present, the head of that list \((1)\) is to be checked for LP-compatibility with all the
elements on the rest of that list. This is the purpose of the constraint \(\textit{may-precede-all}\),
given in (56).

\[
\text{(55) } \text{order-constraints}(1) \equiv \\
\begin{align*}
&1 : \langle \rangle \\
&\lor \ 1 : \langle \text{dom-obj}\rangle \\
&\lor \ (1, 2, 3) \\
&\land \ \text{may-precede-all}(2, 3) \\
&\land \ \text{order-constraints}(3))
\end{align*}
\]

\[
\text{(56) } \text{may-precede-all}(1, 2) \equiv \\
\begin{align*}
&2 : \langle \rangle \\
&\lor \ (3, 4) \\
&\land \ \text{LP}(1, 2) \\
&\land \ \text{may-precede-all}(1, 3))
\end{align*}
\]

The LP-component proper, given as the relation \(\text{LP}\) that has to hold of every pair of
domain objects checked is itself the conjunction of all the separate LP constraints
\(\text{lp}_{D_{1,1}, < D_{1,2}}\).

\[
\text{(57) } \text{LP}(1, 2) \equiv \\
\begin{align*}
&\text{lp}_{D_{1,1}, < D_{1,2}}(1, 2) \\
&\land \ \text{lp}_{D_{2,1}, < D_{2,2}}(1, 2) \\
&\land \ \ ... \\
&\land \ \text{lp}_{D_{n,1}, < D_{n,2}}(1, 2)
\end{align*}
\]

Basically, an LP constraint \(\text{lp}_{D_{i,1}, < D_{i,2}}\) will hold of two domain objects \(X\) and \(Y\) if
either \(X\) does not satisfy the description \(D_{i,2}\) or \(Y\) does not satisfy the description
\(D_{i,1}\):
However, there is one complicating factor that we need to consider. The account so far only gives the right results if the two descriptions do not contain any coreference tags. But suppose we want to have an LP statement that requires a head to follow the head of the verbal complement it selects via VCOMP, as stated in (59).

\[
(59) \quad \text{[...|HEAD [V] |] } \rightarrow \text{[V[VCOMP ([...|HEAD [1]|)] ] ] }
\]

The linguistic motivation for such a constraint will be discussed in Chapter 7. For now, let us consider the formal implications of LP constraints that contain structure sharings across the two descriptions. Intuitively, we want a domain such as in (60) to satisfy the constraint in (59) because even though both elements satisfy the descriptions individually, the requisite structure sharing does not hold and therefore, the domain is in compliance with the LP constraint in (59):

\[
(60) \quad \text{DOM } \left[ \ldots, \begin{bmatrix} \text{V[VCOMP ([...|HEAD [1]|)] ] } \end{bmatrix} \begin{bmatrix} \text{[...|HEAD [2]|]} \end{bmatrix}, \ldots \right]
\]

Thus, the interpretation of LP constraints in (58) is too strong and needs to be amended with the possibility of satisfying the constraint by means of not exhibiting the structure sharing in question.

\[
(61) \quad \text{lp}_{D_{1}, i}^{D_{2}, i} (\llbracket 1 \rrbracket_{2}) \equiv \\
\quad (\llbracket 1 \rrbracket_{1} \neg D_{1,2} \lor \llbracket 2 \rrbracket_{1} \neg D_{1,1} ) \\
\lor \llbracket 1 \rrbracket_{1} \neq \llbracket 2 \rrbracket_{1} \\
\lor \ldots \\
\lor \llbracket 1 \rrbracket_{m,1} \neq \llbracket 2 \rrbracket_{m,2}
\]
Here, given a structure sharing between $D_{i,1}$ and $D_{i,2}$, we take the reentrant paths $\pi_{j,1}$ and $\pi_{j,2}$ in $D_{i,1}$ and $D_{i,2}$ respectively and require that the values at the respective paths in the domain elements [1] and [2] be distinct.

As is shown in Kasper et al. (1995), another way to get at the same result in a more systematic fashion is to require that each pair of domain objects $(X, Y')$ must not satisfy the description $(D_{i,2}, D_{i,1})$, which in a classical interpretation of negation is equivalent to saying that $(X, Y')$ must satisfy $\neg(D_{i,2}, D_{i,1})$. We can then use the reification of the the relation so that the descriptions are the values of some attributes ARG1 and ARG2 in some feature structure and expand negation as a form of “abbreviatory negation” (cf. Carpenter 1992, Kasper 1993)

\[
\begin{align*}
\neg & \left[ \begin{array}{c}
\text{ARG1} \\
\text{ARG2}
\end{array} \right] \\
& \left[ \begin{array}{c}
D_{i,2} \\
D_{i,1}
\end{array} \right]
\end{align*}
\]

In the concrete example in (59) above, this will correspond to the following negated feature description:

\[
\begin{align*}
\neg & \left[ \begin{array}{c}
\text{ARG1} | \text{SYNSEM} | \ldots | \text{VCOMP} | \text{FIRST} | \text{SYNSEM} | \ldots | \text{HEAD} = \text{ARG2} | \text{SYNSEM} | \ldots | \text{HEAD} \\
\text{ARG1} | \ldots | \text{VAL} | \text{VCOMP} ([]) \\
\text{ARG2} | \ldots | \text{HEAD verb}
\end{array} \right]
\end{align*}
\]

Subsequent to this formulation, the negation can be turned into a set of negation-free disjuncts representing all the ways that the description in (63)—ignoring the structure sharing—can be satisfied. Any structure sharings between $D_{i,2}$ and $D_{i,1}$ will then be turned into path inequalities.\(^{23}\)

\(^{23}\)In Kasper et al. (1995), this procedure is extended to the negations of relational constraints. While in the limit, not every relation will have a computable negation, the kinds of relations assumed for linguistic description are shown to lie within the class of well-behaved relations that do have an algorithmically determinable negation.
The formalization of LP constraints can be extended rather straightforwardly to conditions in which not just precedence, but *immediate* precedence is required. Therefore, another conjunct is needed to incorporate such constraints:

$$\text{(65)}$$

\[
\left[ \text{DOM} \left[ \text{[1]} \right] \right] \rightarrow \land \text{order-constraints([1])} \\
\land \text{i-order-constraints([1])}
\]

Immediate precedence constraints are given in the general form of \( D_1 \leftarrow D_2 \), where the notation "\( \leftarrow \)" is essentially the one first introduced by Nevis (1986:59) in a GPSG framework. The constraint that effects the head recursion through the domain list is given as \( i\text{-order-constraints} \). It is very similar to \( \text{order-constraints} \); however, a distinction has to be made between the domain elements immediately following a given domain object and those that occur later in the domain. In the first case, we have to check for the proper linear relationships via the conjunction of immediate precedence constraints, \( LP_i \):

$$\text{(66)}$$

\[
i\text{-order-constraints([1])} \equiv \\
\text{[1]: (\)} \\
\lor \text{[1]: ([dom-obj])} \\
\lor (\text{[1]: [2,3,4]}) \\
\land LP_i([2,3]) \\
\land \text{may-precede-all-others([2,4])} \\
\land \text{i-order-constraints([2,4])}
\]
All elements following the immediate neighbor must not meet the regular LP constraints, but also their reversal. This is accomplished via the recursively defined auxiliary relations \textit{may-precede-all-others}, which imposes for any two domain elements \(X\) and \(Y\), that both \(LPi(X, Y)\) and \(LPi(Y, X)\) hold:

\[
\text{may-precede-all-others}([\mathbf{T}], [\mathbf{3}]) \equiv \\
\exists f(\langle\rangle) \\
\lor (\exists i \in [\mathbf{3}]) (\exists j \in [\mathbf{3}]) \\
\land LPi([\mathbf{T}], [\mathbf{3}]) \land LPi([\mathbf{3}], [\mathbf{T}]) \\
\land \text{may-precede-all-others}([\mathbf{3}], [\mathbf{3}])
\]

If we take the domain in (68a) for instance, then—ignoring possible structure sharings between the descriptions—it satisfies the regular LP constraint in (68b) if \([\mathbf{1}]\) does not satisfy \(D_2\) or \([\mathbf{2}]\) does not satisfy \(D_1\). But in the immediate precedence case in (68c), it is additionally required that either \([\mathbf{1}]\) does not satisfy \(D_1\) or \([\mathbf{2}]\) does not satisfy \(D_2\). If they did, then this would be in violation of the intended requirement of adjacency.

\[
(68) \begin{align*}
\text{a. } \mathbf{\text{DOM}} \{\ldots, [\mathbf{1}], \ldots, [\mathbf{2}], \ldots\} \\
\text{b. } D_1 &< D_2 \\
[\mathbf{1}] &\not\in D_2 \lor [\mathbf{2}] &\not\in D_1 \\
\text{c. } D_1 &\not\subseteq D_2 \\
(\mathbf{1}) &\not\in D_2 \lor (\mathbf{2}) &\not\in D_1 \\
\land (\mathbf{1}) &\not\in D_1 \lor (\mathbf{2}) &\not\in D_2
\end{align*}
\]

As before, \(LPi\) is the conjunction of all the individual immediate precedence costraints \(LP_{D_{1,1} \cdot D_{1,2}}\), each of which is interpreted in precisely the same way as a regular LP constraint.
Immediate precedence constraints will only play a minor role in the syntax of German. However, in Chapter 7, we will see a number of phenomena where they become relevant.

5.2.2 German clause types and order domains

Let us now consider how different clause types of German can be described using word order domains augmented with topological assignments. In (70-72), I list the values of the DOM feature for the Vfinal, V1, and V2 clause types.

(70) \[
\text{DOM}
\begin{pmatrix}
\text{PHON(das)} \\
\text{COMPL}
\end{pmatrix},
\begin{pmatrix}
\text{PHON(Hans)} \\
\text{NP[NOM]}
\end{pmatrix},
\begin{pmatrix}
\text{PHON(das Buch)} \\
\text{TOPO mf}
\end{pmatrix},
\begin{pmatrix}
\text{PHON(lies)} \\
\text{V[FIN]}
\end{pmatrix},
\begin{pmatrix}
\text{TOPO cf} \\
\text{TOPO vc}
\end{pmatrix}
\]

(71) \[
\text{DOM}
\begin{pmatrix}
\text{V[FIN]} \\
\text{TOPO cf}
\end{pmatrix},
\begin{pmatrix}
\text{PHON(Hans)} \\
\text{NP[NOM]}
\end{pmatrix},
\begin{pmatrix}
\text{PHON(das Buch)} \\
\text{TOPO mf}
\end{pmatrix}
\]

(72) \[
\text{DOM}
\begin{pmatrix}
\text{NP[ACC]} \\
\text{TOPO vf}
\end{pmatrix},
\begin{pmatrix}
\text{V[FIN]} \\
\text{TOPO cf}
\end{pmatrix},
\begin{pmatrix}
\text{PHON(Hans)} \\
\text{NP[NOM]}
\end{pmatrix}
\]

What is immediately clear in (70-72) is the fact that both complementizer and fronted finite verb are marked \textit{cf} in their topological specification. This means that both classes of elements are treated as a syntagmatic natural class, given the TLPS in (51) above. In particular, this will entail that they will precede every element assigned to the \textit{Mittelfeld} or the verb cluster—if there are any. If we consider the
relation between clause-final and frontal occurrence of the finite verb in (70) vs. (71–
72), there is nothing similar to verb movement involved here. In fact, the composition
structure for (70), leaving out the complementizer,\(^{24}\) and (71) are exactly the same:\(^{25}\)

\[(73)\]

\[
S
\]
\[
\text{DOM}
\]
\[
\left[
\begin{array}{c}
\text{(Hans)} \\
\text{NP[NOM]}
\end{array}
\right]
\]
\[
\left[
\begin{array}{c}
\text{(das Buch)} \\
\text{NP[ACC]}
\end{array}
\right]
\]
\[
\left[
\begin{array}{c}
\text{(liest)} \\
\text{V[FIN]}
\end{array}
\right]
\]
\[
\text{VP}
\]
\[
\text{DOM}
\]
\[
\left[
\begin{array}{c}
\text{(das Buch)} \\
\text{NP[ACC]}
\end{array}
\right]
\]
\[
\left[
\begin{array}{c}
\text{(liest)} \\
\text{V[FIN]}
\end{array}
\right]
\]
\[
\text{NP[NOM]}
\]
\[
\text{DOM} \left(\text{[([Hans])]}\right)
\]

\[(74)\]

\[
S
\]
\[
\text{DOM}
\]
\[
\left[
\begin{array}{c}
\text{(liest)} \\
\text{V[FIN]}
\end{array}
\right]
\]
\[
\left[
\begin{array}{c}
\text{(Hans)} \\
\text{NP[NOM]}
\end{array}
\right]
\]
\[
\left[
\begin{array}{c}
\text{(das Buch)} \\
\text{NP[ACC]}
\end{array}
\right]
\]
\[
\text{VP}
\]
\[
\text{DOM}
\]
\[
\left[
\begin{array}{c}
\text{(liest)} \\
\text{V[FIN]}
\end{array}
\right]
\]
\[
\left[
\begin{array}{c}
\text{(das Buch)} \\
\text{NP[ACC]}
\end{array}
\right]
\]
\[
\text{NP[NOM]}
\]
\[
\text{DOM} \left(\text{[([Hans])]}\right)
\]

\[^{24}\text{The complementizer will be added shortly in (77) on page 195.}\]

\[^{25}\text{From now on, I will leave out the attributes PHON and TOPO if their corresponding values can be obtained unambiguously from the representation.}\]
Let us look at the derivations in (73) and (74) in more detail. In (73) a finite lexical verb, *liest*, combines with an NP whose DOM value consists of two domain objects for a determiner and a noun, respectively. In the resulting structure, the information corresponding to the NP is, as it were, *compacted* into one domain object whose phonology is roughly the concatenation of the phonological strings for *das* and *Buch*. That domain object also contains all the categorial information (more precisely, the NP's *synsem* specification), as well as a TOPO attribute. The verb *liest* contributes its entire DOM value to the domain of the VP. Again, this information will comprise the verb's phonology (PHON), morphosyntactic and semantic information (SYNSEM), and a topological marking. All of this is projected directly from the lexicon, where the connection between the verbal sign's specifications and its single-element domain is established:

\[
(75) \quad \begin{cases}
\text{SYNSEM} & [1] \\
\text{DOM} & \left\langle \begin{array}{c}
\text{PHON} & \langle \text{liest} \rangle \\
\text{SYNSEM} & [1] \\
\text{TOPO} & \text{verbal}
\end{array} \right\rangle
\end{cases}
\]

Note that the value of the TOPO attribute is given as *verbal*. This is a supersort for the sorts *cf* and *vc*:

\[
(76) \quad \begin{array}{c}
\text{cf} & \text{vc} \\
\text{verbal}
\end{array}
\]

In other words, a (finite) verb is lexically underspecified with regard to its occurrence in frontal (*cf*) or final (*vc*) position. In (73), the nonmaximal sort *verbal* is resolved to the former, while in (74), it is resolved to the latter possibility. As mentioned in Chapter 1, I assume that linguistic objects are modelled by maximally sort-resolved
feature structures, hence the TOPO value in the description in (75) must eventually be resolved one way or other. Once we have a value for TOPO, though, the TLPS in (51) will automatically ensure that the verb is correctly ordered with respect to the other constituents in the domain. For that reason, the finite verb will follow its arguments in (73), while it precedes them in (74). The combination of the VP with the subject Hans proceeds along the same lines as that of the verb with the object. Again, from the information associated with the subject NP, we "distill" a domain object with the same synsem information and a corresponding phonological string. As before, that domain object will also bear a topological assignment. In least marked placement in the null context, the subject will occur before the direct object. But that means that in (74), the VP's domain will have the domain element corresponding to the subject inserted between the verb and the direct object. That this is possible is a consequence of the fact that domain construction from the domains of subconstituents is not limited to concatenative operations. We will come back to the issue of how the specifics of domain construction work in our theory in section 5.4 below.

At this point, let us consider how the other clause types, i.e. Vfinal (70) and V2 (72) are derived. In (77), a complementizer combines with the verb-final clause to yield a sentence with a domain containing the complementizer's domain object, marked topologically as cf.
Turning to the V2 case, I will for now adopt the analysis that since Uszkoreit (1987) has been commonly assumed for the initial placement of the XP: that is, the preposed element is dislocated via SLASH percolation. In the next chapter, this approach will be modified in favor of one that treats preposing in monoclausal contexts ("short movement") entirely as a linearization phenomenon.

As is shown in (78), a V1 clause containing a slashed direct object is combined with a filler, which contributes a single domain element specified for Vorfeld. Again, the specific constraints that achieve this will be discussed later. For now notice that by virtue of being a filler, the direct object, which otherwise could only end up in the Mittelfeld, is assigned to the canonical topic position, that is the Vorfeld topological field.
A few remarks are in order about this conception of how ordering constraints are achieved in an essentially flat representation via assignment to topological equivalence classes. First, on Reape's original conception (cf. for instance Reape 1993:281), neither the complementizer nor the topic are thought to be in the same domain as the rest of the clause. Rather, Vfinal and V2 domains consist of two domain elements, as shown in (79):

(78) \[ S \]
\[
\text{DOM} \left( \left[ \begin{array}{c} \langle \text{das Buch} \rangle \\ \text{NP[ACC]} \\ \text{v}f \\ \text{mf} \\ \text{cf} \\ \text{fin} \\ \text{nom} \end{array} \right], \left[ \begin{array}{c} \langle \text{liest} \rangle \\ \text{NP[ACC]} \\ \text{s} \end{array} \right] \right) \]

However, since this pretty much follows the treatment of complementizers and topics in phrase structure-based approaches, Reape in effect betrays his own cause against deriving linear order directly from hierarchical structure. Moreover, the representation in (79a)—as in the phrase structure analyses of Uszkoreit (1987), Pollard (in
press), and others before—contains nothing that would lead us to believe that there is a syntagmatic commonality between complementizers and frontal verbs.

Second, I have been using the term "position" in referring to particular topological equivalence classes such as Vorfeld or linke Satzklammer (cf). However, it should be clear that in the theory developed here, "position" is just an abbreviation for "single-element topological equivalence class". Thus, this presents a very different perspective on syntagmatic relations than common tree-based accounts of linear order. In the latter type of theory, exemplified by the version of $X$-theory espoused in Chomsky (1986), syntactic entities typically occur in single, configurationally distinguished places, such as [Spec,CP] or Infl. This view of positions as particular nodes in a syntactic tree—especially when combined with assumptions about the binariness of hierarchical structures—directly leads to the conclusion that the only way that order variation in areas such as the German Mittelfeld can be achieved is again by operations manipulating nodes in trees (in particular, adjunction). On our view, on the other hand, syntagmatic equivalence classes containing more than one element are the rule, rather than the exception. That there are topological fields which may not contain more than one element is not a consequence of some deep principle of syntax, but must ultimately be due to the fact that fields such as Vorfeld and linke Satzklammer bear a uniquely important role in determining the clause-type of a sentence, which in turn is correlated to a high degree with sentential mood and ultimately illocutionary force. Technically, the way that we will enforce the restriction that both Vorfeld and linke Satzklammer constitute positional topological fields is by means of
the following two **Topological Cardinality Conditions**:26

(80) **Topological Cardinality Conditions**

a. [TOPO \(vf\)] \(<\> [TOPO \(vf\)]

b. [TOPO \(cf\)] \(<\> [TOPO \(cf\)]

While somewhat counterintuitive at first, these constraints require uniqueness of domain objects specified as [TOPO \(vf\)] and [TOPO \(cf\)], respectively. This is so because by definition, LP statements order distinct domain objects. However, if there are two elements \(e_1\) and \(e_2\) in a domain that satisfy any of the two descriptions in (80a,b), each will automatically do so for the other as well. But then \(e_1\) will be required to both precede and follow \(e_2\), which of course results in an inconsistent set of requirements. Therefore the only type of domain that can ever satisfy (80) is the one that contains at most one \(vf\) or \(cf\) element. As we will see in Chapter 6, the fact that these topological fields can only hold one element each is intrinsically linked to clause-type determination and therefore is based on an entirely different understanding of the function of elements at the left periphery of the clause than some arbitrary and unmotivated constraint of Chomsky & Lasnik’s (1977) “Doubly-Filled-Comp Filter” type.

Third, another point worth making at this juncture is that in our conception of syntagmatic relations, there is no *inherent* connection between what can be assigned to certain topological fields and their categorial make-up. In other words, it is not necessary that the elements eligible for a topological field also form a natural class

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26 I owe this particular formulation to Carl Pollard. As Detmar Meurers has pointed out to me (p.c.), the same idea is mentioned in Gazdar *et al.* (1985:55,n.3).
in other respects. This is a very different conception than, for instance the view espoused in Frank (1994) or Feldhaus et al. (1994) (see next section), who attempt to establish a categorial uniformity across frontal verbs and complementizers in terms of otherwise undermotivated functional features or by making verbs indistinguishable from complementizers. Along the same lines, we reject the idea commonly accepted within GB that positions are intrinsically limited to constituents of only one projection level, i.e. that landing sites for movement are designated either for heads or maximal projections. Translated into the current framework, this means that there is no intrinsic reason why topological fields in general should only contain elements of the same projection level. While von Stechow & Sternefeld (1988:391) argue against "positional categories", note that their criticism does not apply to the present framework because no attempt is made here to project from the features of a functional X^0 category like Comp a positional category that can host heterogeneous constituents. Rather, the link between the lexical category Comp and its topological properties as occurring in cf is more tenuous. In particular, this means that, as will be shown in the next chapter, we are now in a position to resurrect a view of fronting in subordinate contexts which has become incompatible with assumptions made in GB since Barriers, namely that lexical complementizers and fronted wh-phrases in subordi-

---

27 As Svetlana Vasina has pointed out to me (p.c.), this assumption has been abandoned in Chomsky (1994).

28 Note that I am not making the much stronger claim that each topological field is necessarily compatible with elements of every projection level.

29 Cf. for instance Staudacher (1990:325): "[...] the complementary distribution of finite verbs and wh-elements in the COMP-region of German dependent clauses, sometimes adduced in favor of their positional identity, is an epiphenomenon which should not lead to hasty conclusions."
nate clauses form a syntagmatic equivalence class by converging in their topological assignment to linke Satzklammer. In this respect the current proposal is clearly not a notational variant of the standard movement-based analyses.

5.3 Verb movement in HPSG

Having established that there is in general no strong support for the claim that frontal verb placement necessarily involves genuine dislocation, let us now focus on the particular details of analyses that attempt to implement a verb movement analysis in HPSG. Despite the lack of empirical support for the underlying hypothesis, it may still turn out that such approaches prove to be lines of analysis that are significantly simpler or more elegant than the one offered above in terms of topological fields. However, as it will become clear, this does not seem to be the case. As a case in point, Frank (1994) is illustrative in making explicit the elaborate machinery and the various ancillary assumptions that have to be made in order to make a verb dislocation analysis of V1/V2 work.

Frank’s analysis is a reformulation of Kiss and Wesche’s DOUBLE SLASH (Kiss & Wesche 1991, Kiss 1992) analysis of verb dislocation and combines this analysis of verb placement with Netter’s (1994) theory of functional projections. In that theory, HEAD information is separated into one part that specifies membership in one of the major categories (MAJOR) while the other part (MINOR) records inflectional information and whether a given category is “F(UNCTIONALLY) COMPL(ETE)” or not. Intuitively, functionally complete categories are those projections that are intrinsically maximal or contain a specifier-like object (Det, Comp, etc.). A verb-final projection
will be lexically specified as \([\text{FCOMPL} -]\). If a complementizer combines with such a projection, it marks the resulting structure as \([\text{FCOMPL} +]\). Frank’s central idea is now that the function of a frontal verb is precisely the same as that of a complementizer, viz. to turn a \([\text{FCOMPL} -]\) constituent into one marked as \([\text{FCOMPL} +]\). To this end, however, we cannot take the original verbal entry, but must, via a lexical rule, create a new one that has precisely those properties. The rule that produces new entries capable of “functional closure” is given in (81) (Frank 1994:49):^°

\[
(81) \quad \begin{array}{c}
\text{SYNSEM} | \text{LOC}_3 \\
\text{CAT} | \text{HEAD}_1 \\
\text{CONTENT}_2 \\
\downarrow \\
\text{SYNSEM} \\
\text{LOC} \\
\text{CAT} \\
\text{SUBCAT} \\
\text{CONTENT}_2 \\
\text{NONLOC} | \text{TO-BIND} | \text{DSL} \{3\}
\end{array}
\]

The output of this lexical rule is a verbal category with the same major categorial

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^°This rendition is different from the proposal made by Frank in that an additional structure sharing in the output category between the \text{CONTENT} of the subcategorized for verb and the \text{CONTENT} of the element in DSL is missing. Such an equality statement is redundant as the \text{CONTENT} is part of the information transferred from the input to the output specification via the tag \{3\}. More perniciously, as Carl Pollard has pointed out to me (p.c.), it would also rule out any sentence in which an adjunct structurally intervenes between the functionally complete verb and the verbal trace. This is because any such modifier will affect the content of the constituent modified and render it distinct from that of the syntactic head. But this means that the frontal verb and the trace must be allowed to be unequal in their \text{CONTENT} values, contrary to Frank’s original proposal.
properties as the input, but which now marks the constituent it occurs in as functionally complete. Its complement is not the original subcategorization frame, but rather a clause with a verbal constituent missing which in turn is specified for the very same local information (including subcategorization frame) as the original entry. Thus, the new entry selects a constituent lacking a verb that is in almost all respects identical to the new entry. This bears some resemblance to the concept of type-raising in Categorial Grammar in that the functor-argument roles are reversed if an argument is raised to a type that selects the functor. However, while type-raising, at least in directional versions of Categorial Grammar, does not alter the original set of well-formed linear orders, it is precisely the role of the rule in (81) to legitimize a new placement possibility for the verb that it would not have as a functionally incomplete element.

The lexical rule in (81) models, quite directly, Haider’s (Haider 1993:84) conception of frontal verb placement as V to F⁰ movement, where F is a variable over functional categories ranging over Comp and a “functionally marked verb”. On this view, it is the “purpose” of the dislocation to provide functional closure to the clause.³¹ The structure of verb-final clauses is sketched in (82a), while (82b) displays how the frontal occurrence of a verb is licensed via the output of the lexical rule (Frank

³¹The following quotes demonstrate how this view is couched in rather teleological terms—something not uncommon for instance for analyses in the spirit of Chomsky (1992) that seek to provide motivation for particular transformations: “[the verb trace] is [...] marked as a functionally incomplete category that demands to be governed by a functional category [i.e. the frontal verb qua functional category, AK]” Frank (1994:43); “If the verb realizes as a functional category, it gains the power of functionally licensing a functionally marked VP that requires licensing” Frank (1994:61).
As Frank notes (Frank 1994:33-34), the lexical rule in (81) represents an improvement over Kiss' and Wesche's earlier approach in which nothing prevents the percolation of the DSL value beyond the clausal boundaries, giving rise to illicit derivations such as:

\[(83) \text{*Kennt Peter [dafi Fritz Maria glaubt.} \]

knows Peter that Fritz Maria believes

This is correctly accounted for in Frank's treatment in terms of the condition on the rule output which requires the CONTENT value of the subcategorized clause \( [\text{LOC} \{3\} ] \) to be the same as that of the frontal ("functional") verb itself. If the DSL set percolates beyond the domain of the smallest clause containing the verbal gap, as in (83), the two CONTENT values—specifically a know and a believe psoa—will no longer be unifiable.

However, if special precautions such as reference to semantics have to be taken, it raises the question what motivates a treatment in terms of a nonlocal syntactic relation to begin with. Strict clause-boundedness is a property which is rather untypical
for phenomena treated in terms of nonlocal features in general, as the latter typically give rise to unbounded dependency constructions (UDCs) with no upper limit on the depth of embedding.

Verb movement does not fit the profile of UDCs in other respects. Thus, genuine dislocation phenomena are typically insensitive to the category involved, both on GB's *move-α* as well as for the treatment of UDCs in nontransformational theories.\(^{32}\) However, the DSL analysis is very specific in that it only applies to verbs and among them only to the ones with finite morphology.

Note also that there is an intrinsic asymmetry between V1/V2 and Vfinal clauses in that the latter is more basic in the sense that it does not contain a trace.\(^{33}\) In part as a consequence of this, the verbal trace required in this analysis, i.e. the inaudible lexical verb (cf. Kiss 1992:144) has a rather different status than traces in general. While these are amenable to a reanalysis in terms of lexical rules (cf. Sag & Fodor 1994),\(^{34}\) this option is *in principle* unavailable for the verbal trace. The reason for this is there does not exist any lexical entry on whose subcategorization list that verb occurs and which could then undergo the complement extraction lexical rule. This only raises the question even more sharply why verb placement in V1/V2 contexts

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\(^{32}\)Particular restrictions barring certain categories from undergoing *wh*-fronting (e.g. VPs or Ss) are not an indication of sensitivity to category, but rather a consequence of general constraints on what can be questioned or relativized in a given language.

\(^{33}\)This also holds of Frank's reformulation of the lexical rule in terms of sort inheritance from underspecified lexical entries. See Kathol (1994) for a discussion of the basic correspondence (and some principled differences) between capturing lexical relations via lexical rules and sort inheritance.

\(^{34}\)In order to extend this lexical rule to adjunct extraction, an additional move is required that elevates adjuncts to complement status first; see for instance van Noord & Bouma (1994).
should involve a nonlocal dependency in the first place. It would seem that the classification of DSL as a nonlocal feature is a misconception and should instead be replaced by a head feature which would straightforwardly capture the locality of the filler-gap dependency.

However, even if we were to make the necessary adjustments, its ultimate merits are not quite clear. The only definite advantage to be gained from a verb-dislocation analysis—at least along the lines of Frank (1994)—is that frontal verbs can now be subsumed under the generalization that “functional” categories (Comp, Det) precede their complements, while lexical categories follow them. However, on closer inspection, it is not clear in which way the \[ \text{FCOMPL} + \] marking on the frontal verb is anything more than a diacritic to distinguish it from clause-final occurrences. The reason is that this marking on the verb is not obviously correlated with any other syntactic or semantic properties of “functional” heads. But if the only reason to give functional status to frontal verbs is their syntagmatic similarity with the position of complementizers, we may immediately ask ourselves whether this insight could not be expressed much more directly, without the detour of “functional marking”.\(^{35}\)

But, of course, this is precisely what we have attempted to do in our analysis based on underspecification with respect to topological status. Moreover, this was possible without the help of a new nonlocal feature and a lexical rule and without the

\(^{35}\)At this point, one feels reminded of Haider’s (1991) classification of derivational analyses of the verb cluster: “Das Raffinement ihrer technischen Durchführung ist kein Ersatz für den Mangel an prinzipieller Einsicht in das Zustandekommen der spezifischen Konstellation grammatischer Eigenschaften.” (p. 14) (‘The sophistication of their technical execution is no substitute for the lack of principal insight into the origin of the specific constellation of grammatical properties.’).
need for an uneliminable trace. To make matters worse, on Frank’s own admission (Frank 1994:50), unifying complementizers and frontal verbs in terms of functional completeness does little to explain the occurrence of inflected complementizers. As we saw earlier, wh-phrases in embedded questions pattern exactly like complementizers in terms of showing inflection or being potential bearers of prosodic prominence in Verum focus constructions. And, as will be discussed at greater length in the next chapter, they also pattern with complementizers in “blocking” frontal verbs. Yet, such cases are treated as instances of Filler-Head constructions in which the filler bears no selectional relationship to the rest of the clause. This means however, that they cannot be assimilated to complementizers and frontal verbs as turning functionally incomplete categories into complete ones. In other words, Frank’s set of categories bearing the specification \[\text{[FCOMPL} +]\] does not even constitute a natural class in that it fails to encompass the case of fronted wh-expressions.

The same criticism also applies to an alternative formulation of verb movement in HPSG proposed by Feldhaus et al. (1994). Instead of rendering complementizers and frontal verbs similar in their status as functionally complete categories, this analysis goes one step further and assumes that verbs in V1/V2 contexts are instances of complementizers. The corresponding lexical rule that maps a finite verb into its

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36 As Mike Calcagno has pointed out to me (p.c.), structures of type dom-obj containing a TOPO marking can be viewed as categories that are defined dynamically, as opposed to statically via major category membership or valence. From this perspective, a lexical complementizer and a frontal verb form a natural class (in terms of their TOPO value) in the same way that in classical feature composition, categories such as verbs and prepositions are said to form a natural class due to their common \([+V]\) properties.
corresponding complementizer is given in (84).³⁷

(84) \[
\begin{array}{c}
\text{SYNSEM LOC 3 [CAT HEAD [verb VFORM finite]]]}
\end{array}
\]

Assimilating finite verbs to complementizers makes the wrong prediction that verbs in V1/V2 should manifest agreement with the subject in terms of edge inflection as opposed to on the lexical head. In addition, it has nothing to say about the fact that fronted \textit{wh}-expressions pattern so closely with complementizers.³⁸

5.4 Complementation and order

In this section, I lay out the basics of the relationship between complementation and constituent order in the current framework. Recall from the discussion in the previous

³⁷There are also a number of other differences from Frank’s analysis, in particular the status of DSL, which in Feldhaus \textit{et al.} (1994) is not a nonlocal feature. These differences are tangential to the issues at hand.

³⁸Some of the problems of verb-movement analyses pointed out here do not carry over to Netter’s (1992) treatment in terms of an empty functional head (cf. Chapter 2). For instance, locality of verb placement is ensured as no nonlocal feature is involved. Similarly, only one verbal form is needed for V1/V2 vs. Vfinal environments. However, the postulation of an empty head selecting the frontal verb is essentially a deus ex machina that in addition is antithetical to the general avoidance of empty categories (especially where no filler-gap linkage is involved) in HPSG. If the only purpose of this empty category is to regulate the frontal placement of the finite verb, the same question arises as with the DSL analyses, i.e. why assume an abstract description if instead the phenomena can be captured more directly in terms of properties that are visibly manifested in the constructions at hand?
chapter that Reape proposes to take HPSG-type signs as the type of linguistic object that inhabits his order domains. Signs, however, at the same time provide too much information (in particular, internal syntactic structure via DTRS) and not enough (no TOPO marking). As has been mentioned before in various places, in the approach taken here, domain objects are not signs themselves, but instead contain information which is projected from that contained in signs. This association between a sign and its correlated domain object can be captured by means of the compaction relation, given in its intuitive form in (85).

\[(85) \quad \text{compaction} \left( \left[ \text{sign SYNSEM} \right]_{\text{DOM}} \langle [\text{PHON} 1], \ldots, [\text{PHON} n] \rangle \right), \left[ \text{dom-obj SYNSEM} \right]_{\text{PHON}} \langle \text{PHON} 1 \circ \ldots \circ n \rangle \right) \]

One can think of this relation as mapping a sign’s SYNSEM value directly on the SYNSEM value of the corresponding domain object. Moreover, the PHON values of all the elements contained in the sign’s domain are concatenated as the value of the domain object’s PHON specification. This is actually quite a drastic simplification, as this step completely ignores any more complicated phonological processes such as external sandhi that may occur when a single phonological representation is formed from the phonology of the domain elements. But since such effects can for the most part be ignored in a study of German syntax, I will do so here. It should be noted, though, that one could easily augment the system by means of more sophisticated ways of forming phonological representations. Since “...” in (85) does not have any

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39 Thus, I do not follow Pollard et al. (1993) (or Kathol 1993) in grouping SYNSEM and PHON information under a NODE/DOM-OBJ attribute, for the reasons given in Chapter 4.
denotation, we need a more precise definition, which is given in (86):\(^{40}\)

\[
\text{compaction}(\mathbb{1}, \mathbb{2}) \equiv \\
\quad \mathbb{1}^{\text{sign}} \left[\text{DOM} \ (\ )\right] \\
\quad \wedge \quad \mathbb{2}^{\ (\ )} \\
\quad \vee \quad \mathbb{1}^{\text{sign}} \left[\text{SYNSEM} \mathbb{3} \right] \\
\quad \quad \left[\text{DOM} \ (\ )\text{alist}\right] \\
\quad \quad \wedge \quad \mathbb{2}^{\left[\text{dom-obj} \left[\text{SYNSEM} \mathbb{3} \right] \text{PHON} \mathbb{5}\right]} \\
\quad \quad \wedge \quad \text{join}_{\text{PHON}}(\mathbb{4}, \mathbb{2})
\]

In addition to getting rid of the dots, this definition also has a provision that correlates signs with empty DOM values with an empty list of compacted elements. As will be seen shortly, this is important in connection with the domain contribution of traces.

The following recursive definition characterizes the auxiliary relation \(\text{join}_F\), which concatenates all the \(F\) values of some list of feature structures into a single list preserving the original order.

\[
\text{join}_F(\mathbb{1}, \mathbb{2}) \equiv \\
\quad (\mathbb{1} : (\ ) \wedge \mathbb{2} : (\ ) ) \\
\quad \vee \quad (\text{cons}(\mathbb{1}^{\text{F}}, \mathbb{4}), \mathbb{2}) \\
\quad \quad \wedge \quad \text{join}_F(\mathbb{4}, \mathbb{5}) \\
\quad \quad \wedge \quad \text{append}(\mathbb{3}, \mathbb{2}, \mathbb{7})
\]

The net effect of compaction is that now the internal structure of the sign in terms of its DOM specification is no longer available, and neither are the components that

\(^{40}\)This particular formulation was suggested to me by Carl Pollard.
participate in licensing that sign in terms of its DTRS. A value for the remaining feature of domain objects, TOPO, is not given as we assume that it can always be deduced from the environments in which a sign is compacted into a domain element. This only holds in full generality of phrasal signs, because lexical signs may indeed come with an inalterable topological assignment (e.g. cf for complementizers or verbal for finite verbs).

Let us now turn to the role that compaction plays in the licensing of particular combinations of signs, which in standard HPSG is achieved by ID schemata. Probably the most basic among the different schemata are the ones for combinations of heads and the constituents they subcategorize for. In HPSG (Pollard & Sag 1994:345), there are two major valence features, SUBJ(ECT) and COMP(LEMENT)S, and concomitant with them the Head-Subject Schema and the Head-Complement Schema. The distinction between subjects and complements in HPSG is largely based on considerations of order in English and Welsh (cf. Borsley 1989). However, encoding order differences in terms of different valence features is not in the spirit of the dissociation of order from phrase structure pursued here, and therefore will be given up in favor of the single SUBCAT list encoding of valence of earlier versions of HPSG (Pollard & Sag 1987, Pollard & Sag 1994). The feature SUBJ is retained, not as a valence feature, but instead as an identifying feature, similar to ERG(ATIVE) as in Kathol (1994), Pollard (1994), or DESIGNED(ARGUMENT) in Heinz & Matiasek (1994). This means that SUBJECT picks out a special argument on the SUBCAT list. This information can

---

41 This schema is actually a kind of "metaschema", as it matches an arbitrarily large list of complements.
be referenced for instance by the constraints on agreement so as to make sure that a finite verb agrees with the argument designated in this fashion if there is one and exhibit 3rd sg inflection otherwise.

This approach is arguably more appealing on a conceptual level as it avoids the difference in argument structure posited by Kiss and others between the finite and nonfinite versions of verbs. While it may be argued that Kiss’ approach directly accounts for the impossibility of combining nominative NPs with nonfinite verbs to form sentences, it is anything but clear that this should be “hard-wired” into the combinatorial system. As we will see in more detail in the next chapter, there is good reason to keep the combinatorial component maximally general and have a system of external constraints which link up syntactic configurations with clause types. The reason then that in a language like German, one does not normally find nonfinite clauses is a consequence of the generalization that all major clause types involve finite heads. Thus, while a combination of an NP and a nonfinite VP is combinatorially possible, there is no clause type that could be expressed this way. Moreover, in Chapter 7, I will discuss fronting constructions involving verbal projections containing subjects which constitutes a severe challenge to the hypothesis of different representations of subjects.

---

42There may even exist constructions such as infinitival imperatives that feature overt (nominative) subjects, such as in (i):

(i) Alle Passagiere von der Bahnsteigkante zurücktreten! all passengers from the curb back.step-INF 'All passengers please step away from the tracks.'

In any event, the difference in argument structure between finite and nonfinite predicates cannot be a deep universal principle, as English has various kinds of infinitival clauses.
Next, the different polyvalued Head-Complement Schemata and the Head-Subject Schema of Pollard & Sag (1994) will be dispensed with in favor of a single binary Head-Argument Schema. Taking the approach in Pollard & Sag (1994) as our point of departure, our schema can be stated as follows:

\[(88) \text{BINARY HEAD-ARGUMENT SCHEMA} \]

\[
\begin{align*}
\text{DOM} & \quad [\text{DOM} 2] \\
\text{...} & \quad \text{DOM} 3 \\
\text{SUBCAT} & \quad [\text{SYNSEM} 2] \\
\text{DTRS} & \quad [\text{HEAD-DTR} \quad \text{DOM} 1] \\
& \quad \text{...} \quad \text{DOM} 4 \quad \text{SUBLAT} 2 \circ \{2\} \\
\text{compaction} & \quad \{2, 3, 5\} \\
\text{shuffle} & \quad \{2, 3, 5\}
\end{align*}
\]

The main difference between this formulation and the one in Pollard & Sag (1994) is that our schema constrains the DOM value of the mother in terms of the DOM value of the head daughter and the compaction of the argument daughter. In particular, the domain of the mother is constrained to be the sequence union of the domain of the head daughter with the singleton list containing the compaction of the argument. As a result, the argument's domain object may be placed anywhere within the head daughter's domain so long as linear precedence constraints, in particular TLPS, are not violated.

A somewhat more perspicuous notational variant for the schema in (88) which employs Reape's quasi-functional notation of shuffle, "\(\bigcirc\)", is given in (89):

\[(89) \quad \text{DOM} 2 \quad \text{DOM} 3 \quad \text{DOM} 4 \quad \{2, 3, 5\} \]

\[
\begin{align*}
\text{DTRS} & \quad [\text{COMPL-DTR} \quad \text{SYNSEM} 2] \\
& \quad \text{HEAD-DTR} \quad \text{DOM} 1 \\
& \quad \text{...} \quad \text{DOM} 4 \quad \text{SUBLAT} 2 \circ \{2\} \\
\text{compaction} & \quad \{2, 3, 5\} \quad \{[\text{TOPO} ...]\}
\end{align*}
\]
While the adoption of binary structures is not meant to express strong claims about the structure of natural language, there are nevertheless a number of advantages associated with it. First, because order variation is handled via the linearization component, there is no need for flat structures to derive multiple ordering possibilities. As a result, the composition structure will contain a number of nonmaximal projections of V, which as we will see in Chapters 7 and 9, play a role in Partial VP Fronting and coordination, respectively. As a further consequence of binary branching, the combination of the relations compaction and shuffle will license all permutations of a domain if no LP constraints are given. This is so because at each point in a derivation, the linear relationship of an argument with respect to other arguments or the lexical head is left unconstrained. If instead, the domain objects of multiple arguments are introduced into the mother domain at the same time, we have to either introduce a polyvalued domain-insertion relation or take other steps to allow for all possible orders among the arguments. This seems to present a definite advantage over approaches such as Richter & Sailer (1995:35–39), where the permutation-closure over a list of daughters has to be defined explicitly.

Something that has been left unspecified in (89) is the topological value of the domain object that is the compaction of the argument sign. This seems to some extent to be a function of the categorial membership of the head involved. Thus, while nouns in general require their complements to follow, the situation is somewhat more flexible with verbs. I propose that in relation to a clause-final verb (i.e. in the verbal cluster), arguments may be placed either in the preceding (Mittelfeld) or
following (Nachfeld) topological field. This is in contrast to the standard position in transformational syntax,\(^{43}\) which decrees that because of the head-final status of German, all arguments must precede the head in their D-structure position. The ramifications of this view for the treatment of extraposition and additional constraints on the occurrence of arguments in Nachfeld are discussed in Chapter 8.

The indeterminacy regarding the linear assignment of arguments is captured again in terms of a sortal hierarchy, similar to the one in (76) before:

\[
\begin{array}{c}
mf \\
\text{inf-args} \\
nf
\end{array}
\]

The value inf-args indicates that Mittelfeld and Nachfeld are the canonical places of occurrence for the arguments of nonfinite verbs. As we will show in the next chapter, these also constitute a subset of the placement possibilities for finite verbs. Modulo the treatment of certain extraposed elements, there is a certain overlap with the transformational notion of “A-position”, which typically excludes landing sites of wh-movement ([Spec,CP]) and functional head positions (Infl, Comp).

As was seen in Chapter 1, the use of the DTRS attribute in HPSG is motivated by a phrase structure-based view of the relationship between complementation and linear order. Yet, on the perspective espoused here, it may no longer be possible to identify a contiguous head (or for that matter, argument) within the string of the mother. It is therefore more congenial to the current program to dispense with the

\(^{43}\)But see Webelhuth (1992) for the idea that sentential complements are actually base-generated to the right of the verbal head.
encoding of phrase structure in terms of DTRS altogether in favor of an approach in which licensing of syntactic combination is entirely based on relational constraints, cf. for instance Dörre et al. (1992), Dörre & Seiffert (1991:11).\textsuperscript{44} If the DTRS attribute can be eliminated from signs, this would seem like a welcome result as it makes the grammar more restrictive. This is so because the encoding of syntactic structure via DTRS allows the formulation of constraints that make reference to the internal structure of a sign. For instance, one can simulate c-command as a relation holding among particular subdaughters in a DTRS-based encoding of syntactic structure. On the other hand, a relationally licensed sign does not reveal its internal structure. For that reason, the inner composition of a sign becomes invisible at the level of that sign.

The other extreme is to completely dispense with relational constraints as has been proposed by Richter & Sailer (1995). In their system, the sort hierarchy is enriched quite extensively while a host of new features is introduced that reify argument slots of the corresponding relational constraints. However, the distinction between linguistically substantive features and those that are mere “bookkeeping” devices is completely blurred and hence additional assumptions have to account for the lack of any linguistic reality associated with such bookkeeping features.\textsuperscript{45}

The relational counterpart of the Head-Argument Schema in (88), which will be

\textsuperscript{44}“On the other hand “subcomputation”-features allow for referring to intermediate results. [...] we want to argue that in some sense the HPSG feature dtrs has the same effect as subcomputation features and we can avoid them [...], without giving up anything of the elegance and declarativity of the principle-based of grammar exemplified in HPSG.”

\textsuperscript{45}Cf. also Kathol (1993:271) for discussion of similar issues in the context of using additional features and the sort hierarchy to dispense with lexical rules.
called the *Head-Argument Composition Relation*, is given in (91):

(91) The ternary relation HEAD-ARGUMENT COMPOSITION holds of three signs M, H, and A if and only if:

1. M's SYNSEM[LOCAL|CAT|SUBCAT] value is token-identical to H's SYNSEM[LOCAL|CAT|SUBCAT] value minus A's SYNSEM value;
2. if the compaction of A, C_A, is a singleton list containing the domain object C, then C's TOPO value is
   (a) inf-args if H is of category V or P (to be revised in Chapter 6),
   (b) nt if H is of category N,
   (c) ...
3. M's DOM value is a sequence union of H's DOM value and C_A.

This relation licenses signs in local composition structures such as the following:

(92)

\[
[M:] \left[ \begin{array}{c}
\text{sign} \\
\text{DOM} \bullet \circ \circ \\
\text{SYNSEM|LOCAL|CAT|SUBCAT} \circ \circ \\
\end{array} \right]
\]

\[
[H:] \left[ \begin{array}{c}
\text{sign} \\
\text{DOM} \bullet \\
\text{SYNSEM} \left[ \text{LOC|CAT|SUBCAT} \circ \circ \right] \\
\end{array} \right]
\]

\[
[A:] \left[ \begin{array}{c}
\text{sign} \\
\text{SYNSEM} \bullet \\
\end{array} \right]
\]

Where:

\[
\text{compaction} \left( \circ \circ \left( \left( \left[ \text{dom-obj} \right] \circ \circ \text{TOPO} \right) \circ \circ \text{inf-args} \right) \right)
\]

The way that this composition relation is used in the wellformedness constraints on a sign is as follows: in order for a linguistic object $S$ to be a wellformed sign, it will have to either be in the lexicon, in which case it is of sort *word*, or be licensed as of sort *phrase* by virtue of the fact that one (and exactly one) of the composition relations holds among $S$ and some other sign(s). For instance, if we focus on the combination

---

46A formalized version of this definition is given in the Appendix.
of the finite verb with the direct object in example (74) above, the VP projection is licensed by in terms of the composition relation in (91) being instantiated in the manner shown in (93):

(93)

\[ \begin{array}{c}
\text{VP[FIN]} \\
\text{DOM} \begin{cases}
\text{(liest)} \\
\text{SYNSEM}_{2}
\end{cases}
\circ
\begin{cases}
\text{(das Buch)} \\
\text{SYNSEM}_{8}
\end{cases}
\text{cf}
\end{array} \]

\[ \text{...[SUBCAT ([NP[NOM]])]} \]

Where:
compaction(3, 5)

More generally, we need to distinguish a particular set of relations of arity equal to or greater than 2 among signs which are called Composition Relations. As a correlate of the ID Principle of Pollard & Sag (1994:38), cf. (94), we now have the Composition Principle, cf. (95).

(94) ID Principle
Every headed phrase must satisfy exactly one of the ID schemata.

(95) Composition Principle
Every phrase must be licensed by precisely one composition relation.

Specifically, the notion of licensing is defined as stated in (96):

(96) Definition: Licensing of Phrases
A phrase \( P \) is said to be licensed in an n-ary composition relation \( \mathcal{R} \) provided there exist signs \( S_2, \ldots, S_n \) such that \( \mathcal{R}(P, S_2, \ldots, S_n) \).
In the case of head-argument structures, this means that the relation \(\text{head-argument-composition}(S, S', S'')\) has to hold between \(S\) and two other objects of type \(\text{sign}\) which in turn are constrained in terms of the contributions they make to \(S\)'s \(\text{DOM}\) and the valence requirements on \(S'\).

5.4.1 Empty categories and linear syntax

One aspect of the definition of the \(\text{compaction}\) relation in (86) that deserves some closer attention is the case in which the second argument of that relation is instantiated to the empty list. The situation in which this occurs is when some sign to be compacted has an empty \(\text{DOM}\) list. The intuition is that any element that has an empty domain, and hence has no phonology to contribute should also not contribute a domain element if compacted, say, as the argument of some head.\(^{47}\) Without the first clause, the definition of compaction would map such a sign onto a domain object with empty phonology. Thus, elements with empty domains have no existence in any higher domain. As a result of this, we automatically exclude empty elements from ever having any impact on the linearization of other elements. One such example are empty complementizers. As will be discussed in greater detail in the next chapter, the standard transformational analysis of the left periphery of German embedded questions assumes an empty complementizer in the Comp position which blocks verb

\(^{47}\)This still does not rule out the possibility of domain elements with empty phonology. To exclude such cases, we may assume a general "visibility" condition on domain objects:

(i) \[[\text{dom-obj}] \rightarrow [\text{PHON} \text{nilist}]\]
movement just as much as overt complementizers do. On the approach taken here, such an analysis is excluded in principle because empty complementizers could not contribute any domain object and hence cannot participate in any way in the topological structure of the clause.

Another such instance where this becomes important is in connection with traces. While there have been a number of proposals in recent years to eliminate traces completely in favor of lexical rules transferring arguments directly into the SLASH store (cf. Pollard & Sag 1994:ch.9 and Sag & Fodor 1994), this study will nevertheless continue to employ them—even though, as will become clearer in the next chapter, they will be used in considerably fewer environments than in common phrase structure-based approaches to German. Retaining traces is motivated to a large part by the kinds of complications that arise for traceless analyses in connection with the extraction of adjuncts (Hukari & Levine 1995) and unwanted interactions between the Complement Extraction Lexical Rule and variables over arguments lists required in argument composition (Höhle 1995).

A trace not only has no phonology, but it also has an empty DOM value, as illustrated in (97) (cf. Pollard & Sag 1994:164):

\[
\begin{align*}
\text{DOM} & \{ \} \\
\text{SYNSEM} & \begin{cases}
\text{LOCAL} & \{ \} \\
\text{INHER} & \begin{cases}
\text{SLASH} & \{ \} \\
\text{TO-BIND} & \begin{cases}
\text{SLASH} & \{ \} \\
\end{cases}
\end{cases}
\end{cases}
\end{align*}
\]

Thus, like any other empty category, a trace is in principle incapable of participating in the linear syntax of a clause. To illustrate, consider the bottom of the SLASH projection for the example in (78) on page 196:
5.5 Conclusion

The appeal of verb movement, even in nonderivational approaches to German syntax, is to a large extent due to the fact that little effort has been spent in nontransformational generative theories on accommodating the notion of position. Whereas this idea has so far almost exclusively been expressed in terms of tree-configurational notions, this chapter represents an attempt to rectify this situation and present a nonderivational alternative. Compared to its competitors which employ an additional nonlocal dependency, the resulting analysis of the different placement possibilities of the (finite) verb in German is evidently simpler and avoids the technical and conceptual problems associated with the DSL analysis. Earlier, it was shown that the rejection of a derivational analysis of verb placement is fully justified by the linguistic evidence.

It may be illustrative to compare the status of “basic” and “derived” verb placements in German with the relationship between sound change and synchronic phonological rules. While early generative phonology was guided by the idea that synchronic
rules are to some extent mere reflections of diachronic developments, it soon became clear that the connection between synchronic rules and historical developments is at best a very tenuous one and that the synchronic phonological system of a language is and should be, describable without recourse to diachrony. Now, it is a well-known fact that the early Germanic Vfinal pattern antedates the development of V1 and V2 root structures in Old High and Middle High German. Hence, by the same token, any analysis that is predicated on the distinction between “basic” vs. “derived” occurrences of the verb in effect burdens synchronic description with diachronic syntax. By contrast, given the lack of evidence for a structurally higher verbal landing site, the premises of the current proposal is arguably superior. The language learner is only required to associate syntactic categories with positional properties; but crucially, there is no need for the learner to approximate the historical syntactic development in his/her mental grammar.

In the next chapter, I show how the present framework can be used for the description of constructions with fronted phrasal elements. Again, considerations of linguistic motivation and simplicity will favor the current approach over its alternatives, both derivational and nonderivational.

\[^{48}\text{Cf. for instance the infamous underlying velar fricative in Chomsky & Halle's (1968) derivation of nightingale.}\]
CHAPTER VI

Left-peripheral Structures

It has long been one of the core tenets of transformational syntax that move-α is constrained in such a way that movement can only target positions that are consistent with the X-theoretic status of the moved element. Thus, while an X⁰ category can only move into another head position, for instance I⁰ or C⁰, maximal projections are required to move into positions that are compatible with this level of projection, e.g. substitution into [Spec,XP]. Movements in which a maximal category moves into an X⁰ position or which involve substitution of a head into a specifier position are illicit. This constraint is thought to hold regardless of the environment that the movement takes place in and does not distinguish between root and subordinate clauses. If we focus our attention on dislocations of the wh-movement type, i.e. those involved in relative clause and question formation in German, the constraint on movement targets entails that the same type of landing site is involved regardless of whether wh-fronting occurs in a root or embedded clause. Thus, the dominant view within transformational approaches to German syntax since Chomsky’s (1986) Barriers has been that a root wh-clause has the structure in (1), while an embedded question is assigned the analysis in (2) (cf. Grewendorf 1988:74):
(1)  a. Wen mag Maria?
    who-ACC likes Maria
    ‘Who does Maria like?’

b. CP
   Spec     C
   NP
   Comp     IP
   wen
   V
   Spec
   mag_j
   NP
   Maria
   VP
   Infl
   NP
   V
   V
   t_i
   t_j

(2)  a. Ich frage mich [wen Maria mag].
    I ask myself who-ACC Maria likes
    ‘I wonder who Maria likes.’

b. CP
   Spec     C
   NP_i
   Comp     IP
   wen
   Spec
   NP
   Maria
   VP
   Infl
   NP
   V
   V
   t_i
   t_j
   mag_j

However, before the Barriers-based typology of movement targets became pop-
ular, the prevalent paradigm of analysis was to assume that both complementizers and fronted wh/d-phrases in subordinate clauses occupy the same position (Haider 1985:62).^2

In this chapter I will show how the intuitions behind the pre-{}Barriers analysis of left-peripheral structures in German can be embodied in terms of the current topological approach. I will argue that this approach allows the statement of significantly more generalizations than the post-{}Barriers type of analysis. Moreover, the array of phenomenona are demonstrated to be deducible from a small set of constraints, some of which are subject to dialectal variation.

\(^1\)As a terminological convention, I refer to phrases occurring initially in relative clauses as “d-phrases”, which subsumes relative pronouns such as der, die, das and welcher, welche, welches as well as larger NPs projected from them. Similarly, their initial occurrence in relative clauses will often be lumped terminologically with that of wh-phrases in embedded questions as “wh-fronting” (or “wh-movement”, for that matter).

\(^2\)In analyses of this kind, V2 sentences are commonly accounted for in terms of a structured Comp node, cf.:

\[\text{(i)}\]

\[
\begin{array}{c}
\text{S} \\
\text{Comp'} \\
\text{[±W] Comp} \\
\text{V[+Infl]} \\
\end{array}
\]
6.1 The case for a single position

In the context of a topological approach to German syntax, the question of the correct analysis for initial wh/d-phrases in subordinate clauses can be formulated in terms of whether the topological assignment of these elements is to cf or vf. However, this is where the similarities with the transformational approaches end, because in our system, the placement of syntactic material is effected by assignment to topological equivalence classes, as opposed to movements into tree positions. Because there is no movement to be constrained, there is also no a priori motivation for restricting the kinds of assignments that should be possible, for instance in terms of projection level. What this means is that it becomes possible to state the connection between complementizers and (subordinate) initial wh/d-phrases in terms of a convergence in topological properties with no implication of a concomitant match in syntactic categories.

This assumption, which I will refer to as the Subordinate Left-peripheral Unity thesis (SLU) has the obvious advantage that it accounts for the clause-final placement of the finite verb in the case of subordinate wh/d-clauses in exactly the same fashion as in the case of lexical complementizers: there is competition for a single topological field.\(^3\) Without the SLU, one would have to postulate a special inaudible element in Comp (notated in (2) above as “\(\emptyset\)”) that prevents verb fronting or, in a nontransformational approach, some special instance of the Filler-Head Schema that requires the

\(^3\)For a similar argument concerning the landing site of wh-movement in Icelandic, see Thráinsson (1986:183).
verb to occur clause-finally in the head. Considering the case of the empty complementizer, it would be required to have properties quite different from those of overt complementizers. Note for instance that in Standard German, a fronted wh-phrase never cooccurs with an overt complementizer ("Doubly-Filled Comp Filter"): 

(4) *(Ich frage mich) [wen [daß [Adam gesehen hat]]].

I ask myself who that Adam seen has

In contrast, the empty complementizer would be unique in allowing this kind of cooccurrence.

On the other hand, in dialects such as Bavarian, where such a constraint does not exist, the empty complementizer must not occur in a clause whose specifier has been extracted, again unlike its overt analogues.

(5) *Wen, glaubst Du [i,- [0 [Adam gesehen hat]]].

who believe you Adam seen has

It can be concluded that there is no theory-external evidence for the existence of such an element. What is more, there is, on the contrary, significant empirical support for SLU, most of which has been known since the mid-80s but never explicitly addressed in the Barriers-based analyses.

---

4Cf. Grewendorf 1988:Ch.11.3 as an example of the kinds of extra assumptions that have to be made to preserve a uniform CP analysis for all kinds of subordinate clauses in German. Note also that the status of the empty complementizer is even murkier than in the exposition so far. For instance in Grewendorf (1988:252), the head of CP in embedded questions or relative clauses is taken to carry selectional features resulting in the position counting as occupied for purposes such as blocking verb movement. Similarly, von Stechow & Sternefeld (1988:378) assume that via head-Spec agreement, Comp bears certain [+wh] features; cf. also Müller (1993:384) for additional references. Yet, the relationship between such features and the lexicon is never elucidated.
6.1.1 Coordination

Other supporting evidence is pointed out by one of the early advocates of (the tree-configurational counterpart of) SLU, Reis (1985:301–304) (cf. also the discussion in Grewendorf 1988:ch.10). Reis notes that initial $wh$-phrases and complementizers can be coordinated, as in (6):

    I have learned that and in who he himself fallen.in.love has
    'I learned that he fell in love and who he fell in love with.'

    b. [Ob und gegebenenfalls wie] wir das richtig machen konnen
       whether and if.so how we that right do can
       ist eine offene Frage.
       is an open question.
    'It is an open question whether we can do that right, and if so. how.'

While this kind of evidence is not entirely conclusive, it nevertheless is totally unexpected for any analysis in which complementizers and initial $wh$-phrases occupy different tree-configurational positions. For instance, it could be argued that in cases like (6a), the first conjunct contains an empty specifier while the second features the empty complementizer seen earlier. However, this will leave unanswered why $[\text{Spec,CP}] + \text{Comp}$ sequences, which never manifest constituent status otherwise, should be allowed to coordinate. Moreover, with the standard GB assumption that complementizers are $X^0$ categories, even the adoption of SLU will not necessarily lead to the prediction that (6) is grammatical. This only follows if one relaxes the requirement that conjuncts be matched in their $\overline{X}$-level. This is precisely one of the advantages of a topology-based approach such as ours, because nothing prevents the classification of complementizers as categories with phrasal status (pace, for instance,
von Stechow & Sternefeld 1988:362-363), while exhibiting positional overlap with lexical verbs in the cf field. Consequently, the grammaticality of (6) becomes far less surprising.\(^5\) Further circumstantial evidence in favor of a phrasal classification of complementizers comes from the fact that many complementizers are diachronically derived from phrases; for instance *nachdem* (‘after’) and *damit* (‘so that’), were originally combinations of a preposition and a demonstrative pronominal NP.

### 6.1.2 Stress assignment

Reis further notes, citing an observation by Tilman Höhle, that stress in lexical polysyllabic *wh*-expressions is correlated with their sentential position. As the data in (7–9) show, if such elements occur in clause-internal position, only initial stress is possible. Stress assignment to either syllable is available if such elements occur initially in root clauses (Reis 1985:303). What is important for our purposes is the fact that clause-initally in subordinate contexts, only final stress is possible:

(7) a. *Karl hat das warum getan?\(^5\)
    Karl has that why done  
    b. Karl hat das wárum getan?  
    Karl has that why done  
    ‘Karl did it why?’

(8) a. Wárum hat Karl das getan?  
    why has Karl that done  
    ‘Why did Karl do that?’

\(^5\)Nevertheless, this still leaves the issue unresolved of what (combination of) schemata license(s) the coordination in a framework such as HPSG. While *wh*-phrases are introduced by the Filler-Head Schema, complementizers are licensed via the Head-Marker Schema (Pollard & Sag 1994:45)—or possibly via the Head-Complement Schema (Pollard & Sag 1994:40), if one adopts a CP analysis.
b. Warum hat Karl das getan?
   why has Karl that done
   'Why did Karl do that?'

(9) a. 'Ich weiss nicht [warum Karl das getan hat].
   I know not why Karl that done has
   'I don't know why Karl did that.'

b. Ich weiss nicht [warum Karl das getan hat].
   I know not why Karl that done has
   'I don't know why Karl did that.'

These facts suggest that wh-phrases are positionally distinct in root V2 vs. Vfinal clauses. What is even more striking, though, is the fact that the stress pattern in the embedded cases in (8) is precisely the same as that observed with polysyllabic lexical complementizers such as obwohl ‘although’ and sobald ‘as soon as’. A rather revealing contrast can be observed with the word trotzdem. As a sentential adverb, it means ‘nevertheless’ and bears initial stress in topicalized position in V2 clauses and in the Mittelfeld. However, in colloquial German, trotzdem can also be used as a complementizer with the meaning of ‘although/even though’, introducing a concessive adverbial clause. In that use, the only possible realization is with stress assigned to the second syllable:

(10) a. Trotzdem/??Trotzdem hat er mich beleidigt.
    nevertheless has he me insulted
    ‘Nevertheless he insulted me.’

b. Er hat mich trotzdem/??trotzdem beleidigt.
   he has me nevertheless insulted
   ‘Nevertheless he insulted me.’

c. Ich mag Hans [trotzdem/*trotzdem er mich beleidigt hat].
   I like Hans although he me insulted has
   ‘I like Hans even though he insulted me.’

We know that lexical complementizers can only occur in cf. But if fronted polysyllabic wh-expressions such as warum exhibit the same stress behavior as the latter class
and one that is different from the one displayed in initial position in V2 contexts, we have strong evidence for a syntagmatic commonality between complementizers and embedded *wh*-phrases to the exclusion of *wh*-phrases in root clauses. The most straightforward explanation is that in (9), the *wh*-element occupies the *same* position as a lexical complementizer, viz. *cf*, which in turn is distinct from the place it occupies in V2 contexts, namely *Vorfeld*.

### 6.1.3 Verum Focus

Another way in which the initial position of *wh*-phrases manifests a phonological parallelism with complementizers relates to the discussion of Verum focus in the previous chapter. As Höhle (1992:133–134) points out, not only frontal finite verbs and complementizers can bear Verum focus, but also fronted *wh/d*-phrases in embedded questions and relative clauses, respectively:

(11) _Du hast mir erzählt, wen du nicht reingelegt hast._
    you have me told who you not fooled have
    ‘You have told me who you didn’t fool.’

    a. _Jetzt möchte ich wissen [WEN du reingelegt hast]._
    now would.like I know who you fooled have
    ‘Now I’d like to know who you DID fool.’

(12) _Ich kenne nur wenige Leute, die dieses Buch gelesen haben, ..._
    I know only few people who this book read have
    ‘I only know a few people who have read this book,’

    a. _aber jeder, [DER das Buch gelesen hat], ist davon begeistert._
    but everyone who the book read has is thereof enthusiastic
    ‘but everyone who DID read the book is enthusiastic about it.’

Whatever the correct semantic/pragmatic characterization of Verum focus will finally turn out to be, it is clear that one loses a generalization if one is forced to consider
its syntactic locus to be Comp in matrix and complementizer-initial cases, while it is, say, [Spec,CP] in the \textit{wh}-movement cases in environments like (11) and (12). Given our topological approach, this problem immediately goes away if one considers the initial elements in those cases to actually be assigned to the cf topological field:

\begin{equation}
\text{DOM}\left[\begin{bmatrix}(\text{wen}) \\ \text{cf} \\ mf \\ vc \\ \langle \text{hast} \rangle \end{bmatrix}, \begin{bmatrix}(\text{du}) \\ mf \\ vc \\ \langle \text{reingelegt} \rangle \end{bmatrix} \right]
\end{equation}

\begin{equation}
\text{DOM}\left[\begin{bmatrix}(\text{der}) \\ \text{cf} \\ mf \\ vc \\ \langle \text{gelesen} \rangle \end{bmatrix}, \begin{bmatrix}(\text{das Buch}) \\ vc \\ \langle \text{hat} \rangle \end{bmatrix} \right]
\end{equation}

That something like this may indeed be on the right track is supported by Höhle's observation that in those dialects of German in which subordinate clauses may contain an overt complementizer in addition to the \textit{wh}-fronted constituent—we will refer to such constructions as "\textit{wh}-Comp sequences"—, the only legitimate locus is again the complementizer. Consider for instance the following Bavarian analogues of (11–12) from Höhle (1992:132–133):\footnote{All Bavarian examples are given in the orthography of the original source, without any attempt at eliminating inconsistencies.}

\begin{equation}
\text{a'. Jetzt möchte ich wissen [wen DASS du reingelegt hast].}
\end{equation}

\text{now would like I know who that you fooled have}

\text{‘Now I'd like to know who you DID fool.’}

\begin{equation}
\text{a". Jetzt möchte ich wissen [WEN daß du reingelegt hast].}
\end{equation}

\text{now would like I know who that you fooled have}

\text{‘Now I'd like to know who you DID fool.’}

\begin{equation}
\text{a'. aber jeder [der WO das Buch gelesen hat], ist davon begeistert.}
\end{equation}

\text{but everyone who that the book read has is thereof enthusiastic}

\text{‘but everyone who DID read the book is enthusiastic about it.’}

\begin{equation}
\text{a". aber jeder [DER wo das Buch gelesen hat], ist davon begeistert.}
\end{equation}

\text{but everyone who that the book read has is thereof enthusiastic}

\text{‘but everyone who DID read the book is enthusiastic about it.’}
Things immediately fall into place if we make the assumption that in those dialects in which (15a') and (16a') are grammatical, subordinate clauses may contain material preceding the cf field such that the wh-fronted elements are in fact in the Vorfeld here:

\[
(17) \quad \text{DOM} \left( \left[ \langle \text{wen} \rangle, \langle \text{daß} \rangle, \langle \text{du} \rangle, \ldots \right] \right)
\]

\[
(18) \quad \text{DOM} \left( \left[ \langle \text{der} \rangle, \langle \text{wo} \rangle, \langle \text{das Buch} \rangle, \ldots \right] \right)
\]

Thus, the unifying generalization across different dialects is that Verum focus is always realized on the element assigned to the cf topological field, regardless of whether there is material preceding it or whether it is in a root or subordinate context.

### 6.1.4 Inflected Complementizers / wh-Phrases

The claim that the initial wh-constituent in embedded questions (and relative clauses) and the complementizer in dialects with overt wh-Comp sequences are actually in the same topological position is independently supported by the distribution of agreement inflection on nonverbal constituents. In colloquial registers of Standard German, clauses with a 2nd singular subject often exhibit inflectional morphology on the first elements within the clause. As the following data from Reis (1985:301) show, this happens regardless of whether the initial constituent is a lexical complementizer or a wh/d-phrase.

---

7 As was discussed in the previous chapter, the shape alternation on the left-peripheral element usually also incorporates the personal pronoun in the form of a final schwa in the inflectional marking.
In such varieties of Standard German, wh-Comp sequences are generally not possible. However, in those dialects in which they are, we find an interesting distribution of inflection. As is noted by Grewendorf (1988:246), when there are wh-Comp sequences, the only constituent that may mark the inflection is the complementizer. Any marking on the wh-phrase instead will lead to ungrammaticality:

(21) a. I woaf net, [wer daβ-t s es sei-t s ].
    I know not who that-2ND.PL it are-2ND.PL
    ‘I don’t know who you(pl.) are.’

   b. *I woaf net, [wer-t s daβ es sei-t s ].
    I know not who-2ND.PL that it are-2ND.PL

However, the occurrence of the complementizer is not obligatory in these dialects. If missing, it is again the initial wh-phrase, as in other dialects of German, that can bear inflectional morphology:

(22) I woaf net, [wer-t s es sei-t s ].
    I know not who-2ND.PL it are-2ND.PL
    ‘I don’t know who you(pl.) are.’

It is not clear how these facts are to be accommodated in a theory that assumes wh-phrases to occur in [Spec,CP]. For instance, Zwart (1993:172) is forced to assume
that it is the empty complementizer that "hosts the complementizer agreement".\footnote{It is tempting at this point to quote another bon mot from Haider (1991:16–17): "Technische ad-hoc Lösungen stifen zwar den Reiz perplexen Staunens vor den scheinbaren Absonderlichkeiten grammatischer Verwicklungen, verbergen aber das Problem." ('Although technical ad-hoc solutions generate the excitement of bewildered awe in light of the apparent peculiarities of grammatical entanglements, they hide the problem.').} This simply renders the fact that agreement morphology is never allowed elsewhere to occur with nonovert heads a total mystery. If we assume a positional commonality, this question becomes a nonissue.

In this section, we have seen a variety of evidence against the assumption that \(wh/d\)-phrases bear the same syntagmatic relation to the rest of the clause in both root and embedded environments. Instead there is strong reason to believe that complementizers and \(wh/d\)-phrases in subordinate clauses belong to the same natural class in terms of their positional properties, which also includes finite verbs in V1/V2 clauses but crucially excludes fronted constituents in root clauses. It is not inconceivable that a Barriers-based approach to the structure of the left periphery in German clauses may ultimately be able to address the challenges presented by the evidence examined here. However, since the constraint on \(X\)-compatible landing sites is justified solely on theory-internal grounds, it is rather unlikely that any such solution will be any simpler or more elegant than the view advocated here in which observable positional evidence translates directly into predicates within the linguistic description. We turn next to the technical details of this approach.
6.2 A topology-based account

In this section, I present a formal account of the distribution of the different kinds of elements that can occur at the left periphery in German root and subordinate contexts. To this end, I propose a composition relation which constitutes a modification of the Filler-Head Schema introduced in Pollard & Sag (1994:164).\(^9\)

(23) The ternary relation **Filler-Head Composition** holds of three signs \(M, H, \) and \(F\) if and only if:

1. \(H\)'s \(\text{SYNSEM}[\text{LOCAL}]\text{CATEGORY}\) value satisfies the description \(\text{HEAD \text{verb}\{VFORM finite\}}, \text{MARKING unmarked};\)

2. \(H\)'s \(\text{SYNSEM}[\text{NONLOCAL}]\text{SLASH}\text{INHER}\) and \(\text{SYNSEM}[\text{NONLOCAL}]\text{SLASH}\text{TO-BIND}\) values are token-identical to \(F\)'s \(\text{SYNSEM}[\text{LOCAL}]\) value;

3. a compaction of \(F, C_F,\) is a singleton list containing the domain object \(C\) whose \(\text{TOPO}\) value is \(\text{iperiph}\) (see (28) below);

4. \(M\)'s \(\text{DOM}\) value is a sequence union of \(H\)'s \(\text{DOM}\) value and \(C_F;\)

5. \(M\)'s \(\text{SYNSEM}[\text{LOCAL}]\text{CAT}\text{VAL}\) value is token-identical to \(H\)'s \(\text{SYNSEM}[\text{LOCAL}]\text{CAT}\text{VAL}\) value.\(^{10}\)

\(^9\)The first condition appears at first blush to rule out examples such as (15) and (16). However, it will be shown shortly that this is not the case if complementizers are assumed to combine higher than fillers.
The intuition behind this relation is largely the same as for its English schema counterpart. The filler discharges the long-distance dependency associated with the gap. To this end, the filler's LOCAL specification is matched with the gap, i.e. the value of the NONLOCAL\textsc{inher|slash} specification, via the \textsc{to-bind} feature. In contrast to English, though, this only seems to be possible in finite environments, thus accounting for the absence of infinitival relatives.\footnote{I will leave unresolved here whether there are filler-head constructions involving nonverbal heads.}

The \textsc{slash} information on the head cannot propagate further given a reformulation of the \textit{Nonlocal Feature Principle} (Pollard & Sag 1994:164):

\begin{itemize}
\item[(25)] \textbf{Nonlocal Feature Principle}  
For each nonlocal feature, the \textsc{inherited} value on the mother is the union of the \textsc{inherited} values on the daughters minus the \textsc{to-bind} value on the head daughter.
\end{itemize}

Since the syntactic structure of a sign is no longer available as the value of the \textsc{dtrs}
feature, this principle will instead have to apply whenever a sign is licensed via a
composition relation:

(26) \textbf{SLASH Feature Principle (revised)}
    For each composition relation $\mathcal{R}$ with arity $n$, the INHERITED\textbackslash SLASH value
    on the first argument (mother) is the union of the INHERITED\textbackslash SLASH values
    on the other arguments (daughters) minus the TO-BIND\textbackslash SLASH value on the
    second argument (head daughter).

As mentioned in Chapter 1, I follow Pollard & Yoo (1995) in reducing the num­
ber of nonlocal features. In Pollard & Sag (1994), these are taken to include QUE
and REL. On the approach adopted here, the value instantiation of these features
is not governed by the principle controlling the instantiation of SLASH information,
but rather by a number of highly specific and to some extent language-particular
inheritance principles, to be discussed in due course. This obviates the need to dis­
tinguish between INHER and TO-BIND varieties of these attributes, and consequently,
the principle has been accordingly renamed in (26).

Furthermore, condition 2. in (23) above is formulated in such a way that filler-head
structures are only licensed if the head contains exactly one element in INH\textbackslash SLASH.
This imposes a general constraint on the INHER\textbackslash SLASH value of heads in German.
namely that it be a set of cardinality less than or equal to one. Consequently, at
most one gap per clause is permitted.

Since the inheritance of QUE and REL information is similar for many cate­
gories, I further propose to group them together as the value of the attribute
WH-F(EA)T(U)R(E)S. The terminology is reminiscent of the common assumption
in both transformational and nonderivational theories that question formation and
relativization—at least in languages like English and German—are very closely related construction types. As a result, the feature architecture is revised along the lines given in (27):

\[(27)\]

\[
\begin{array}{c}
\text{SYNSEM} \\
\text{LOCAL} \\
\text{NLOC}
\end{array}
\begin{array}{c}
\text{WH-PRS} \\
\text{REL}
\end{array}
\begin{array}{c}
\text{QUE} \\
\text{REL}
\end{array}
\begin{array}{c}
\text{INHER|SLASH} \\
\text{TO-BIND|SLASH}
\end{array}
\]

More interesting in connection with the issue of domain formation is the value of the mother's `DOM` attribute. As with the Head-Complement relation in the previous chapter, this value is constrained by a number of relations. Via `compaction`, the filler sign is related to the domain object that the filler will contribute to the mother domain. The topological specification of this domain object, which in turn is domain-inserted into the head domain \((|\pi|)\) to yield the domain of the mother \((|\pi| \cup (\pi))\), is constrained to be `l(ef)t/p(eri)ph(eral)`. This denotes a supersort for the left-peripheral topological fields `vf` and `cf`:

\[(28)\]

\[
\begin{array}{c}
\text{vf} \\
\text{cf}
\end{array}
\begin{array}{c}
\text{lperiph}
\end{array}
\]

Given that there can be at most one element per clause instantiating the `cf` field in German, it follows immediately that if the topological assignment of a finite verb is to that field, the only remaining option for `wh`-fillers in the presence of a frontal verb is to occur in the `Vorfeld`. As a result, V2 clauses such as matrix `wh`-questions will have a topological structure along the following lines:
(29) Matrix question (V2)

\[
\begin{align*}
\text{DOM} & \left( \langle \text{Was} \rangle, \langle \text{hat} \rangle, \langle \text{Adam} \rangle, \langle \text{gesehen} \rangle \right) \\
& \left. \left[ \begin{array}{c}
\text{NP[ACC]} \\
\text{V[FIN]} \\
\text{NP[NOM]} \\
\text{V} \\
\text{mf} \\
\text{vc}
\end{array} \right] \right)
\end{align*}
\]

Moreover, den Besten's insight about competition for a single position between finite verbs and complementizers results from essentially the same principle: a lexical complementizer has no choice but to occupy the cf field. Consequently, the only possibility for the finite verb is to sort-resolve its [TOPO verbal] specification to vc.

Turning now to subordinate contexts, we do not yet have a way of ensuring that a wh-expression will indeed occupy the same position as a lexical complementizer. Thus, despite all the evidence to the contrary, there is nothing that prevents a wh-phrase from being assigned to the Vorfeld, replicating the Barriers-based heterogeneity of positions, as in (30).\(^{12}\)

(30) Ich frage mich ...
I ask myself
\[
\begin{align*}
\hat{\text{S}} & \left. \left[ \langle \text{wer} \rangle \right. \right. \\
\text{DOM} & \left( \langle \text{kommt} \rangle \right) \left. \left[ \langle \text{vc} \rangle \right. \right. \\
& \left. \left. \text{vf} \right. \right. \\
\end{align*}
\]

However, the correct topological structure can be enforced rather straightforwardly as the result of a very general and far-reaching constraint on finite clauses in German:

(31) **Clause Constraint**
In every finite clause in German, the cf topological field is instantiated.

\(^{12}\)I will use "i" to indicate that a certain analysis which is not available for an otherwise well-formed string and reserve "*" for actual ungrammaticality. Incidentally, note that the string *wer kommt* also has a valid analysis as a root V2 clause. In the context in (30) this is ruled out, however, because of the requirement that complements of predicates like *sich fragen* be subordinate and hence bear the specification [MARKING marked].
As a result, on the following analysis describes a well-formed German finite clause, whereas the one in (30) violates the Clause Constraint:

(32) Ich frage mich ...
I ask myself

\[ S \]
\[ \text{DOM} \left( \left[ \{was\} \right], \left[ \{Adam\} \right], \left[ \{gesehen\} \right], \left[ \{hat\} \right], \left[ \{v\} \right] \right) \]

Another immediate consequence of the Clause Constraint is the fact that there cannot be any finite clauses in German without any left-peripheral element. Leaving aside for now the possibility that the participle getanzt is fronted, the following example is automatically ruled out on the analysis that assigns both verbal forms to the verb cluster:

(33) *Ich bezweifle [getanzt wurde].
I doubt danced was

One possibility that the Clause Constraint does not yet rule out is where a nonwh-phrase occupies the one in which cf position, as for instance in (34):

(34) Ich bezweifle ...
I doubt

\[ S \]
\[ \text{DOM} \left( \left[ \{die Erde\} \right], \left[ \{sich\} \right], \left[ \{dreht\} \right] \right) \]

At this point, we need to consider the function of wh/d-phrases in subordinate contexts. Aside from indicating which parts of the sentence are questioned or relativized.
they signal the subordinate status of the clause they are contained in, similar to lexical complementizers. As is noted for instance by Reis (1985:294–295) and Grewendorf (1988:207), this sets the subordinate occurrence apart from root contexts, where \( wh \)-phrases do not have this syntactic function. Thus, while in-situ occurrences of \( wh \)-phrases in root clauses give rise to (a subtype of) questions, for instance in examination contexts, noninitial \( wh \)-phrases in subordinate clauses by contrast simply render the sentence ungrammatical—unless that \( wh \)-phrase is licensed by another, clause-initial \( wh \)-phrase in multiple questions.

(35) a. Dort herrschte damals gerade wer?
    there reigned then just who
    'At that time, who was currently in power?'

    b.*Ich möchte wissen, [dort damals gerade wer herrschte]?
    I would.like know there then just who reigned

    c.*Ich möchte wissen, [dort herrschte damals gerade wer]?
    I would.like know there reigned then just who

This suggests that initial \( wh/d \)-phrases, like complementizers, participate crucially in the syntactic licensing conditions for subordinate clauses. Following an idea first proposed in Pollard & Sag (1994:46), I assume that one of the functions of complementizers is to induce a MARKING value on the the clause they combine with. However, the way that this marking is effected is quite different from the mechanism in standard HPSG. In the latter, the percolation of the MARKING value from the marker daughter to the mother is a consequence of the Marking Principle (Pollard & Sag 1994:45):

(36) In a headed structure, the MARKING value coincides with that of the marker daughter if there is one, and with that of the head daughter otherwise.
On the proposal made here, which supersedes the MARKING PRINCIPLE in German, the role of the MARKING feature is more inclusive, as it allows the correlation of MARKING values with the presence of nonhead daughters that are not markers. Specifically, the MARKING properties of a sign are linked to certain topological properties of the domain, in particular regarding the type of domain object assigned to the cf. This correlation is achieved via the Marking Constraint, given in prose (37) and more formally in (38):\(^{13}\)

(37) **Marking Constraint**
A clause is marked as subordinate if and only if the cf element in its order domain is either

- a complementizer, or
- a wh/d-phrase.

(38)
\[
\begin{align*}
\text{sign} \quad & \quad \ldots \text{MARKING marked} \\
\downarrow \\
\text{DOM} \left< \begin{array}{c}
\ldots \text{HEAD marker} \\
\lor \\
\ldots \text{WH-FTRS m-trigger}
\end{array} \right> & \quad \text{TOPO cf} \\
\mathcal{R} & \in \{\text{shuffle, append}\}
\end{align*}
\]

Wh/d-phrases can be identified straightforwardly in terms of their QUE/REL features. For a constituent to be a marking trigger, the latter must have a nonempty union:

(39) a. \[ m\text{-trigger} \quad m\text{-n-trigger} \]

\[ \quad \text{wh-ftrs} \]

\(^{13}\)Here and throughout I will use "\(\ell\)" to denote an arbitrary list of domain object.
Because the constraint in (38) is formulated as a biconditional statement (which could be rewritten as the conjunction of two implicational constraints), it is not only the case that domains of the right kind will entail a \textit{marked} specification on the constituent in question, thereby "recording" the presence of an appropriate domain object. But also, if the mother bears a \textit{marked} specification, then this will require "licensing" by a \textit{cf} domain object of the appropriate category or with nonempty \textit{QUE} or \textit{REL} values. On the other hand, a \textit{unmarked} specification is compatible with a domain containing either no \textit{cf} element at all or one that does not count as a marking trigger according to (38). Because of the Clause Constraint, the first option is not available for clauses. This leaves either a finite verb in frontal position (V1/V2) or a nonu'/i-filler as candidate marking nontriggers. The fact that all root contexts in German require the first rather than the second will be derived from general constraints on root clauses to be discussed in Section 6.5 below.

Considering in somewhat more detail the two kinds of marking triggers, marking by a lexical complementizer comes about due to the lexical assignment to the \textit{cf} field; cf. for instance the partial entry for \textit{daβ} in (40):\textsuperscript{14}

\begin{equation}
\textit{daβ}
\end{equation}

\textsuperscript{14}Note that the complementizer's \textit{CONTENT} value is structure-shared with that of the selected clause which in turn builds on the assumption that markers are the semantic heads of head-marker structures. This point will be elaborated in somewhat more detail in Section 6.5.3 below.
The alternative possibility for a positive MARKING value corresponds to what could be called "constructional marking". In an embedded question or relative clause, the filler's domain object has a nonempty QUE or REL value, respectively. As we saw in the previous section, it is precisely these types of fillers that exhibit a positional commonality with lexical complementizers.

One aspect of the entry in (40) that needs to be illuminated at this point is how the clause that the complementizer combines with receives its QUE/REL values. As was mentioned earlier, I depart from the theory of nonlocal dependencies in that QUE/REL are no longer regarded as nonlocal features and hence their value instantiation is no longer regulated by the Nonlocal Feature Principle. In particular, this clears the way for inheritance principles that are based primarily on a constituent’s domain structure. Focusing on verbal categories, I assume that the QUE/REL properties of such a sign are projected from its initial domain object, so long as it is not a finite category. If it is, nothing gets projected, as shown in (41):^®

\[\text{SYNSEM} \begin{bmatrix} \text{...|HEAD} & \text{marker} \\ \text{SPEC S[FIN]} & \text{...|REL 0} & : [2] \end{bmatrix} \]

\[\text{DOM} \left< \begin{bmatrix} \text{PHON} (\text{daβ}) \\ \text{SYNSEM [1]} \\ \text{TOPO cf} \end{bmatrix} \right> \]

15 The inheritance of QUE/REL values proceeds along very similar lines for QUE/REL in the case of NPs and QUE for AdjPs and AdvPs, as shown for QUE in (i) (from Webelhuth 1992:117–123):

(i) a. [Wessen Buch] hast du gelesen?
   whose book have you read

b. [Wem sein Vater] ist gestorben?
   who his father is died
The requirement of leftmost occurrence thus prevents the percolation of QUE/REL properties of all but the first clausal domain element, preventing inheritance from any noninitial in-situ element. Moreover, prohibition against QUE inheritance from any finite domain object at the left edge of the clause has the effect of preventing fronted embedded questions from turning the matrix clause itself into a question—an

Prepositional phrases seem to be unique in German in allowing QUE/REL inheritance not (necessarily) from the leftmost element, but directly from its complement, regardless of position. cf:

(i) a. [Mit wem] hat Hans gesprochen?
    with who has Hans talked

b. [[Wessen Tochter] wegen] ist Hans ausgewandert?
   whose daughter because of is Hans emigrated

Moreover, the source of wh-features is also highly correlated with the placement of stress in Verum Focus constructions with complex phrases in cf, cf. (Höhle 1992:135):

(iii) a. [mit DENEN] sie getanzt hat.
   with whom she danced has

   whose work I read have
analysis unavailable for examples such as in (42):

(42) [Wer gekommen ist] weiß ich nicht.
    who come is know I not
    ‘I don’t know who came.’

The role of the QUE/REL attributes is a somewhat different one than in Pollard & Sag (1994). There, a question or relative clause would have empty QUE and REL values, respectively as a result of the filler’s nonempty values being matched against the TO-BIND specifications of the head. The approach taken here instead assimilates finite clauses in their QUE/REL status to that of pied-piped wh/d-expressions in general. In Section 6.3 I will show that this approach facilitates a reanalysis of clause-internal fronting as a linearization effect with respect to the combinatorial properties of complementizers. The “visibility” of clausal QUE values will also play a crucial role in the analysis of the so-called Expletive Scope Marking Construction in Section 6.6.1.

Finally, the Marking Constraint in (38) correctly accounts for the fact that in general, sentential complements may not contain frontal verbs.16 This is a consequence of the fact that finite verbs are not of the lexical category marker, nor do they have nonempty QUE or REL features. Therefore, they are ineligible marking triggers and examples such as the one in (43) are ruled out:

16On the issue of V2 complements, see Section 6.5.2 below.
6.2.1 “Doubly Filled Comp Filter” violations

So far, we have only considered those cases in which an wh/d-filler in a subordinate clause is required to occupy the cf field to satisfy the Clause Constraint and the MARKING CONSTRAINT. There are, however, instances in which some other element, i.e. a complementizer, already satisfies these constraints, in which case the wh-filler may legitimately occupy the Vorfeld instead. This is precisely what happens in those dialects of German that allow wh-Comp sequences, and which hence do not possess a strict “Doubly-Filled-Comp Filter” (Chomsky & Lasnik 1977). This brings us to some aspects of the Marking Constraint in (38) above that have not been discussed yet. First, note that according to the Filler-Head Composition relation in (23) above, the head is required to be unmarked, thus barring any complementizers. Second, the Marking Constraint is parameterized in terms of the environments in which the marking trigger may occur. This is indicated by the relation variable R. In dialects such as Bavarian, this relation instantiates to shuffle. This means that a Vorfeld element may precede the marking trigger in cf and the latter is hence not
required to occur at the left periphery of its domain. As a result, nothing prevents a complementizer from combining with a clause that already contains a filler in Vorfeld: the complementizer is free to occupy the cf field, as in the following derivation of an example from Bayer (1984:212): 17

(44)  I woaß net [wer daß des tōā hod].
I know not who that that done has
'I don't know who did that.'

(45)  

The version of the Marking Constraint operative in Standard German, on the other hand, R instantiates to append. Consequently it is required that the marking trigger occur left-peripherally in the domain thus marked. This means that while in terms of the combinatorial possibilities, a complementizer may combine after SLASH

17The case of non-wA-Comp sequences will be discussed shortly.
cancellation has occurred, just as in (45), the resulting structure will not be appropriate to license a positive marking value according to the Marking Constraint. But then, the sign in question will be prevented from bearing the [MARKING marked] that an embedded question is required to exhibit.

Therefore, on the view espoused here, there is no such thing as a "Doubly Filled Comp Filter". Instead, the difference between those dialects that allow wh-Comp sequences and those that do not is derivable from whether a particular composition structure is permitted by the constraints associated with order domains of marked signs. While it may at first seem odd to derive wh-Comp sequences in the discontinuous fashion seen in (45), there are some significant advantages of this type of analysis. As Bayer (1984:215) observes, wh-Comp sequences in Bavarian also occur in relative clauses. The complementizer used in those environments is wo.\(^{18}\)

\[^{18}\text{As Bayer notes, in the presence of wo, the relative pronoun can be dropped if and only if its morphological form is identical to the one it would have if it were to inflect for the case value of the noun the relative clause modifies. In other words, whenever there is a case mismatch, the optionality of the relative pronoun depends on morphological identity with an alternative slot in the paradigm determined by the head noun. Thus, since the nominative and accusative forms of the relative pronoun are different for the masculine singular alone, it is only obligatory in this case and optional for all other genders and the plural.}\]

(i)  
- a. Der Mantl \[ \text{[*(den) wo i kaffd hob] wor z'risn.} \]  
  the coat-NOM.SG.MAS which-ACC.SG.MAS COMPL I bought have was torn

- b. Die Lampn \[ [(die) wo i g'seng hob] wor greißlich.} \]  
  the lamp-NOM.SG.FEM which-ACC.SG.FEM COMPL I seen have was terrible

- c. Des Audo \[ [(des) wo i mecht] is z'teia.} \]  
  the car-NOM.SG.NEUT which-ACC.SG.NEUT COMPL I want is too.expensive

- d. Die Mantl \[ [(die) wo i kaffd hob] worn z’risn.} \]  
  the coat-NOM.PL which-ACC.PL COMPL I bought have were torn

It would go beyond the scope of this study to give a formal account of this pattern.
(46) der Mô [der wo uns g’hoifa hod]
    the man who COMPL us helped has
    ‘that man who helped us.’

Crucially, the two complementizers dab and wo cannot be switched, that is, they
are sensitive to whether the subordinate clause is an embedded question or relative
clause:19

(47) a."I woaß net [wer wo des tōa hod].
    I know not who COMPL that done has
    b."der Mô [der dab uns g’hoifa hod]
    the man who that us helped has

If the complementizer were to combine before slash cancellation, the limited distribu­
tion of dab vs. wo would create a problem. This is so because the clause combining
with a marker does not bear any information as for the nature of the gap.

Because only local values are shared between a gap and its filler, and WH-FTRS are
not part of local information, the QUE/REL values of the filler cannot be determined
by examining the information contributed by the trace. Yet, it is this type of infor­
mation that determines whether a clause will function as an embedded interrogative
or relative clause. Alternatively, we could introduce subtypes of marking and render
the type of filler sensitive to whatever marking is borne by the clause containing the
gap. However, apart from complicating the definition of the Filler-Head Relation, we
would then also introduce a distinction that does not seem to be needed elsewhere.

19Germanic dialects differ in this respect; thus, in Dutch embedded questions, the equivalent of dab,
of does (optionally) occur:

(i) welk boek (of) hij wil lezen.
    which book if he wants read
    ‘which book he wants to read.’
That is, while the grammar of German is sensitive to the presence of marking, there is no clear evidence that a particular kind of syntactic marker is ever selected. Of course, not every complementizer can occur in every subordinate context, but this is to be expected as each lexical marker has a semantic import on the clause it combines with which in turn determines whether it is compatible in semantic type with the requirements imposed by higher predicates. For instance, in Section 6.5 below, I will discuss some of the selectional properties of predicates selecting embedded questions. If syntactic selection was sensitive to the particular choice of complementizer, we might expect there to be predicates that make a distinction between complementizer-initial questions, that those introduced by *ob* ('if'), and those where the initial element is a *wh*-phrase. However, the fact that no distinction is ever made between the two kinds of complement clauses—which in the typology developed in Section 6.5 correspond to different clause types (*wh*-interrog vs. *s-decl*)—is highly suggestive that the eligible sentential complements form a *semantic* natural class.

On the proposal made here, the lexical specification for a complementizer such as *wo* becomes straightforward and rather similar to that of *daß* above:

\[
\text{(48) } \text{wo} \quad \text{wo}
\]

\[
\text{SYNSEM } \left[ 1 \right] \quad \text{...HEAD} \quad \left[ \text{marker} \right. \\
\quad \text{SPEC S} \quad \left[ ... \quad \left[ \text{QUE } \emptyset \right] \right] \right] \\
\text{DOM} \left( \left[ \text{PHON(wo)} \right] \right) \quad \left[ \text{TOPO cf} \right. \\
\quad \text{SYNSEM } \left[ 1 \right] \right]
\]

Note that unlike the entry for *daß* in (40) above, this one requires the QUE value of the selected clause to be empty. At the same time the value for REL must be
nonempty, which correctly predicts that *wo* only occurs in relative clauses, but never in embedded questions.

However, our system of constraints still overgenerates. As has been noted for instance by Grewendorf (1988:254), while Bavarian allows *wh/d-Comp* sequences in complement or relative clauses, the distribution of *non*-*wh*-fillers followed by a complementizer (which I will refer to for convenience as “*XP-Comp*”) is more limited. Contrary to what we would expect from the interaction of the Filler-Head Composition relation in (23) with the Marking Constraint, a complementizer can only be preceded by a *nonwh*-filler if the clause is in the *Vorfeld* of another sentence. This is true if the clause with the *XP-Comp* sequence is a complement, as in (49) (Bayer 1984:213):

(49) a. [Da Xaver daß an Mantl kaffd hod] hod neamt glaubt. Xaver that a coat bought has has no none believed 'No one believed that Xaver bought a coat.'
   b. [An Mantl daß da Xaver kaffd hod] hod neamt glaubt. a coat that Xaver bought has has no one believed
   c. [Kaffd daß da Xaver an Mantl hod] hod neamt glaubt. bought that Xaver a coat has has no one believed

If *XP-Comp* occurs in *Mittelfeld* or extraposed, the result is bad (Grewendorf 1988:254):

(50) a.*I hätt net denkt [der Peter daß des gsogt hot]. I had not thought Peter that this said has
   b.*I hätt [der Peter daß des gsogt hot] net denkt. I had Peter that this said has not thought

Let us refer to elements that can—if in the right topological environment—effect a subordinate marking as “potential marking triggers”. Then the above facts can
be accounted for if we assume that clauses in certain environments are subject to a constraint which disallows a marking trigger from being preceded by an element that is never a potential marking trigger.

(51) MONOTONICITY CONSTRAINT
A (actual) marking trigger may not be preceded by a constituent that is always a nontrigger.

This constraint only applies to clauses that receive a topological assignment to Mittelfeld or Nachfeld. Thus, in both examples in (50), the embedded clause der Peter daß des gsogt hot illicitly occurs in a field where the Monotonicity Constraint takes effect. However, clauses in Vorfeld are systematically exempt from this condition, as evidenced by the acceptability of the examples in (49). Similarly, a clause is not required to conform to the Monontonicity Constraint if it does not have any topological relation within a larger sentence. Hence, XP-Comp sequences in free-standing questions as in (52) are permitted in Bavarian (Grewendorf 1988:254):

(52) Der Peter ob mi gern mog?
    Peter whether me dear likes
    ‘(I’m wondering) whether Peter likes me.’

The intuition behind the Monotonicity Constraint is that if we traverse the left periphery of a clause, certain environments do not permit a sequence of constraints that is “uneven” in terms of its marking potential. In other words, if a domain starts with some element that is ineligible as a marking trigger, the remainder of that domain may not contain any domain object that can be a marking trigger.20 Thus

---

20 In situ wh-expressions are always in the Mittelfeld and therefore never count as potential marking triggers.
in (50a), *der Peter* by virtue of its empty QUE and REL values can never license a clause that is required to bear the value *marked* for its MARKING attribute. Yet, the following lexical complementizer *daß* is a marking trigger. On the other hand, in *wh*-Comp sequences, both the initial *wh*-phrase and the complementizer are (potential) marking triggers, which is not ruled out by the constraint in (51).

As mentioned before, the application domain for the Monotonicity Constraint is defined in topological terms. Therefore, it does not make reference to the relation between the clause containing the XP-Comp sequence and the higher clause it forms part of. For that reason, adjuncts clauses too, are constrained in the same fashion that complement clauses are. As illustrated in (53) from von Stechow & Sternefeld (1988:387), such adjunct clauses in the *Vorfeld* are well-formed, while those in the
Mittelfeld or Nachfeld are ungrammatical.\footnote{In contrast, von Stechow & Sternefeld (1988:387-388) have to assume an additional left-peripheral position (‘FOKUS’) in Bavarian which allows an analysis along the following lines:}

(53) a. [Das Bier wenn ich noch trink] bin ich gleich besoffen.
    the beer if I still drink am I soon drunk
    ‘If I drink the beer, I will soon be drunk.’

    b.*Ich bin [das Bier wenn ich noch trink] gleich besoffen.
    I am the beer if I still drink soon drunk

    c.*Ich bin gleich besoffen [das Bier wenn ich noch trink].
    I am soon drunk the beer if I still drink

Data such as these directly argue against proposals such as the one in Grewendorf (1988:258) that attempt to correlate the possibility of XP-Comp sequences with occurrence in ungoverned positions. Since by definition, adjuncts are ungoverned, this leaves the badness of (53b,c) totally unaccounted for.

\footnote{In contrast, von Stechow & Sternefeld (1988:387-388) have to assume an additional left-peripheral position (‘FOKUS’) in Bavarian which allows an analysis along the following lines:}

\begin{center}
\begin{tikzpicture}
  \node{S} edge from parent[->] node[above]{\small FOKUS\textsubscript{i}};
  \node{CP} edge from parent[->] node[right]{\small \textbf{S}};
  \node{\small wenn ich \textsubscript{ti} trink} edge from parent[->] node[left]{\small \textbf{S}};
  \node{\small bin ich gleich besoffen} edge from parent[->] node[right]{\small \textbf{S}};
\end{tikzpicture}
\end{center}

von Stechow & Sternefeld (1988) claim that this structure is supported by parasitic gap-type constructions in Bavarian such as in (iia) (cf. also Felix 1985) where den—whether a V2-initial D-pronoun as in v. Stechow and Sternefeld’s examples or a relative pronoun as in Felix’ data—appears to bind two gaps. However, this account wrongly predicts the adverbial clause to be possible in extraposed position, as in (iib). Contrary to the claim in Felix (1985), there is no evidence for the assumption that the first gap c-commands the second in (iib), hence this example cannot be ruled out by means of Chomsky’s Anti-C-command condition.

(ii) a. Den Karl [den\textsubscript{i} [wenn ich \textsubscript{ti} erwisch] [erschlag \textsubscript{ti} ich]].
    Karl him if I catch beat.to.death I
    ‘If I catch Karl, I will beat him to death.’

    b.*Den Karl [den\textsubscript{i} [erschlag \textsubscript{ti} ich] [wenn ich \textsubscript{ti} erwisch]]
    Karl  him beat.to.death I if I catch.

I have nothing insightful to offer regarding the correct analysis of Bavarian constructions such as (iia).
One correct prediction made by our account is that clauses occurring in the *Vorfeld* of their embedding clause should allow XP-Comp sequences even if the embedding clause in turn occurs bears some other topological marking. This is the case for instance in (54), where the whole clause following *gsagt* is a V2 complement clause assigned to the root clause's *Nachfeld*, while the complement clause *den Peter daß er dort trifft* occurs topicalized within the V2 clause and therefore is permitted to exhibit a XP-Comp sequence:

(54) Der Hans hot *gsagt*
Hans has said
[v₂ [den Peter daß er dort trifft] hätt er net denkt ].
Peter that he there meets had he not thought
‘Hans said that he did not think that he would meet Peter there.’

Another correct prediction that is made is that XP-Comp structures should allow recursion of the form [xp XP-Comp ...]-Comp in contexts of the appropriate kind. As Grewendorf (1988:256) notes, such constructions do indeed occur, as seen in (55):

(55) [v₂ [v₂ Der Peter daß blöd is] daß i gsagt habn soi ]
Peter that stupid is that I said have am.supposed.to
is glatt glogn.
is outright lied
‘It is an outright lie that I am supposed to have said that Peter is stupid.’

Thus, as we have seen in this section, a small difference in the specification of the Marking Constraint, together with the Monotonicity Constraint\(^2\) accounts for the whole variety of possible left-peripheral structures in Standard German and other dialects.

\(^2\)I will remain uncommitted as for the question whether this constraint only holds in dialects such as Bavarian or also in Standard German. While considerations of uniformity would favor the latter option, the price to be paid is that this constraint would never have any visible effect in Standard German since XP-Comp sequences are never possible in any context.
6.3 Short fronting without movement

As I argued in the previous section, the issue of whether a clause has the trappings of a syntactic subordinate environment is wholly independent of its composition structure. Thus, both complementizers and wh/d-expressions in cf may effect a subordinate marking even though they arguably relate to the rest of the clause in quite a different fashion. In particular, the marking potential of wh/d-phrases does not make reference in any way to the fact that they have been assumed to be fillers. In this section, I want to argue that we can exploit this fact to drastically simplify the description of fronting constructions.23

Virtually all accounts of V2, whether transformational or not, implicitly assume that the material following the initial phrase is a constituent, specifically a V1 clause. However, on closer inspection, it is not clear that a convincing case can be made that the V1 sequence actually must have constituent status in all instances. Some constituency tests fail to apply because the necessary structural environment is simply not given; for instance, there is no environment that would allow the displacement of the V1 clause from the initial constituent because finite complementizerless clauses cannot be dislocated in general. Other tests do apply, but yield inconclusive results. So, while V1 clauses can be coordinated, as shown in (56), so too can final suffixes of the V1 clause (57) as well as initial prefixes of the V2 clause (58):

23An analysis of V2 in Swedish that also exploits topological structure in lieu of dislocation operations is proposed in Ahrenberg (1989:20).
Today has Hans painted the flower and Lisa went to the museum.

'Today, Hans painted the flower and Lisa went to the museum.'

Today, Hans arrived and Lisa left.

'Today, Hans arrived and Lisa left.'

Lisa ordered, and Hans ate, a whole bowl of spaghetti.'

Moreover, there is no way in which in general, a V1 clause could be referred to anaphorically as a syntactic constituent to the exclusion of its initial Vorfeld element.

At first, it may seem that examples such as the following would qualify, in which auch appears to refer back to the preceding V1:

Lisa is very fond of her uncle and Maria is too.'

However, the antecedent for auch is by no means restricted to the preceding V1, as is demonstrated in (60):

Finally, one may argue that the constituency of V1 is proven by the fact that polar questions are identical in their syntactic make-up to V2 declarative sentences, save for the first constituent. However, all that this shows is that V1 clauses are constituents by themselves, as are V2 clauses, but what it does not show is that the V1 string inside a V2 clause also has to constitute a constituent within that V2 clause. To drive this point home even more clearly, if it can be shown that the initial
coordinate NP in (61a) forms a constituent in certain syntactic environments like those in (61a), this by no means entails that the same string also forms a constituent within the constituent in (61b).

(61)  
   a. [Tom and Jerry] came over last night.  
       b. I don’t like Tom and Jerry gets on my nerves.

It is also telling that while V1 clauses can be used for polar questions or in conditional constructions, there is no sense in which this interpretation can be said combine in a compositional manner with that of a (preposed) phrase to yield a V2 assertion (or constituent question, for that matter). Rather, both V1 and V2 clauses must be considered independent clause types that are not related to each other in any strictly systematic form of meaning composition.

   Even though the constituent status of V1 sequences in V2 sentences may lack conclusive support, one may argue that a dislocation-based approach has the obvious advantage that it seems to extend quite naturally to dislocations across what appear to be clause boundaries. Within transformational theories, such extractions from the Vorfeld position of V2 complements have been taken to be just another instance of the successive-cyclic movement long assumed for English. A typical example of an analysis along these lines can be seen in (62), from Grewendorf (1988:70):

(62)  
   a. Wen meint Peter [wird Maria heiraten]?  
       who thinks Peter will Maria marry  
       ‘Who does Peter think Maria will marry?’
Here, the fronted wh-phrase *wen* is moved into the [Spec,CP] position of the embedded clause from which it then moves further to occupy the [Spec,CP] position of the matrix clause. The intermediate landing site is necessary to ensure that the movement complies with Subjacency. Thus, if instead the lower [Spec,CP] position is already occupied by a topic so that the movement has to proceed directly into the higher [Spec,CP], we get an ungrammatical result (Grewendorf 1988:77):

(63) *Wen, glaubt Hans [Maria, habe t; t; geküßt]?*  
who believes Hans Maria has kissed

Similarly, in nontransformational approaches, it is generally assumed that long-distance dependencies are analogously mediated by the percolation of slash information beyond a single clause (cf. Müller 1994:130). However, the correctness of this

---

24Similarly, in transformational theories, a phrase is usually barred from taking a position occupied by a trace, blocking internal topicalization within the complement after extraction has occurred.
type of analysis has recently been called into question by Reis (1995). She adduces convincing arguments that constructions of this type show many properties quite un-
typical of genuine dislocation constructions, while at the same time they pattern in virtually all respects with variants such as the ones in (64):

(64) Wen hat sie [meint Hans] heute morgen geküfft?
who has she thinks Hans today morning kissed
‘Who did she—according to Hans—kiss this morning?’

No plausible movement-based analysis is available for these kinds of examples, as the sequence of elements preceding the putative matrix clause *meint Hans* does not form any constituent. Rather, they exhibit numerous properties characteristic of parentheticals. Hence, Reis argues, a parenthetical analysis is also significantly more adequate for the cases in (62), formerly believed to involve syntactic dislocation of the initial element.

Given that on closer inspection, there is no evidence that the dislocation into *Vorfeld* can be extended into a higher clause, any SLASH-based treatment of intraclausal V2 has the peculiar property of involving a nonlocal feature for a dependency that—unless it originates within a complement daβ-clause, see below—is strictly clause-bounded. For this reason, I propose to extend the topological approach to any type of local fronting constructions. To this end, I assume that whenever a finite verb combines with an argument, the placement possibilities of that argument are those of nonfinite heads (*inf-args*) augmented with those at the left periphery.

---

25Reis (1995:31) shows that extractions from V2 clauses are marginally possible with a certain class of predicates. However, such constructions pattern quite closely with extractions in English in that the extraction domain is not required (and in fact is not allowed) be a V1 sequence.

26Along similar lines, adjuncts within a finite clause may also occur in any of the subsorts of *fin-args*. 
This approach allows us to significantly simplify the analysis of all intra-clausal fronting constructions as no traces, SLASH percolation, and filler-head schema has to be evoked.\(^\text{27}\) As an immediate consequence, we can now treat single clauses that differ only in the constituent occupying the Vorfeld position in terms of exactly the same composition structure:

\[\text{(66) a.} \]

\[
\begin{array}{c}
\text{S} \\
\text{DOM} \langle \text{NP[NOM]} \rangle, [\langle \text{liest} \rangle, \text{VP}, \text{NP[ACC]}] \\
\text{NP[NOM]} \\
\text{DOM} ([[(\text{Hans})]]) \\
\text{VP} \\
\text{DOM} \langle \text{NP[ACC]} \rangle, [\langle \text{liest} \rangle, \text{NP[NOM]}] \\
\text{NP[NOM]} \\
\text{DOM} ([[(\text{Hans})]]) \\
\text{VP} \\
\text{DOM} \langle \text{NP[ACC]} \rangle, [\langle \text{liest} \rangle, \text{NP[NOM]}] \\
\end{array}
\]

\[
\begin{array}{c}
\text{S} \\
\text{DOM} \langle \text{NP[ACC]} \rangle, [\langle \text{liest} \rangle, \text{NP[NOM]}] \\
\text{NP[NOM]} \\
\text{DOM} ([[(\text{Hans})]]) \\
\text{VP} \\
\text{DOM} \langle \text{NP[ACC]} \rangle, [\langle \text{liest} \rangle, \text{NP[NOM]}] \\
\text{NP[NOM]} \\
\text{DOM} ([[(\text{Hans})]]) \\
\text{VP} \\
\text{DOM} \langle \text{NP[ACC]} \rangle, [\langle \text{liest} \rangle, \text{NP[NOM]}] \\
\end{array}
\]

\[\text{b.} \]

\[\text{The proposal is therefore motivated by considerations of structural simplicity that resemble those made for instance by Chomsky (1986:48-54) in his proposal for an in-situ treatment of string-vacuous wh-movement, and similarly, in Gazdar et al. (1985) for subject wh-questions and relative clauses.}\]
Of course, the same constraints that reduce the number of placement possibilities for fillers before will apply to the direct topological assignment of arguments. Thus, while non-wh/d-elements in cf fail to induce a subordinate marking and—as will be discussed in Section 6.5 below—are not licensed in root clause types either, wh/d-phrases may be prevented from instantiating that field because of a frontal finite verb.

The system developed so far overgenerates in that nothing rules out the previous slash-based treatment of monoclausal fronting constructions alongside the linear analysis suggested here. Since the two analyses do not differ in any other obvious regard, it would seem that we are faced with a spurious ambiguity. However, it is fairly straightforward to limit the application domain of the Filler-Head Composition Relation in such a way that the extraction must not be local. This can be achieved by requiring that any slash value to be cancelled be shared by some other constituent within the head’s domain. Since I assume that extractions in German are only possible from clauses and VP complements, this condition can directly be imposed on the extraction domain:

\[\text{\textsuperscript{28}}\]

\[\text{Additionally, one may have to allow for extraction from NPs; see Pollard et al. (1993) for a possible analysis.}\]
If we now take the different placement possibilities for different types of heads/arguments together, the following (partial) hierarchy of subsorts of topology for clauses and nonfinite verbal projections emerges.\(^{29}\)

\[(68)\]

As the discussion above has shown, the arguments of finite verbs have quite a wide variety of placement possibilities—in fact they may occur in all topological fields except the verbal cluster. However, various constraints, such as the Cardinality Conditions

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\(^{29}\)This hierarchy is as yet not complete, as at least one topological value for NP-internal, prenominal elements (see Chapter 8) as well as one value for topologically transparent domain objects, such as conjunction particles (see Chapter 9).
on *vf* and *cf* in the previous chapter, as well as the Clause Constraint conspire in such a way that in a given environment, only a few options are available. In Chapter 8, I will discuss additional factors constraining the placement of arguments in the *Nachfeld*.

The idea that finite and nonfinite predicates differ with respect to the placement possibilities receives indirect support from VP-Pied Piping in questions and relative clauses. First note that the *QUE/REL* percolation principle in (41) holds for all types of verbal projections, not just clauses. Hence this constraint specifies a VP as bearing the same *QUE/REL* value as its initial domain element. This in turn predicts that VPs should be eligible to occur in questions and relative clauses, so as to render the whole clause as bearing a nonempty *QUE/REL* value. This prediction is indeed borne out as witnessed by the following examples:

(69)  

a. [Welches Tor zu öffnen] würde Hans niemals wagen?  
which door to open would Hans never dare  
'Which door would Hans never dare to open?'

b. ein Tor [[welches zu öffnen] niemand wagt]  
a door which to open no one dares  
'a door which no one dares to open'

Since I assume that nonfinite predicates may only assign their arguments to *inf-args*, which excludes the left-peripheral positions, this also means that within the VPs in (69), the *QUE/REL* constituent *welches* must be situated not in *Vorfeld* or *cf*, as in the case of clauses, but in the *Mittelfeld* and hence they are "in situ"—contrary to a quite common assumption within Transformational Grammar, e.g. van Riemsdijk (1985), but in accordance with a rather similar proposal advanced in Reis (1985:307). This is also reflected in the constraint in (41), as inheritance of *QUE/REL*
values only makes reference to the *initial* domain element, regardless of its topological assignment. Evidence that *Iperiph* positions are in general unavailable in nonfinite environments comes from extraction facts. As is illustrated in (70a), extraction of a PP complement from an embedded *daß*-clause is fairly acceptable, as is a pied-piped VP in the relative clause (70b). However, the extraction within the pied-piped VP in (70c) is far worse than we would expect if nonfinite VPs could serve as the head for filler-head structures in German.

(70)  
a. Wohin hat Lisa ihrer Schwester erzählt [*daß* Peter gegangen ist]?
where has Lisa her sister told *that* Peter gone is
‘Where did Lisa tell her sister that Peter has gone?’
b. eine Stadt [[die zu erwähnen] Lisa nie wagen würde]
a town which to mention Lisa never dare would
‘a town which Lisa would never dare to mention’
c.*eine Stadt [[wohin ihrer Schwester zu sagen [*daß* Peter gegangen ist]]
a town where her sister to tell *that* Peter gone is
Lisa nie wagen würde]
Lisa never dare would

Furthermore, the linearization-based account of short fronting also dovetails quite nicely with the combinatorial properties of complementizers. Recall from the previous two sections that complementizers such as *daß* and *wo* impose particular restrictions on the QUE/REL status of their argument clause, which translate directly into requirements on the latter’s order domain. How the QUE/REL trigger got to be domain-initial is irrelevant. As result, complementizers may perfectly well combine with clauses in which the relevant QUE/REL domain object is placed initially by direct linearization, as opposed to a filler-head structure. Under the purely linear approach, the example in (45) from Section 6.2.1 will now be derived in the following way:
If instead, the *wh*-expression was assumed to always be structurally higher than the complementizer—as is commonly done in Barriers-based transformational analyses—then, barring the possibility of the complementizer combining with nonmaximal verbal projections, a dislocation-based analysis of *wh*-fronting would be inevitable.

Finally, despite the constraints set up so far, there are a few options left for constructing a German clause which have not been ruled out yet. For instance, the domain of the following clause is fully compatible with each of the constraints set up so far; yet it does not qualify as a well-formed German nonsubordinate sentence.

\[
\begin{align*}
(72) \quad & \neg S \\
&DOM \left( \left[ \langle eine\ Rose \rangle \right], \left[ \langle Adam \rangle \right], \left[ \langle gesehen \rangle \right], \left[ \langle hat \rangle \right] \right) \\
&\qquad NP[ACC]\left[ \langle cf \rangle\right], \quad NP[NOM]\left[ \langle mf \rangle\right], \quad V\left[ \langle vc \rangle\right], \quad V[FIN]\left[ \langle vc \rangle\right]
\end{align*}
\]

To account for such examples one might assume an additional constraint of some sort. However, this is not necessary once one addresses the issue of how syntactic forms are
associated with their use. Thus, I want to argue that there is nothing wrong per se with (72) in terms of its composition structure. What such a sentence lacks, though, is a way of assigning it to a legitimate clause type. In Section 6.5, I explore the thesis that in order to have a full account of well-formedness in the case of clauses, one needs a general level at which external constraints are stated that specify which combinations of theoretically possible clauses are exploited by a given language to interface with pragmatics. Before that, let us take a closer look at further evidence for the linearization-based treatment of intra-clausal fronting.

6.4 V2 fronting vs. scrambling

While there is little consensus within the transformational literature on how order variation within the Mittelfeld (scrambling) fits into the transformational typology of movement, it is often thought that it is different from A-movement into [Spec.CP] in important respects. If so, one would expect that the proposal made here that assimilates the two runs the danger of missing necessary distinctions which are made by the A-movement/scrambling dichotomy. In what follows I argue that this is not the case.

There is a trivial sense in which the placement of elements into Vorfeld differs from what is possible in the Mittelfeld. All those factors that constrain the order of elements within the Mittelfeld—which this study will largely remain silent about, but cf., for instance, Uszkoreit (1987)—are defined specifically among Mittelfeld elements,  

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30This is probably not necessary for NPs or PPs, whose syntax seems more directly defined solely in terms of their (internal) combinatorial structure.
hence there is no prima facie necessity that such constraints need also apply in the very same way with respect to the linear relation of some constituent in the Vorfeld and the remainder in the Mittelfeld. One example that shows this very clearly is the relative order of pronouns, which is heavily regulated within the Mittelfeld, cf. (73).

Thus, an accusative pronoun cannot precede a nominative one.

(73) a. daß sie ihn gestern noch gesehen hat.
   that she-NOM him-ACC yesterday still seen has
   'that she saw him as recently as yesterday.'

   b.*daß ihn sie gestern noch gesehen hat.
   that she-NOM him-ACC yesterday still seen has

However, when fronted within a V2 clause, an accusative pronoun is nonproblematic:

(74) Ihn hat sie gestern noch gesehen.
   him-ACC has she-NOM yesterday still seen
   'She saw him as recently as yesterday.'

Another example of a difference that is of a rather idiosyncratic nature and arguably (pace Travis 1991) does not reveal anything about a fundamental difference in properties between Vorfeld and Mittelfeld occurrence pertains to the placement possibilities of “weak” pronouns. As was noted for instance by Travis (1991), the neuter accusative pronoun es may precede a subject in the Mittelfeld; yet it can never be placed initially in a V2 clause:

(75) a. daß es Peter gegessen hat
   that it Peter eaten has
   'that Peter ate it.'

   b.*Es hat Peter gegessen.
   it has Peter eaten

If there are decisive differences between the way that the Vorfeld and positions in the Mittelfeld are structurally related to the rest of the clause, we should expect
them to surface in connection with constraints on interpretation, such as binding and operator scope. With respect to the first, the linearization-based approach makes precisely the same predictions that one using \textit{SLASH} does. This is so because in HPSG, conditions on binding are defined in terms of obliqueness relations holding among different arguments on a \textsc{subcat} list. However, fillers and their traces are structure-shared in their \textsc{local} specification, which comprises semantics (\textsc{content}) and hence also includes referential indices, which are relevant for binding. Thus, whether an argument is syntactically realized involving a filler-trace relation or positioned directly has no bearing on the obliqueness relations, and hence binding. Evidence in support of a view that places constraints on binding primarily on argument structure comes from the fact that in German, the reflexive \textit{sich} may either follow or precede a subject binder:

(76) a. weil Hans sich am liebsten mag.  
    because Hans self at.the dearest likes  
    'because Hans likes himself the best.'

    b. weil sich Hans am liebsten mag.  
    because self Hans at.the dearest likes  
    'because Hans likes himself the best.'

Given sufficient prosodic prominence, the reflexive may also occur in clause-initially in the \textit{Vorfeld}:

(77) a. Hans mag sich am liebsten.  
     Hans likes self at.the dearest  
     'Hans likes himself the best.'

    b. SICH mag Hans am liebsten.  
     self likes Hans at.the dearest  
     'Hans likes himself the best.'
Next, consider quantifier scope. As was briefly mentioned in the previous chapter in connection with the interplay between modals and negation, Frey (1993) notes that the sentence in (78a) has only one reading with the object taking narrow scope while in contrast, (78b) is ambiguous allowing an additional reading with the fronted object taking wide scope. Again, the Verum focus prosody prevents any prosodic contours that would allow an overriding scope reversal to take place.

(78) a. Viele Männer HABEN mindestens eine Frau hofiert.
many men-NOM have at.least one woman-ACC courted
‘For many men there is at least one woman that they courted.’

b. Mindestens eine Frau HABEN viele Männer hofiert.
at.least one woman-ACC have many men-NOM courted
‘For many men there is at least one woman that they courted.’
‘There is at least one woman such that many men courted her.’

The operative principle in these environments seems to be that a quantifier $Q_i$ can scope over another quantifier $Q_j$ if $Q_i$ is contained in the subject or if the constituent containing $Q_i$ linearly precedes the constituent containing $Q_j$.

Interestingly as Frey (1993:181) points out, so long as the prosody is kept constant, the very same readings occur within embedded clauses:

(79) a. Ich vermute, [DASS viele Männer mindestens eine Frau hofierten].
I suppose that many men-NOM at.least one woman-ACC courted
‘I suppose that for many men there is at least one woman that they courted.’

b. Ich vermute, [DASS mindestens eine Frau viele Männer hofierten].
I suppose that at.least one woman-ACC many men-NOM courted
‘I suppose that for many men there is at least one woman that they courted.’
‘I suppose that there is one woman such that many men courted her.’

If the Vorfeld position really was radically different in its syntactic status than Mittelfeld internal ones, this parallelism would come as a bit of a surprise.
A very similar pattern can also be observed with the distribution of weak crossover and Condition C effects in German. As Frey (1993:80–81) points out for instance, typical weak crossover examples in English do not give rise to ungrammaticality in their German counterparts:

(80)  a. *Who; does his; mother like?

       b. Wen; mag seine; Mutter nicht?
           who likes his mother not
           ‘Who is not liked by his mother?’

To account for facts like these, I propose a constraint on the distribution of referential expressions and pronouns along the lines given in (81):^

(81)  Let X and Y be codependents (arguments or adjuncts of the same head).

       a. **Condition C**: if X is a subject, or if X is a phrase preceding Y, then Y must not contain a constituent whose CONTENT value is of sort npro coindexed with X.

       b. **WCO**: a phrase X containing a pronoun P must not precede a nonsubject Y containing a constituent whose QSTORE contains an operator coindexed with P.

As a consequence, a subject always allows binding of a dependent pronoun, independent of position. At the same time, a subject always induces Condition C effects, again regardless of position.^

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31 The following ideas were significantly improved by reformulations suggested by Carl Pollard. cf. also Pollard (1995).

32 This ignores complications arising with adjunct-induced “Anti-Reconstruction” effects. As has been noted for instance by Webelhuth (1992:173–174), if the referential expression is contained in a complement clause, a Condition C violation will result, as expected, cf. (ia). However, if instead, it is inside of an adjunct such as a relative clause dependent on the object, no such effect is present, as shown in (ib).
The version of Condition C given in (81a) correctly accounts for the distribution of pronouns and coindexed referential expressions seen in (82) and (83) (Frey 1993:148,143):^33

(82)  

a.*[In Peters', Wagen] hat er_i sie geküßt.
   In Peter's car has he-NOM her-ACC kissed

b. [In Peters', Wagen] hat sie ihn_i geküßt.
   In Peter's car has she-NOM him-ACC kissed
   'She kissed Peter in his car.'

(83)  

   because Peter's wife him-DAT often helps
   'because Peter's wife helps him often.'

b.*weil ihm_i [Peters', Frau] oft hilft.
   because him-DAT Peter's wife often helps

   him-DAT has Peter's wife often helped

(i)  

a.*[Manche der Behauptungen, daß Hans_i während der Konferenz geschlafen hatte]  
   some of the claims that Hans during the conference slept had
   mußte er_i dementieren.
   had to deny

b. [Manche der Behauptungen, die Hans_i während der Konferenz gemacht hatte]  
   some of the claims which Hans during the conference made had
   mußte er_i zurücknehmen.
   had to take.back
   'Some of the claims which Hans made at the conference he had to take back.'

33This does not cover all aspects of the interaction between pronouns and referring expressions, cf. the contrast noted by Frey (1993:148,n.4) between possessors as preceding antecedents vs. subjects in adverbial clauses:

(i)  

a.*Wegen Peters_i Geld bekommt er_i viele Heiratsanträge.
   because of Peter's money receives he many marriage.proposals

b. Weil Peter_i viel Geld hat, bekommt er_i viele Heiratsanträge.
   because Peter much money has receives he many marriage.proposals
   'Because Peter has much money, he receives many marriage proposals.'
What is important for the purposes at hand is the that as demonstrated in (83), topicalization and order variation in the Mittelfeld behave exactly alike.

Now consider WCO. The condition in (81b) only refers to operators in nonsubjects inducing a WCO effect when a dependent pronoun precedes. As a consequence, if the operator is contained in a subject, any order is possible, cf. Lee & Santorini 1994:264):

\[(84)\]
\[
\begin{align*}
\text{a. } & \text{daß jeder, seine, Kinder liebhat.} \\
& \text{that everyone-NOM his children-ACC dear, has}
\end{align*}
\]
\[
\begin{align*}
\text{b. } & \text{daß seine, Kinder jeder, liebhat.} \\
& \text{that his children-ACC everyone-NOM dear, has}
\end{align*}
\]

Considering the root/embedded distinction, the same facts crucially hold in root contexts too, as is observed by Lee & Santorini (1994:276):

\[(85)\]
\[
\begin{align*}
\text{a. } & \text{Jeder, hat seine, Kinder lieb.} \\
& \text{everyone-NOM has his children-ACC dear}
\end{align*}
\]
\[
\begin{align*}
\text{b. } & \text{Seine, Kinder hat jeder, lieb.} \\
& \text{his children-ACC has everyone-NOM dear}
\end{align*}
\]

Incidentally, if we compare this with the situation in English, pronouns in subjects in that language induce a WCO effect even when they are preceded by the operator. i.e. subjects do not have the special status as in German.

As the following data from Frey (1993:90) show, other kinds of objects, such as dative complements, behave the same way:

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\(^{34}\)This is probably too strong. As examples such as the following show, the exemption from WCO should extend to least oblique nonsubjects in impersonal constructions as well (Frey 1993:95):

\[(i)\]
\[
\begin{align*}
& \text{Vor seiner, ersten Prüfung graut jedem Studenten.} \\
& \text{before his first exam is afraid every student-DAT}
\end{align*}
\]

‘Every student is frightened by his first exam.’

\(^{35}\)Frey (1993:101) notes that subjects of passive, unaccusative, and Psych-predicates behave in precisely the same way, allowing for dependent pronouns to precede.
This state of affairs is what the constraint in (81b) predicts, as it only makes reference to linear precedence, but remains silent about whether precedence comes by placement in the Vorfeld or within the Mittelfeld.

If, however, the pronoun is not contained in a complement but in a subject, a strong grammaticality contrast results, depending on the placement of the respective arguments (Lee & Santorini 1994:260–261):

Again, the precise position does not play any role (Lee & Santorini 1994:275):

When two complements are compared, the data are not quite as clear-cut. According to Frey and Lee and Santorini, only if the Q-constituent precedes the P-constituent do we get grammaticality. This is precisely what is predicted by our conditions above, as neither argument is ranked higher than the other (Frey 1993:70):

a. Jeden Professor, habe ich seiner, neuen Sekretärin vorgestellt.
   each professor-ACC have I his new secretary-DAT introduced
b.*Seiner, neuen Sekretärin habe ich jeden Professor, vorgestellt.
his new secretary-DAT have I each professor-ACC introduced
The deviation in (90b) does not seem to be quite as strong as that in (89b); in fact, Bayer & Kornfilt (1994:19) list an example isomorphic to (90b) as grammatical. This suggests that for some speakers, the dative argument asymmetrically outranks the accusative one. What is of most importance for the purposes at hand, the root/subordinate distinction is irrelevant for the pattern of grammaticality (Lee & Santorini 1994:261–263).36

Note incidentally that the account of WCO also accounts for the following contrast, which was first brought to my attention by Carl Pollard:

36Bayer and Kornfilt claim that the P-Q order is not possible in embedded contexts; however, with Frey and Lee and Santorini, I find little if any contrast between (92b) and (90b)—certainly not the kind of contrast one would expect if placement into preverbal position and within the Mittelfeld really differ greatly from one another in terms of their reconstruction potential, as claimed by Bayer & Kornfilt (1994).
In (93a), the extraction leaves *wen* with no orderable representation inside the embedded clause, hence the conditions on WCO are vacuously satisfied. On the other hand, in (93b), the codependents of interest are the matrix subject and the sentential complement. Since the latter contains the operator and is preceded by the subject with a pronoun, this configuration is prohibited by the conditions on WCO.

What the data above have shown is that there do not seem to be any significant differences between the behavior of quantificational elements depending on their putative status as \(\overline{A}\)-moved into [Spec,CP] position vs. scrambled within the *Mittelfeld*—however one tries to fit the latter into the \(A/\overline{A}\) typology of positions. Therefore, I conclude that there is no generalization lost if the *Vorfeld* constituent in short-movement contexts is taken to have been directly linearized in that position. In the next section, I will investigate how conditions on order domains are linked up with particular conditions on clauses types.

### 6.5 Sentence mood and constraints on domains

While the difference between, say, a declarative and an interrogative sentence is probably among the most salient distinctions that a speaker of a language can be expected to make, it is quite surprising how little effort has been spent in syntactic theory in relating syntactic constraints to distinctions of this kind. To some extent, this may be due to the Chomskyan notion of “modularity of syntax”, but this will ultimately not absolve the grammarian of stating *somehow, somewhere* in the grammar of a language that there is a connection between syntactic form and “sentence mood” (i.e. declarative, interrogative, imperative, and possibly more) and how this connection is
specified. Among the few accounts that do exist, one can distinguish, roughly, between "reductionist" and "constructionist" approaches.

On the reductionist perspective, the fact that a syntactic structure is associated with a particular sentence mood is a direct consequence of lexical items—whether audible or not—and the way they are related to each other in a syntactic structure. To take an illustrative example, polar interrogatives are associated with a V1 clause in German and an AUX-initial clause in English, but crucially, without a rising intonation, no polar question interpretation is possible if some element precedes the verb or auxiliary in these two languages. In some approaches in the tradition of Baker (1978), this has been attributed to the presence of some inaudible syntactic element ("Q-morpheme") that occupies the pre-verbal or pre-AUX position and acts as an appropriate "operator" to impose an interrogative interpretation on the clause it is contained in. Of course, this is pretty much a deus ex machina, as the existence of such a phonologically empty element cannot be established independently in noninterrogative contexts, nor does it seem to fit the classification of empty categories in transformational grammar.\(^{37}\) Alternatively, the locus for the determination of sentence mood may be placed in the inflectional system. For instance, (Brandt et al. 1992) propose (phonologically empty) Infl\(^0\) formatives with [+w] features requiring verb movement to make these features on the functional head "visible", which then bar topicalization. Since the authors claim to strive towards a cognitively adequate

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\(^{37}\)The same holds for other kinds of operators, such as the ones employed for relative clauses or tough constructions, which due to some never articulated principle seem to all be exempted from the typology of empty categories in GB and its descendents.
theory of grammar, it should be noted that this type of analysis places an extraordinary burden on the language learner. Clearly, the polar variety of the Inf⁰ formative cannot be universal as every language does not form yes-no questions the same way. But then the existence of such an element in the lexicon has to be deduced from other parts of the input. However, if the only overt manifestation of the presence of this element is that of V1 word order in German, it would seem to be much more direct if the language learner associates polar questions with directly observable linearly defined properties in the linguistic signal rather than posit some highly abstract inaudible lexical element that would cause there to be V1 order—and then only if all the other modules of Universal Grammar can be shown to be in place.

A reliance on lexical distinctions is by no means limited to transformational approaches. In Feldhaus et al. (1994), the presence or absence of a topic is accounted for in terms of selectional differences among finite, frontal verbs, which as mentioned in the last chapter, are classified as complementizers. To capture the difference between V2 and V1 clauses, a lexical rule maps the base form into one that does not select for a topic and hence generates V1 clauses.

The main problem with the reductionist line is that distinctions between different sentence moods are not expressed at the level where they are actually manifested. Thus, since the difference between a polar question and a V2 declarative clause in German is one involving syntagmatic notions such as absence of pre-verbal material, then it should be captured at the level of representation that encodes such syntagmatic relations. On the other hand, if the difference were primarily lexical in na-
ture, one would expect these lexical distinctions to be manifested in genuinely lexical ways, that is in terms of a difference in morphological form or in terms of different verbs behaving differently with respect to mood. Yet, finite verbs in German (or AUXs in English for that matter) never exhibit morphological alternations according to sentence mood—notwithstanding the particular verbal morphology in imperative sentences. Therefore, the lexicon prima facie seems to be the wrong place to make the connection. After all, in a framework like HPSG that does not avail itself of a whole array of different Inflº formatives, this would mean that every finite verb comes in at least two morphologically indistinguishable forms, one for declaratives and one for interrogatives. These two forms would be just as separate from each other as, for instance a past participle would be from a passive participle (in a lexical rule-based approach to passive).

The alternative to the reductionist view states that certain aspects of interpretation cannot plausibly reduced to purely lexical distinctions, but should instead be stated in terms of a direct association between formal syntactic properties of larger syntactic entities and constraints on meaning, cf. Zwicky (1994), Fillmore & Kay (1993). Such associations are referred to as “constructions” and the inventory of constructions forms part of the knowledge of a language in the same way that the inventory of lexical items does. In what follows I will take such a view regarding the relationship between syntactic structure and sentence mood. In particular, the formal syntactic properties relevant for defining such clausal constructions have to do with constituent order, which in turn will be taken to be among the properties of the
order domains that are associated with a certain clausal sign.

While the constructionist perspective allows associations between formal properties of linguistic objects and constraints on interpretation at any level, I am in particular going to be interested in clausal signs. Among such signs, “root” contexts play a special role in that they constitute the canonical instances of independent signs, that is, maximal syntactic units. Other types of independent signs that are not subsumed by “root” or are not even clausal include, among many others, infinitival imperatives, as in (94a) or free-standing subordinate clauses, as in (94b). In what follows, I will ignore these cases.

(94) a. Von der Bahnsteigkante zurücktreten!
    from the platform.curb back.step
    ‘Step away from the curb of the platform.’

    b. Ob er sich wohl verlaufen hat?
    whether he self PART lost has
    ‘(I wonder) if he has gotten lost.’

Independent signs are, roughly speaking, those kinds of linguistic objects that constitute the building blocks of discourse and that do not ostensibly depend on the presence of any other syntactic objects (but of course may contain other complex dependent signs such as subordinate clauses). Among the tasks of a conversation participant is that of classifying a given utterance in terms of such building blocks, which in turn mediate between syntax and the (default) illocutionary force of the utterance, cf. Brandt et al. (1992).

For example, a V1 clause such as in (95) may constitute a genuine information question or a request, depending on the level of directness of the speech act. but crucially, as a necessary prerequisite to making that determination, a hearer will have
to classify the utterance in terms of its sentence mood as a polar question.

(95) Kannst du mir das Salz reichen?
    can you me the salt pass
    ‘Can you pass me the salt?’

Thus, while sentence moods do not uniquely identify illocutionary force, they nevertheless provide important guidance toward finding out what the utterer’s intentions are within the discourse.

I distinguish among three basic sentence moods, interrogative, declarative, and imperative. Interrogatives are further subdivided into polar and wh-interrogatives. This subhierarchy forms the partition of sentence-mood. Cross-classified with this partition are the subsorts bundled under the partition internal-syntax, which bifurcates clauses in terms of their subordinate vs. root status. As the name suggests, this classification is based on the internal properties of the clauses, which does not preclude that some root clauses actually occur as subordinate to other clauses (as for instance is the case with V2 complement clauses or V1 conditionals). This cross classification according to sentential mood on the one hand and internal syntactic makeup is similar to the divisions made in Systemic Grammar (Halliday 1985). Because I am using a multiple-inheritance hierarchy, whatever constraints are associated with a given sort will automatically be inherited by its subsorts, which allows us to organize the relevant generalizations across different clause-types in a maximally redundancy-free way:
Furthermore, I assume that clause is one of the sorts of a partition on construction types that in turn is cross-classified with the standard HPSG division of sign into word and phrase:

\[ (96) \]

\[ \text{r-wh-int. r-decl imp polar cond s-wh-int. s-decl rel.} \]

\[ v2 \quad v1 \]

\[ \text{wh-interrog absolute} \]

\[ \text{wh-interrog absolute} \]

\[ \text{v1} \quad \text{v2} \]

\[ \text{int-syntax} \quad \text{sentence-mood} \]

\[ \text{clause} \]

\[ \text{root PHON} \]

\[ \text{subord} \quad \text{interrog} \quad \text{decl} \]

The organization of different (clausal) constructions in terms of an inheritance hierarchy is very much inspired by the approach to relative clauses in English proposed

\[ (97) \]

\[ \text{... ...} \]

\[ \text{clause nonclause} \]

\[ \text{word phrase construction nonconstruction} \]

\[ \text{word/phrase ext-syntax} \]

\[ \text{sign} \]

\[ ^{38}\text{Here, nonconstruction is a bit of an artifact of the requirement that partitions cover the elements in their domain exhaustively. Thus, this sort has no conditions attached to it, hence, it will be the subsort of nonmaximal projections in the composition structure of a clause (e.g. a verb-final finite clause without a complementizer) or any other construction. Only utterances classifiable as subsorts of construction count as independent signs in the sense discussed above. Also, Section 6.5.4 below on a brief discussion on clausal constructions that are of sort word.} \]
by Sag (1995). However, while Sag makes frequent reference to a clause's internal syntactic structure by means of (subfeatures of) the attribute DTRS, this is now eliminated in favor of making more direct reference to the sign's linear properties. Of particular importance are the topological fields vf and cf, which beside the verbal morphology play a crucial role in distinguishing among different clause types.

Beginning with the topmost sort, we can now give a bit more formal content to the Clause Constraint from the previous chapter by requiring that the sort clause, and hence every subsort thereof, must have its cf topological field (uniquely) instantiated. Thus, if a clause in German can be given a clause type at all, it must satisfy this requirement.

\[
(98) \quad \text{clause} \rightarrow \begin{bmatrix}
\text{DOM} \langle \text{cf} \rangle \bowtie \ell \\
\ldots | \text{CAT} & \text{VAL} | \text{SUBCAT} & () \\
\ldots | \text{HEAD} & \text{verb} & \text{VFORM} & \text{finite} \\
\end{bmatrix}
\]

Next, consider the properties common to all root clauses. First, we know that the cf element must be the finite verb. Since the clause is a projection of its head verb, this is tantamount to requiring that the element in cf be token-identical with the former in its HEAD values. From this, it follows directly that the MARKING value must be unmarked, as otherwise, this structure sharing could not hold. For if the value were marked, then the cf element would have to be either a complementizer or a wh/d-phrase, but crucially, neither is the head of the clause.

\[
(99) \quad \text{root} \rightarrow \begin{bmatrix}
\text{PHON} & \text{4} \\
\text{DOM} & (3 \Rightarrow) \\
\ldots | \text{HEAD} & \text{1} \\
\ldots | \text{QSTORE} & \{\} \\
\wedge \text{join}_{\text{PHON}}(3, 4)
\end{bmatrix}
\]
Another noteworthy aspect about root clauses is that they, as instances of independent utterances, have a phonology of their own, hence the feature PHON is appropriate for this subsort of sign. That is to say, since root clauses constitute complete utterances, domain construction at their level has been completed and we have sufficient information to compute their phonology from the phonological information within the domain via the relation joinPHON, which was introduced in the previous chapter. On the other hand, the determination of the phonology of subordinate clauses is a function of the compaction of the sign into a domain object which then in turn becomes part of a larger order domain. Finally, the constraints on root clauses in (99) require that all the quantifiers in that clause's QSTORE must have been retrieved.

The main unifying factor of all subordinate clauses is the fact that they are specified as [MARKING marked]. Strictly speaking, the Marking Constraint could be folded into this sortal restriction; however, I chose to list it separately for reasons of perspicuity.

\[(100) \quad subord \rightarrow [...|MARKING marked]\]

### 6.5.1 Declaratives

Among the different sentence moods, let us first consider (syntactic) declaratives. Their main characteristic is that the leftmost domain element must not be a wh-expression (or the head, for that matter). Because the WH-properties of the leftmost domain object are passed on to the sign as a whole due to the constraint in (41), repeated below, it suffices to require that the clause have an empty QUE value:
In addition, declarative clauses may never contain a verb with imperative morphology. Nonimperative constitutes a natural subclass of finite morphology in that it includes all the forms that are tensed. Within the different subsorts of verbal morphology, *tensed* is the sort that represents the cross-classification with respect to the values for TENSE and MOOD, while more generally finite verb forms, including imperative, exhibit agreement with a nominative subject.\(^{39}\)

\[\text{imperative} \quad \text{[tensed TENSE present} \lor \text{past MOOD indicative} \lor \text{subjunctive]}\]

\[\text{nonfinite} \quad \text{[finite AGR]}\]

---

\(^{39}\)The particular implementation presented here is somewhat different from the one proposed in Kathol (to appear), where tense and mood are given as the value of a single feature TENSE-MOOD whose value of sort tense-mood is organized as a partition of tense and mood values. There does not seem to be much riding on this difference, though.
Declaratives come in three varieties: relative clauses, which are intrinsically dependent on some nominal head (which may not be overtly given in the headless case), conditionals, and what are referred to here as “absolute” declaratives. The latter class is characterized in terms of their inability to relativize a syntactic constituent:

\[(103) \quad \text{absolute} \rightarrow \left[ \ldots \right| \text{REL} \{\} \right]\]

Due to the connection between a verb projection’s REL specification and its leftmost domain object, the constraints in (103) and (101) conspire to prevent their left peripheral domain element from being a \textit{wh}-expression or a relative phrase. Root declaratives in addition have the internal syntax of V2 clauses. This is given as the \textit{v2} subsort of \textit{root}, where the initial domain element is required to occur in the \textit{Vorfeld} as in (104):

\[(104) \quad \text{v2} \rightarrow \left[ \text{DOM} \left[ \left[ vf \right] \right] \circ \ell \right]\]

As a result, the properties of root declaratives are defined almost entirely by the constraints associated with their supersorts. What still needs to be specified is the inability of root declaratives to modify other syntactic constituents:

\[(105) \quad r\text{-}\text{decl} \rightarrow \left[ \ldots \right| \text{MOD} \text{ none} \right]\]

Note that the constraint in (104) is insensitive to how the element in the \textit{Vorfeld} got licensed. Thus, it may be as a direct argument of the verb (or as a direct sentential adjunct), or as a filler as in cases of genuine extraction. This said, it will not come as a surprise that there appears to be at least one more way of satisfying the constraints of \textit{r\text{-}\text{decl}}. It is the function of the positional expletive \textit{es} to provide syntactic material in the \textit{Vorfeld} so as to give V2 status to the clause it is contained in. At the same time,
because this element is only found in one syntactic position (like complementizers), and because it is entirely nonthematic, it is counterintuitive to assume that it is in some head-argument or filler-gap relation with the clause it precedes. What this suggests is that positional es has a function quite similar to the complementizer daβ. Whereas the latter is responsible for signalling subordinate status of a declarative clause, the function of es is to achieve the same with respect to declarative root environments. Furthermore, like the complementizer daβ, positional es does not have any direct truth-conditional impact on the sentence it occurs in; in fact its impoverished semantics makes it a premier candidate to occur in sentences in which the postverbal subject bears a presentational focus.\footnote{This, rather than some syntactic "definiteness effect" is presumably responsible for the strong tendency to have indefinite subjects with positional es.} Therefore, I propose to assign es the same syntactic category as complementizers like daβ.\footnote{Note also that historically, daβ is related to the demonstrative pronoun das which makes a similar correlation between the pronoun es and the positional marker plausible.}

\begin{equation}
\text{es}
\begin{array}{c}
\left[\begin{array}{c}
\text{SYNSEM} \begin{array}{c}
1
\end{array}
\end{array}\right]
\left[\begin{array}{c}
\ldots|\text{HEAD} \begin{array}{c}
\text{marker}
\end{array} \\
\text{SPEC} \begin{array}{c}
\text{S[FIN]} : \begin{array}{c}
2
\end{array}
\end{array}
\end{array}\right]
\left[\begin{array}{c}
\ldots|\text{CONTENT} \begin{array}{c}
2
\end{array}
\end{array}\right]
\left[\begin{array}{c}
\text{WH-FTRS} \begin{array}{c}
m-n\text{-trigger}
\end{array}
\end{array}\right]
\left[\begin{array}{c}
\text{DOM} \begin{array}{c}
\begin{array}{c}
\langle \text{es} \rangle
\end{array}
\end{array}
\end{array}\right]
\left[\begin{array}{c}
\text{SYNSEM} \begin{array}{c}
1
\end{array}
\end{array}\right]
\left[\begin{array}{c}
vf
\end{array}\right]
\end{array}
\end{equation}

As a result of this proposal, the element es has been integrated fully into the grammar in contrast, for instance, to the syncategorematic treatment in Uszkoreit (1987:149), who introduces this item via the rule in (107) in which it serves no apparent syntactic
Unlike English, German relative clauses are quite homogeneous in their syntactic properties. As will become apparent shortly, they are quite similar to embedded questions in that the left-periphery of their domain must host a phrasal constituent with "wh" features. In the case of relatives, this is the attribute REL whose value serves to link the clause up with the index of the head noun to be modified; hence these two values are structure-shared (11).

(108) \[ \text{relative} \rightarrow [...|\text{MOD } N] \text{[1]} \times [...|\text{REL } \{1\}] \times \text{DOM } ([\text{ }] \circ \text{list } ([...|\text{REL } \{\} ])) \]

Thus, the approach taken here, like that proposed by Sag (1995), avoids the use of null relativizers (or empty operators) in favor of a constructional, "top-down" view in which the properties of the whole phrase are underdetermined by the information associated with the ingredients of its compositional structure. Note also that the constraint in (108) requires that all but the first element in the clause have an empty REL value. This captures the fact that a language such as German never allows clauses with multiple relative phrases. Of course, the same constraint does not hold in the case of QUE and hence multiple questions are possible.

Conditionals constitute the third subsort of decl. I assume that it is only in the form of V1 clauses that these constitute a clause type of their own. While clauses introduced with the complementizer wenn are largely synonymous with V1 conditionals, the former do not instantiate a separate clause type but are instead regarded as
instances of $s$-decl, parallel in their internal syntax with $dab$-clauses.\footnote{In Section 6.5.3, we will see an analogous relation between root polars and subordinate $ob$-clauses with respect to clause type status.} Despite their internal syntax as root clauses, V1 conditionals are syntactic modifiers, presumably of finite sentences.

\[(109) \quad cond \rightarrow \left[ \begin{array}{c} \ldots \text{REL} \{ \} \\ \ldots \text{MOD} \{ S[\text{FIN}] \} \end{array} \right] \]

Moreover, they also inherit from the $vI$ subsort of root, which is straightforwardly defined as in (110):

\[(110) \quad vI \rightarrow [\text{DOM} \langle [cf] \rangle \circ \ell] \]

### 6.5.2 Linearization of V2 complement clauses

At this point, a brief excursion may be in order relate the hierarchy of clause types laid out above to issues of complementation. As the sort label int-syntax already suggests, the classification into root and subordinate is primarily determined in terms of the linear relations that hold within the clause. How a sign thus classified relates to other syntactic elements is only indirectly correlated with the internal syntax. Thus, simplifying somewhat, only clauses of sort root count as independent signs. But this does not mean that all clauses that fit the constraints associated with root need to be syntactically independent. One place in which there is a mismatch is in the case of complements with V2 order, cf. (111a). The example in (111b) from Reis (1985:287) shows that V2 complement clauses may also be dependents of nominal heads:

\[(111) \quad a. \text{ Otto glaubt } [\text{die Erde sei flach}]. \]
\[
\text{Otto believes the Earth is flat} \\
\text{‘Otto believes that the Earth is flat.’}
\]
b. die Überzeugung / der Glaube / ...
the conviction the belief
[die Russen würden nicht in Polen eingreifen]
the Russians would not in Poland intervene
‘the conviction/belief/... that the Russians would not intervene in Poland’

The way I propose to treat such constructions is by means of a special composition relation called *Head-V2-Complement Composition Relation*. While the complementation structures covered by the Head-Argument Composition Relation introduced in the previous chapter are insensitive to the details of the argument so long as it matches the requirements on the head’s SUBCAT list, the variant involved in examples such as in (111) is significantly more specific. In particular, it requires the complement to be an unmarked, finite clause whose corresponding domain element can only occur in *nf*. Moreover, the whole complement sign has to be an instance of the sort *r-decl*, which according to the set of constraints introduced above entails V2 order with no initial *wh/d*-phrases. The schematic representation is given in (112):

(112) **Head-V2-Complement Composition Relation**

43 It may ultimately prove to be more adequate not to treat constructions like these in terms of a head-complement structure but as an instance of some other syntactic relationship. For instance, see Reis (1995:16) for a hint that the V2 clause may only indirectly be identified as the propositional argument of the embedding predicate. For the time being, however, I will keep with the complement analysis of V2 embedded clauses.
Because only declarative V2 clauses are allowed as *unmarked* complements, we can correctly rule out embedded questions or semi-questions in which the finite head occurs in second position:

(113) a.*Otto fragt [wer ist gestern gekommen].
    Otto asks who is yesterday come

b.*Otto weiß [wer ist gestern gekommen].
    Otto asks who is yesterday come

Predicates that allow for either *daß*-clauses or V2 complements, such as *glauben* (‘believe’), remain silent with respect to the MARKING value of the selected clause. On the other hand, verbs such as *bezweifeln* (‘doubt’), which do not permit V2 complements impose the requirement that the argument satisfy [MARKING marked].

What remains to clarify is why V2 complement cannot be licenced via the Head-Argument Composition Relation of the previous chapter. If this were an option, it would, for instance, allow ungrammatical placement of the V2 clause in *vf* or *mf*. To this end, I propose a restriction on that relation to the effect that any argument that consists of a saturated finite projection is automatically required to bear the specification [MARKING marked]. In other words, for a clausal constituent to be an
argument licensed by the Head-Argument Composition Relation, the former must contain a complementizer or some other marking trigger.

6.5.3 Questions

The failure to act as a modifier not only characterizes declaratives, but all forms of interrogatives as well:

\[(114)\]
\[
\text{interrog} \rightarrow [...|\text{HEAD} [\text{MOD none} [\text{VFORM tensed}]]] \\
...|\text{REL} \{\}
\]

In addition, like declaratives, only finite verb forms that are tensed are permitted.

(Syntactic) \(wh\)-questions are formed by means of a \(wh\)-expression at the left periphery. Again, because of the way that the clause inherits its \(Q\)\(UE\) value from its leftmost domain object via (41), a nonempty \(Q\)\(UE\) value for the clause translates into an initial \(wh\)-domain object. This "window" into the domain of a clause that the \(Q\)\(UE\) feature provides will be crucial in the treatment of so-called "Partial \(wh\)-Movement" construction discussed in Section 6.6.1 below.

\[(115)\]
\[
\text{wh-interrog} \rightarrow [...|\text{QUE} {...}]
\]

Nothing more needs to be said to capture the linear properties of root and embedded \(wh\)-clauses. In the case of \(r\)-\(wh\)-\(interrog\), the \(wh\)-expression that licenses the nonempty \(Q\)\(UE\) value must instantiate \(vf\) because the sortal constraints on \(root\) already require a verb in \(cf\). In contrast, the placement in embedded environments, i.e. in \(s\)-\(wh\)-\(interrog\), depends on how in a given dialect, a subordinate marking value can arise.

The (syntactic) properties of root polar questions are determined in their entirety by the supersorts \(v1\) and \(interrog\). Because of the first, the \(vf\) field cannot be in-
stantiated. This clearly shows that on the constructional view espoused here, polar sentences neither require inaudible $Q$-morphemes nor a multiplication of the lexicon. Of course, V1 clauses are not the only way to form yes-no questions. For instance, V2 clauses with a rising intonation can also be given an interrogative interpretation. However, there seem to be subtle differences in the contexts of use for V1 vs. V2 polars which justify singling out the V1 cases as "canonical". Thus, while the question in (116a) has no particular presuppositions, the one in (116b) seems to require a context in which the issue of Lisa's coming is contextually salient and the discourse has rendered her coming more likely than her failure to come. Alternatively, (116b) could be used to register surprise at discovering that Lisa did come, contrary to expectation.

(116) a. Ist Lisa gekommen?
   is Lisa come
   'Has Lisa come?'

b. Lisa ist gekommen?
   Lisa is come
   'Lisa has come?'

Embedded polar questions are always introduced by the complementizer $ob$ ('if'). I assume that there is no separate clause type per se for subordinate polars, but that syntactically, they take the form of subordinate declaratives, as do all complementizer-initial clauses (with the exception of $wh$-imperatives, cf. 6.6.2 below). However, the polar complementizer does change the semantic status of the complement it combines with. Specifically I take it to embed the content of the clause under a $wh$-operator, given here as $whether$: 
In order for markers to be able to affect the semantics of their argument in the way specified, I propose to assimilate markers to modifiers in making them the semantic head of the whole construction, while syntactically, they count as nonheads. Moreover, the QUANTS value of the entry for ob, given as wh-op, is closely related to wh-quantifiers; both are subsorts of wh. In addition, wh-quantifiers also inherit from the sort for quantifiers in general. As a result, the variable they bind is a restricted index (i.e. of sort npro), while an operator like whether takes an argument of sort psoa:

This conclusion seems inevitable if one considers more "contentful" complementizers such as weil 'because' or nachdem ('after'). The alternative is to treat complementizer-initial clauses as CPs; but then, the distinction between such projections of complementizers and das-initial projections of the finite verb seems artificial.
Because of the *wh-op* semantics, clauses that are introduced by *ob* are eligible for selection by predicates that require semantic questions, that is, clauses with *wh-* elements in their QUANTS list. However, *ob* has an empty QUE specification, and therefore, a clause containing initial *ob* cannot not be classified as an instance of the *wh-interrogative* clause type. This distinction has important ramifications with respect to the licensing potential for multiple questions. As will shown in the next section, *wh*-quantifier retrieval is in general required to proceed at a node that constitutes a syntactic *wh-interrogative*. Since polars (both root and embedded) do not qualify, we correctly predict that they do not license *wh*-quantifier retrieval:  

(119) a.*Ich will wissen [ob Karl mit wem geredet hat].
    I want know whether Karl with who talked has
   
   b.*Hat Karl mit wem geredet?
   has Karl with who talked

However, if the lower *wh*-expression is licensed in terms of a syntactic *wh*-interrogative clause higher up, there is nothing to bar a multiple question interpretation in cases such as the following:

(120) Wer weiß [ob Hans was gesehen hat]?
   who knows whether Hans what seen has
   ‘Who knows whether Hans saw what?’
   which-person x, which y [knows-whether(x, saw(Hans, y))]

One last problem to consider is given the constraints set up so far, nothing would seem to block the cooccurrence of multiple *wh*-phrases at the left periphery of Bavarian embedded clauses. Thus, we wrongly predict the possibility of one *wh*-phrase

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45In certain dialects, the examples in (119) are well-formed under a reading that interprets *wem* as an indefinite.
instantiating \( cf \) with another spuriously placed into \( vf \). While there is probably a more elegant way to avoid this scenario, I will for now assume the constraint in (121), which limits the number of \( wh \)-phrases at the left periphery to at most one:

\[
(121) \quad \left[ \ldots|\text{QUE} \{\ldots\} \right] \prec \left[ \ldots|\text{QUE} \{\ldots\} \right]
\]

6.5.4 Imperatives

Imperatives like polars, only need to be distinguished from other types of phrases at the root level. If a predicate embeds a complement with an imperative interpretation, the syntactic realization will be that of a VP or a subordinate declarative clause in the subjunctive, but not of a separate subordinate imperative form.

\[
(122) \quad \text{imperative} \rightarrow \left[ \ldots|\text{HEAD} \left[ \text{VFORM imperative} \right] \right]
\]

\[
\left[ \ldots|\text{MOD none} \right]
\]

\[
\left[ \ldots|\text{QUANTS list} \left( [\neg \text{wh-quant}] \right) \right]
\]

In contrast to declaratives and interrogatives, imperative clauses are required to exhibit imperative inflection. Moreover, there are no requirements made of the domain, since imperative is a direct subsort of root. This leaves both V1 and V2 clauses as possible linear vehicles for expressing imperatives. While the first are generally more common, examples of V2 imperatives are also quite frequent.\(^{46}\)

---

\(^{46}\)There does, however, seem to be a strong, if not total, prohibition against subjects in the Vorfeld. Thus, subjects of polite imperatives may never precede the verb, regardless of whether the imperative form is indistinguishable from the indicative one (as in most cases) or morphologically distinct, as in (i):

(i)

\[
\begin{align*}
\text{a. Seien Sie bitte ganz ruhig.} \\
&\text{be you please totally calm} \\
&\text{‘Please be totally calm.’}
\end{align*}
\]

\[
\begin{align*}
\text{b. *Sie seien bitte ganz ruhig.} \\
&\text{you be please totally calm}
\end{align*}
\]
(123) a. Dann komm doch mit.
    then come PART with
    'Come along then!'

b. Den Apfel wasch am besten bevor du ihn ißt.
    the apple wash at.the best before you it eat
    'You had better wash the apple before you eat it!'

Next, the constraint on the QUANTS store requires that no wh-quantifier must have been retrieved within an imperative clause. We will see in Section 6.6.2 how this accounts for some interesting mismatches between syntactic form and clause type status.

One aspect that is not reflected in the sort constraint is that subjects are optional in the (nonpolite) second person. I take this fact not to be a consequence of the contraints associated with the imperative clause type, but instead assume them to be a consequence of the valence requirements associated with verbs that have imperative morphology. Since polite imperatives always require their subject to be syntactically present, the optionality of the subject is presumably not deducible from semantic considerations. As a consequence of optional subjects, it follows that there are fully well-formed one-word root clauses in German, namely for example in the case of intransitive 2nd singular imperatives such as komm! ('come').

As a result of the interaction of the constraints associated with the various subsorts within each partition, the respective constraints on the order domains can be formulated by making reference to only the left peripheral fields. This is a desirable result, as we should expect to find the kinds of constraints that make direct reference to the internal structure of order domains to be rather restricted. In the cases considered here, such reference can be thought to be motivated by the fact that the
leftmost element(s) in a clausal domain bear(s) a uniquely important role in determining the root/subordinate status and the sentence mood. Since the determination of an utterance along these lines is an important signal in discourse, it does not come as a surprise that in languages such as German and English, the determinants of this classification are clustered early in the clause.

6.6 Scoping of *wh*-quantifiers and syntax-semantics mismatches

So far, I have said very little about how the different constraints on clause types interact with semantics, in particular, the construction of a semantic representation in the case of *wh*-expressions. In general, I assume that *wh*-elements denote a subclass of quantifiers, as is illustrated in (124) (cf. Pollard & Yoo 1995):

(124) `wer`

Like other quantificational elements, the quantifiers originating with *wh*-elements must at some point be taken out of QSTORE and be integrated into the CONTENT specification of a sign by occurring in the QUANTS list at that level. In principle, retrieval of *wh*-quantifiers may happen at any node, but it is tightly regulated by other constraints. As is illustrated in (124), the quantifier store is not a feature at the level of *sign*, as in Pollard & Sag (1994), but instead is part of the LOCAL specification.
This change, proposed by Pollard & Yoo (1995), is motivated among other things by narrow scope readings of quantifiers in Raising constructions. If QSTORE is taken to be an attribute of signs, quantifier retrieval is in effect dissociated from the selectional properties of heads. As Pollard & Sag (1994:328n) note, this leads to wrong results in the case of raising constructions such as:

(125)  a. A unicorn appears to be approaching.
       b. Sandy believes each painting to be fraudulent.

Pollard & Sag assume that quantifier retrieval may occur at each node in the syntactic tree dominating the node at which the quantifier is introduced into QSTORE. However, because the understood subject of the VP complements of the raising verbs is not syntactically realized within the VP but only in the matrix domain of the raising predicate, the quantificational NP will necessarily have to take wide scope over the raising verb. Thus, the narrow scope readings in (125) become unavailable. One possible solution to this problem is to allow for categories to have access to the QSTORE value of their arguments by locating that attribute within the synsem object. This makes it possible for the raising verb to lexically retrieve the quantifier of the VP complement and let it take scope within the VP complement meaning, cf. Pollard & Yoo (1995) for details.

But now, if QSTORE is part of LOCAL information, it is shared between a filler and its trace. Yet, while fillers and gaps represent two nodes in the syntax, both of them can only contribute to the sign's semantic content once. Otherwise, the very same quantifier would spuriously occur in different places within the semantic representation. For that reason, I assume that quantifiers can only be inherited from the
trace site, but never from the filler. Similarly, other "semantically vacuous" (Pollard & Yoo 1995) constituents that do not permit quantifier retrieval are nonthematic complements such as raised arguments.

Other constraints on quantifier retrieval are the result of selectional restrictions of clause-embedding predicates. Thus, verbs that take questions or semi-questions require of their complement clauses that first, there be a wh-expression, i.e. a wh-quantifier or wh-operator, within the complement's QUANTS list and second, that if the complement has a nonempty QUE specification then its value must be among the quantifiers that have scoped. As a result, the wh-quantifier corresponding to wen in (126a) cannot percolate to the matrix clause and wrongly turn the sentence into a question.

(126) a. Lisa möchte wissen [wen Hans gesehen hat].
   Lisa would.like know who Hans seen has
   'Lisa wants to know who Hans has seen.'

b. Lisa möchte wissen [daß Hans wen gesehen hat].
   Lisa would.like know that Hans who seen has
   'Lisa wants to know who Hans has seen.'

However, these lexical constraints alone are too weak as they still allow the daß-clause in (126b) to count as a semantic question so long as quantifier retrieval for wen takes place within it.47

What is intuitively wrong with (126b) is that it does not have the right syntactic form to constitute an embedded question. It seems that if a wh-quantifier takes scope, it may only do so within a sign which has the trappings of a syntactic question, viz.,

47 We cannot assume that all embedded questions have a nonempty QUE value because of the existence of embedded polars, where the complementizer ob does not count as a wh-expression and hence does not license wh-quantifier retrieval.
is classified as the syntactic clause type *wh-interrog*, which in turn via (115) and (41) must have a left-most *wh*-expression in its order domain.

(127) \[
\text{clause} \quad [...|\text{CONTENT}|\text{QUANTS} \langle \ldots \text{[wh-quant]} \ldots \rangle] \rightarrow \text{*wh-interrog*}
\]

As for (126b), this means that the example is ungrammatical because the matrix predicate subcategorizes for a semi-question, yet there is no appropriate syntactic environment to license quantifier retrieval in compliance with the principle in (127).

Interestingly, the constraint in (127) derives the scope possibilities with multiple *wh*-questions if the second *wh*-expression is contained in a declarative complement clause. For instance, in (128), the lower *wh*-quantifier *was* cannot take embedded scope, first because *behaupten* does not embed questions, and second because the complement clause is not of the sort *wh-interrog*. However, if the quantifier is scoped at the matrix level, the initial *wh*-expression *wer* creates the right syntactic environment for quantifier retrieval. Along the way, the initial occurrence of *wer* also ensures that its own quantifier-retrieval is legitimate. As shown in (128b), the locus for quantifier retrieval may itself be in a subordinate environment. This is predicted as the constraint in (127) leaves the root/subordinate status of the *wh-interrog* clause unspecified.

(128) a. Wer hat behauptet [daß Hans was gesehen hat]?
    who has claimed that Hans what seen has
    ‘Who claimed that Hans saw what?’
    which-person x, which y [claimed(x, saw(Hans, y))]

b. Ich möchte wissen [wer behauptet hat [daß Hans was gesehen hat]].
   I like know who claimed has that Hans what seen has
   ‘I’d like to know who claimed that Hans saw what.’
   like-to-know(I, which-person x which y [claimed(x, saw(Hans, y))])
This also derives the well-known ambiguities observed with embedded questions that are part of a matrix question. For example, the \textit{wh}-expression \textit{was} in (129) can scope either low and be part of the embedded semi-question, or high and form the question to a pair-list answer. The middle \textit{wh}-phrase \textit{wem}, on the other hand, is lexically required to be part of the embedded semi-question.

(129) \begin{verbatim}
Wer weiß [wem Lisa was gegeben hat].
who knows who-DAT Lisa what given has
‘Who knows to whom Lisa gave what?’
\end{verbatim}

Incidentally, note that in the system proposed here, the distinction often made in transformational grammar between Subjacency holding for syntactic movement, but not for LF movement (cf. Huang 1982 and Watanabe 1992), essentially falls out. LF movement of quantifiers corresponds to retrieval at a matrix clause. However, the percolation of QSTORE values is not subject to the constraints that affect the passing of SLASH values. Consequently, as long as the retrieval occurs in the right syntactic environment, a \textit{wh}-quantifier at that level may hold an arbitrarily complex syntactic relation with the place of its origin.

\section*{6.6.1 Expletive scope marking construction}

Let us now turn to two constructions that to some degree violate the natural correspondence between syntactic and semantic status. The first is a phenomenon that I will refer to as the \textit{Expletive Scope Marking Construction}, also known as \textit{Partial Wh-Movement} (cf. McDaniel 1989). These are types of questions in which the wide scope of a \textit{wh}-quantifier is not indicated by dislocating the \textit{wh}-expression itself, as is
common in English, but rather by the question particle was. In (130) examples are
given for both matrix and embedded questions.

(130) a. Was glaubst du [wen Hans gesehen hat]?
   what believe you who-ACC Hans seen has
   ‘Who do you think Hans saw?’

   b. Lisa möchte wissen [was du glaubst [wen Hans gesehen hat]].
   Lisa would.like know what you believe who-ACC Hans seen has
   ‘Lisa wants to know who you think Hans saw.’

Given that in many dialects, including my own, such constructions are much preferred
over English-type long distance extraction alternatives, it is somewhat peculiar that
in comparison, relatively little has been written about them, with the exception of

The line of analysis I want to pursue here is that bridge verbs such as glauben,
denken, meinen, possess alternative specifications in which they select a (syntactic)
wh-complement, even though they normally do not allow such arguments. At the
same time, however, the constituent they subcategorize for remains a nonquestion se-
mantically by virtue of the fact that no wh-quantifier takes scope within the embedded
clause. Technically, this means the sentential complement of such predicates is barred
from having any elements of sort wh as members of the value of its QUANTS attribute.
Specifically, the quantifier that designates the clause as a question is structure-shared
in its CONTENT value with an expletive element:48

---

48Strictly speaking, mention of the lower clause’s QSTORE value is redundant. This is so because
only way that the selection of a semantic nonquestion is ensured in the case of a complement
clause containing a wh-expression is if its quantifier scopes in a higher clause via QSTORE.
This means that the expletive wh-expression was extends the domain upwards within which wen may take scope. In (132), I sketch the flow of information in the relevant attributes:

The cornerstone of this analysis is the fact that the syntactic and semantic conditions
of what it is to be a question are linked in only one direction. That is, while a semantic question requires the appropriate syntactic context, just because something matches the pattern of a syntactic interrogative, we cannot be sure that that piece of syntax will by itself also have interrogative interpretation.

Localizing the licensing of the scope marking effect within the lexical entry also accounts for why some predicates exhibit some notable differences in acceptability between long extractions and corresponding scope marking cases, as noted by McDaniel (1989:571). Thus, while (133a) is marginally grammatical, its counterpart is significantly degraded in acceptability:

(133) a.?Mit wem ist es schade [dab Hans gesprochen hat]?  
    with whom is it regrettable that Hans talked has  
    ‘Who is it regrettable that Hans talked to?’

b.*Was ist es schade [mit wem Hans gesprochen hat]?  
    what is it regrettable with whom Hans talked has

This suggests that schade sein bars its clausal complement from ever being a (syntactic) question; i.e., the latter must be [QUE {}].

Furthermore, note that Expletive Scope Marking constructions can be iterated. While (134a) illustrates long extraction across a dab-clause and (134b) instantiates the case where the PP is extracted only part of the way with was extending its scope to the root clause, (134c) is an example of two successive scope marking chains that give root scope to the wh-expression two clauses lower:

(134) a. Mit wem glaubst du, [dab Hans meint, [dab Jakob gesprochen hat]]?
    with whom believe you that Hans thinks that Jakob talked has
    ‘Who do you believe that Hans thinks Jakob talked with?’

b. Was glaubst du, [mit wem Hans meint, [dab Jakob gesprochen hat]]?
    what believe you with whom Hans thinks that Jakob talked has
    ‘Who do you believe that Hans thinks Jakob talked with?’
c. Was glaubst du, [was Hans meint, [mit wem Jakob gesprochen hat]]?  
   what believe you what Hans thinks with whom Jakob talked has  
   ‘Who do you believe that Hans thinks Jakob talked with?’

The fact that in (134c), each filler-gap dependency is limited to a single clause is a consequence of the fact that the scope marker is categorized as expletive. Such elements are barred from extraction out of clauses on general principle. As a consequence, the following example, in which the linkage between scope marker and licensing predicate “skips” an intermediate clause, is correctly predicted to be ungrammatical:

(135) *Was glaubst du, [daß Hans meint, [mit wem Jakob gesprochen hat]]?  
    what believe you that Hans thinks with whom Jakob talked has

Similarly, there can never be expletive wh-markers in a position lower than the wh-expression they are correlated with:

(136) *Was glaubst du, [mit wem Hans meint, [was Jakob gesprochen hat]]?  
    what believe you with whom Hans thinks what Jakob talked has

On the other hand, the wh-expletive is fully capable of creating the syntactic environment for the scoping of more than one wh-quantifier:

(137) Was glaubst Du [wem Hans was gegeben hat]?  
    what believe you who-DAT Hans what given has  
    ‘Who do you think Hans gave what?’

Similarly, the scopal expletive may license other wh-expressions within the clause it occurs in, such as the subject wer in the matrix clause of (138):

(138) Was glaubt wer [wem Hans die Bücher gegeben hat]?  
    what believes who who-DAT Hans what given has  
    ‘Who thinks that Hans gave the books to who?’

As an alternative to the idea of SLASH percolation, one may also pursue the idea that was is introduced as an additional argument. While this would bring this construction very close to “correlate constructions” (cf. Chapter 8) and explain the clause boundedness, additional steps have to be taken to ensure obligatory leftmost placement.
The foregoing discussion has shown that the linearization-based model pursued here offers a basis for a straightforward account of constructions which, albeit ubiquitous in Standard German, have—to the best of my knowledge—not previously been accounted for in a nonderivational framework.

6.6.2 Wh-imperatives

Another instance of a mismatch between syntactic form and semantic interpretation are so-called wh-imperatives, extensively studied for instance in Reis & Rosengren (1991). These are imperative constructions in which a wh-expression occurs extracted from an embedded clause in the matrix Vorfeld. An example is given in (139).

(139) Wohin sag mir bitte doch mal gleich [dab Peter gegangen ist].
where tell me please PART PART right away that Peter gone is
‘Tell me please right away where Peter went.’

What is peculiar about these cases is that they seem to fit the syntactic pattern of root wh-interrogatives by virtue of a wh-expression occurring in a V2 sentence, yet the only interpretation available is that equivalent to the corresponding sentence in (140) which is that of a root imperative with an embedded semi-question:

(140) Sag mir bitte doch mal gleich [wohin Peter gegangen ist].
tell me please PART PART right away where Peter gone is
‘Tell me please right away where Peter went.’

In other words, the scope of the wh-expression is confined to the lower clause and does not correspond to the wh-phrase’s syntactic position. In a way, this phenomenon represents the mirror-image of the scope marking construction because in (140), the semantic scope is lower than that indicated by the syntax, whereas in the latter cases, the wh-expression is correlated with scope retrieval at a higher level than its overt position.
However, given our conditions on clause types in the previous section, such constructions are (almost) predicted. Recall that the distinguishing properties of imperative clauses besides their morphology is the fact that they do not allow any \textit{wh}-quantifier to scope at that level.\footnote{This probably does not have to be stipulated but can be derived from conflicting illocutionary demands associated with imperatives on the one hand and matrix \textit{wh}-quantifiers on the other.} But this means that the only way to avoid a clash is to scope within the embedded clause.

One obvious problem that this raises is how low \textit{wh}-quantifier retrieval is licensed if there is no overt \textit{wh}-expression at the left periphery and hence no apparent way that the \textit{daβ}-clause could count as \textit{wh}-interrogative. To account for this, I propose to let the complementizer \textit{daβ} act as a “stand-in” for the extracted \textit{wh}-phrase. Thus, while normally, \textit{daβ} gives rise to declarative clauses and thus bears the specification [\textit{QUe} {}], its occurrence in \textit{wh}-imperatives is somewhat exceptional in that it bears a nonempty \textit{QUE} value. Specifically, that value is token-identical to the content of the extracted \textit{wh}-filler, as shown in (141):

\begin{equation}
\textit{daβ} \\
[\text{...|\textit{QUE} {T}}] \\
[\text{...|\textit{SPEC S} SLASH {[\text{...|\textit{CONTENT} {T}\textit{wh-quant}}]}}]
\end{equation}

Given the prohibition against quantifier retrieval from fillers mentioned above, the only possibility for the \textit{wh}-quantifier in (141) is to scope low within the complement clause, while the filler is semantically inert at the matrix level. As a result, we get the following schematic representation for the sentence in (139):
One of the consequences of this analysis is that if another *wh*-expression occurs within the complement clause, the ambiguity of scoping, that was observed in the nonimperative case in (129) above, goes away (Reis & Rosengren 1991:94):

(143) Wohin stell dir vor [daß er mit wem gefahren ist].

where imagine yourself PART that he with who gone is 'Imagine where he went with who.'

The only syntactic environment for retrieving the the quantifier associated with *mit wem* is the lower clause, as the matrix clause, contrary to appearances, is not of the *wh-interrogative* clause type. Similarly, if another *wh*-expression occurs within the
matrix clause, it is not in an environment that allows quantifier retrieval, hence the following example is correctly predicted to be ungrammatical:

(144) *Wohin sag wem [daß Peter mit Lisa gefahren ist].
     where tell who-DAT that Peter with Lisa gone is

One potential issue that may arise in connection with \textit{wh-}daß in (141) is whether its distribution can be circumscribed enough so as to disallow readings that are unavailable. We know that low quantifier retrieval is never possible in cases such as in (145), where the matrix predicate exhibits nonimperative morphology. Yet, there is as yet nothing that would block the version of daß in (141) from occurring in this sentence, allowing low \textit{wh}-quantifier scoping.

(145) Wohin sagst du [daß Otto gegangen ist]?
     where say you that Otto gone is
     ‘Where do you say that Otto went?’
     Not: ‘Do you say where Otto went?’

However, there seems to be a unifying property of all (nonimperative) predicates selecting clausal complements. In all cases, whatever the \textsc{que} and \textsc{slash} values of the complement may be, they are required to never have any elements in common. In particular, this means that either there is nothing extracted from the complement clause or, if there is, the extracted element’s \textsc{content} value must not be in the \textsc{que} store:

(146) \[
\begin{array}{c}
S \\
\text{QUE [1]} \\
\text{SLASH [2]} \\
\mathbb{1}: \{\} \\
\text{\textsc{que}} (\mathbb{2}: \ldots | \text{\textsc{content}} [3]) \land \mathbb{1} \cap \{2\} = \emptyset
\end{array}
\]
It is precisely the function of the complementizer in (141) to link up the clause's SLASH and QUE values; therefore, it can never occur in ordinary clausal complements. Imperative predicates, on the other hand, do allow there to be a nonempty intersection, and hence permit the occurrence of daβ as a wh-complementizer.

One question that will have to remain unanswered for now is why it is that only imperatives exhibit the kind of syntactic selection that requires daβ to be "coerced" into a wh-complementizer. It would be desirable to have this follow from general constraints instead of having to stipulate the correlation. One intuitive answer may be that wh-quantifier retrieval has to occur at the highest node showing the proper syntactic characteristics (i.e. containing an initial wh-expression) and which is compatible with the illocutionary force of questions. A simple clause cannot at the same time express a question and a command, therefore examples such as the following are utterly impossible:

(147) *Was erzähl mir?!
    what tell-IMP me

By contrast, clauses with tensed morphology do allow an interrogative interpretation. Consequently, low retrieval in indicative/subjunctive sentences like (145) would be ungrammatical as there is a higher clause (i.e. the matrix sentence) that has the requisite syntactic characteristics for wh-quantifier retrieval. Whether this idea can be implemented in a framework like HPSG that does not avail itself of defaults and overrides is an issue I will leave for further study.
6.7 Conclusion

The hierarchy of clause types proposed in this chapter is only the beginning toward a full account of how formal syntactic devices are interconnected with interpretation at the level of clauses. What is still missing, of course, is a precise account of the semantic/pragmatic properties of the different sentence moods. However, any such theory will depend on a characterization of the syntactic properties that our classification attempts to capture. That such external properties are to some extent irreducible to the combinatorial system—or semantics for that matter—should be obvious if one considers for instance the difference between wh-movement and wh-in-situ languages.

What makes the constructional approach developed here attractive is the lack of appeal to syntactic categories that can only be deduced on the basis of a rich set of prior assumptions about syntactic structure. Thus, no empty elements, be they Q-morphemes or empty relativizers are postulated and no transcendent level of syntactic organization such as LF is required. Instead, the syntactic generalizations are expressed by means of observables in the input. It is only in the classification into topological fields that some degree of abstraction comes in; however, the chain of reasoning required to make the necessary determinations is quite shallow and moreover based on extremely general principles such as the Clause Constraint. In the same vein, the analysis of V2 as a linearization phenomenon earlier in this chapter also follows the spirit of a "WYSIWYG"-based\textsuperscript{52} theory of syntactic structure and linear

\textsuperscript{51}See for instance Ginzburg (1992) for a formal analysis of questions.

\textsuperscript{52}"What you see is what you get"
order.

In the next chapter, I return to issues dealing more narrowly with the structural and linear properties of the verbal system, in particular within the verb cluster.
LINEARIZATION-BASED GERMAN SYNTAX
Vol. II

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By

Andreas Kathol, MA

* * * * *

The Ohio State University

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Reading Committee:

Carl Pollard
Peter Culicover
Robert Kasper
Robert Levine

Approved by

Advisor
Department of Linguistics
CHAPTER VII

Verbal Syntax

This chapter presents an account of some of the verb-related clause-final phenomena of German from the perspective of linearization-based theory. It starts out in Section 7.1 with a discussion of order variability in the verb cluster. Here, the usefulness of a flat linear representation will become apparent when constructions exhibiting Zwischenstellung are considered. After brief sections on the coherence/incoherence distinction and issues of scope, a novel analysis of separable prefixes is presented in Section 7.4. Section 7.6 offers a proposal for the treatment of Verb Projection Raising, a construction type in which some phrasal element occurs within the verb cluster. This section also sets the stage for Partial VP Fronting in Section 7.7, which is treated in terms rather similar to Verb Projection Raising. Finally, the chapter concludes with Section 7.8, where a lexically-based analysis is proposed for the Third Construction, which will be shown to share properties of both coherent and incoherent constructions.

7.1 The structure of the Verb cluster

As we saw in the second chapter, there is now a wide acceptance of the idea that the structure of the verb cluster involves some kind of complex predicate formation.
However, if one is to follow this approach, there still are various degrees of freedom regarding on the one hand the combinatorial structure of the verb cluster and on the other, the way in which this structure gets linearized.

As a starting point for addressing this issue I take the analysis of the verbal complex developed in Hinrichs & Nakazawa (1989) and Hinrichs & Nakazawa (1994a). One of the central ideas of that approach is that the analysis of the common head-final structures should lend themselves to a straightforward extension for those cases in which the head instead occurs at the left periphery of the verb cluster. As was briefly mentioned in Chapter 2, these are what Hinrichs & Nakazawa call Auxiliary Flip constructions, as seen in (1b).\(^1\)

(1)  
  a. daß Peter das Buch finden können wird.  
      that Peter the book find can will  
  b. daß Peter das Buch wird finden können.  
      that Peter the book will find can  
      'that Peter will be able to find the book.'

Hinrichs & Nakazawa (1994a) argue that the cluster-final vs. cluster-initial placement of the highest governing verb wird supports the assumption that the sequence of subordinate verbs finden können forms a constituent. Moreover, the phenomenon of Aux Flip is subject to a number of constraints, both on the kinds of verbs that undergo the shift to the left and on the kinds of environments that trigger it, which Hinrichs & Nakazawa propose to account for by means of the binary HEAD feature FLIP. As the following two structures for (1a,b), respectively, illustrate, a negative

---

\(^1\)See also den Besten & Edmondson (1983) for pointers to traditional literature and some discussion of the history of the construction. Other names for the phenomenon include Verb Raising and Double-Infinitive Construction.
value for FLIP on a verbal constituent indicates that the superordinate verb will follow it (i.e. the [FLIP -] verbal constituent), while [FLIP +] occasions the head to precede its complement (Hinrichs & Nakazawa 1994a:26):

(2)  

a. \[v[FLIP -]\]
    \[v[FLIP -] v[FLIP -]\]
    \[wird\]
    \[v[FLIP -] v[FLIP -]\]
    \[finden k"onnen\]

b. \[v[FLIP -]\]
    \[v[FLIP -] v[FLIP +]\]
    \[wird\]
    \[v[FLIP -] v[FLIP +]\]
    \[finden k"onnen\]

The relative placement in both cases is the result of the following two LP statements (Hinrichs & Nakazawa 1994a:25-26):

(3)  

a. \text{COMPLEMENT [MAJ V][FLIP -] < HEAD[LEX +]}  
b. \text{HEAD[LEX +] < COMPLEMENT[MAJ V][FLIP +]}  

Aux Flip triggers comprise a small list of verbs with base infinitival morphology, including all modal auxiliaries (and Acl verbs, which I will not have much to say about here), which in turn select a bare infinitive verbal complement. Additionally, when the governing verb is the tense auxiliary \textit{haben}, this group exhibits substitute infinitival inflection (\textit{Ersatzinfinitiv}) even though \textit{haben} usually governs the past participial form of its complement:
Most—but not necessary all—triggering environments hence consist of a sequence of two bare infinitives.

In Standard German, the only two governing verbs that take Aux Flip complements are the future auxiliary werden and the perfect auxiliary haben. With the first, the selection is optional, giving rise to the variation seen in (2a,b) above. On the other hand, whenever haben’s complement is infinitival (obligatorily so for modals, which lack a past participial form), Aux Flip is obligatory.

The picture that emerges is hence as depicted in (5), which schematically tabulates the properties of those verbs that can exhibit Aux Flip order and their potential triggers:²

²Here and below, government of a verbal complement is indicated with the feature VCOMP, which will be discussed in more detail shortly.
Potential Aux Flip undergoers: | Potential Aux Flip triggers:
---|---
\( \text{werden} \)\[ \text{VCOMP} \left\langle \left[ \text{VFORM} \text{ inf} \right] \right\rangle \] | “true” infinitive \[ \text{FLIP} \pm \] \hline
\( \text{haben} \) \[ \text{VCOMP} \left\langle \left[ \text{VFORM} \text{ inf} \right] \right\rangle \] | \( \text{Ersatzinfinitiv} \) \[ \text{FLIP} + \] \hline
\[ \text{VCOMP} \left\langle \left[ \text{VFORM} \text{ psp} \right] \right\rangle \] | all other forms: \[ \text{FLIP} \pm \] (all other governors: \[ \text{VCOMP} \left\langle \left[ \text{FLIP} \pm \right] \right\rangle \] )

What the chart in (5) does not yet reflect is the fact that the placement of Aux Flip undergoers may interact if both types cooccur in one construction. Thus, if \( \text{werden} \) embeds a structure that contains a flipped \( \text{haben} \), it must itself also occur in left-peripheral position. Therefore, of the two linearizations in (6), only the one in (6a) is grammatical, with its structure shown in (7):

\[(6)\]
\begin{enumerate}
\item a. daß er die Lieder wird [haben singen können].
\hspace{1cm} that he the songs will have sing can ‘that he will have been able to sing the songs.’
\item b.* daß er die Lieder [haben singen können] wird.
\hspace{1cm} that he the songs have sing can will
\end{enumerate}

\[(7)\]
\begin{align*}
\text{V[FLIP} - \rangle & \\
\text{V[FLIP} - \rangle & \text{V[FLIP} + \rangle \\
\text{wird} & \\
\text{V[FLIP} + \rangle & \text{V[FLIP} + \rangle \\
\text{haben} & \\
\text{V[FLIP} - \rangle & \text{V[FLIP} + \rangle \\
\text{singen} & \text{können}
\end{align*}
Hinrichs & Nakazawa (1994a) propose to account for this fact by assuming that *haben* takes on the trigger properties of the complement it embeds:

(8) 

\[
\text{haben} \left[ \begin{array}{c}
\text{FLIP} \\
\text{VCOMP} \left( \begin{array}{c}
\text{FLIP} \\
\text{AGR psp}
\end{array} \right) \end{array} \right]
\]

This means that whenever *haben* is involved in an Aux Flip construction, the whole constituent will itself become a trigger. Otherwise, it will occasion the higher verb to occur finally, as in (9):

(9) 

\[
\text{V[FLIP -]} \quad \text{V[FLIP -]} \\
\text{V[FLIP -]} \quad \text{V[FLIP -]} \quad \text{wird} \\
\text{V[FLIP -]} \quad \text{V[FLIP -]} \quad \text{gesungen} \quad \text{haben}
\]

Hinrichs & Nakazawa (1994a) correctly capture all the grammatical permutations of verbs and their verbal complements listed in Bech (1955:63). Using his convention of indicating depth of embedding by increasing subscripts, these can be listed as in (10):

(10) 

\[
V_1 \ V_2 \ V_1 \ V_3 \ V_2 \ V_1 \ V_4 \ V_3 \ V_2 \ V_1 \ V_5 \ V_4 \ V_3 \ V_2 \ V_1 \\
V_1 \ V_1 \ V_2 \ V_4 \ V_3 \ V_2 \ V_1 \ V_5 \ V_4 \ V_3 \ V_2 \ V_1 \ V_1 \ V_2 \ V_4 \ V_3 \ V_2 \\
V_1 \ V_2 \ V_4 \ V_3 \ V_2 \ V_1 \ V_1 \ V_2 \ V_4 \ V_3 \ V_2 \ V_1 \ V_2 \ V_4 \ V_3 \ V_2 \ V_1 \ V_1 \ V_2 \ V_4 \ V_3 \ V_2 \\
V_2 \ V_4 \ V_3 \ V_1 \ V_1 \ V_2 \ V_3 \ V_4 \ V_1 \\
V_2 \ V_4 \ V_3 \ V_1 \ V_1 \ V_2 \ V_3 \ V_4 \ V_1 \\
\]

\[^3\text{The fourth pattern in the fourth column is only possible in those dialects for which modal auxiliaries such as *kennen* may undergo Aux Flip. With Hinrichs & Nakazawa (1994a:16.n.4) I will assume that only the tense auxiliaries *werden* and *haben* are uncontroversial when occurring in an Aux Flip construction.}\]
For comparison, this table also lists two ungrammatical cases in which the highest verb "ignores" the Aux Flip occurring in its complement (cf. (6b) above). One important aspect of Hinrich & Nakazawa’s system, which can be seen rather clearly in Bech’s tabular representation in (10), is the fact that the sequence of verbs can be divided into at most one subsequence of monotone increasing levels of embedding and exactly one monotone decreasing subsequence of levels of embedding—separated in (10) by means of "\|". The first of these subsequences corresponds to what Bech calls Oberfeld (‘upper field’), while the second is his Unterfeld (‘lower field’):

(11)

\[
\begin{array}{c|c}
\text{Oberfeld} & \text{Unterfeld} \\
\hline
V_1 \ldots V_{n-(i+1)} & V_n \ldots V_{n-i} \\
\end{array}
\]

\[
n > 0, n > i > 1
\]

In the case of \( i = n - 1 \), the Oberfeld is empty, that is, no verb occurs in flipped position.

One aspect of Hinrichs & Nakazawa’s treatment of the Aux Flip construction that deserves a brief comment is their treatment of the Ersatzinfinitiv. For them, the infinitival forms of Aux Flip triggers with the perfect auxiliary haben are simply classified as past participles: [vFORM psp]. It then becomes a matter of the morphological spell-out rules that in the presence of the specification [FLIP -], the past participle of these verbs takes on a form that is identical to that of the bare infinitive. On that account, the characteristic sequence of two verbs with infinitival morphology is really sometimes a sequence of an infinitive and a past participle. By contrast, if we were to assume that haben sometimes selects for a bare infinitive, we need two instances of that auxiliary: besides the regular entry, there has to be one that selects Aux Flip triggers with bare infinitival morphology.
For these reasons, I tentatively propose an account in which Aux Flip triggers in haben constructions are specified for both past participle and bare infinitive information. To this end I extend the view of morphology developed in Kathol (to appear). There, the MOR-SYN attribute represents morphosyntactic information on a category that interfaces on the one hand with the morphological component and on the other, with the morphosyntactic properties of elements selected by this category. In the case of nonfinite forms, the verb does not show any agreement with its argument, but crucially, its own nonfinite form (its status) is subject to selection by a higher verb. Unlike in the case of NPs, where MOR-SYN represents both internal inflectional information and at the same time states the feature values relevant for external syntactic relations, the two in principle need to be kept distinct for nonfinite verbs. Thus, I will continue to use MOR-SYN to represent the morphologically spelled out features on the verb; however, VFORM will now be appropriated for selectional requirements imposed by superordinate categories or in clause-type constraints, as in Chapter 6. Aux Flip triggers for haben can then be characterized in terms of a mismatch between the values of these two features:

(12) \[
\begin{array}{c}
\text{HEAD} \\
\text{verb} \\
\text{MOR-SYN inf} \\
\text{VFORM psp}
\end{array}
\]

Thus, while showing infinitival morphology (MOR-SYN), for the purposes of status government, these forms count as past participles (VFORM). In the vast majority of cases, though, the two values will be identical, i.e. the morphological expression will match that required by the higher verb.
This analysis allows us retain the single lexical entry for haben proposed by (Hinrichs & Nakazawa 1994a:25):

\[(13) \begin{array}{l}
\text{FLIP [ ]} \\
\text{VCOMP} \left\{ \text{FLIP [ ]} \right. \\
\text{VFORM psp} \left. \right\} \\
\end{array}\]

At the same time, a \([\text{FLIP +}]\) complement selected by haben bears the specification \([\text{mor-syn inf}]\), allowing for a morphological spell-out exactly parallel to the regular infinitive cases.

Furthermore, the relationship between the Aux Flip triggering status and the morphological expression can be captured by two general constraints that apply to all verbs:

\[(14) \begin{array}{ll}
a. & [\text{FLIP +}] \rightarrow [\text{MOR-SYN inf}] \\
b. & [\text{FLIP -}] \rightarrow [\text{MOR-SYN} [1]] \\
\text{VFORM [1]} \\
\end{array}\]

The first requires that only morphological bare infinitives are eligible triggers for Aux Flip, while the second limits the possibility of a mismatch between MOR-SYN and VFORM values to Aux Flip triggers. As a corollary of these constraints, we can now list verbs with regular past participle morphology and those with Ersatzinfinitiv in terms of minimally different lexical entries:

\[(15) \begin{array}{ll}
a. & \text{past participle of singen} \\
& [\text{FLIP -}] \\
& [\text{VFORM psp}] \\
\end{array}\]

\[b. \text{past participle of können} \]

\[ [\text{VFORM psp}] \]

In the first class, the VFORM value is given as psp, while such entries are obligatory Aux Flip nontriggers. As a result of the constraint in (14b), this VFORM specification
translates directly into a corresponding morphological expression as a past participle. On the other hand, in entries such as in (15b), the value of the FLIP attribute is left lexically unspecified. If set to "-", the entry becomes similar to that in (15a) and the same conditions apply. Otherwise, because of the constraint in (14a), the value of the MOR-SYN attribute will be inf, giving rise to the mismatch in (12).

Finally, a constraint is needed that prohibits past participial forms of modals from selecting infinitival complements.4

\( (16) \) *singen gekonnt hat

singen-Inf could-PSP has

This is achieved by the constraint in (17):

\( (17) \) \[ \text{VCOMP} \left( [\text{VFORM inf}] \right) \rightarrow [\text{MOR-SYN } \neg \text{psp}] \]

Note that the prohibition against participial morphology only applies if the modal indeed has a nonempty VCOMP value. When the modal does not syntactically select an infinitive, both the participial and the infinitival forms seem possible, as is illustrated by the following examples from Hinrichs & Nakazawa (1994a:15):

\( (18) \) a. weil er nicht anders hat können.

because he not otherwise has kann-Inf
‘because he couldn’t do differently.’

b. weil er nicht anders gekonnt hat.

because he not otherwise kann-PSP has
‘because he couldn’t do differently.’

Incidentally, the sentence in (18a) is a counterexample to the claim, made by many following Bech (1955), that Aux Flip always a sequence of two bare infinitives.

4Hinrichs & Nakazawa (1994a:14) concur, pace Duden (1984), that such examples are ungrammatical.
However, as it stands, the constraint in (17) is too restrictive, as it incorrectly prohibits participles from governing infinitives for all verbs. Yet, some verbs of sensory perception, such as hören, and others allow both construction types:

(19) a. weil ich ihn singen gehört habe.  
    because I him sing-INF heard-PSP have  
    'because I heard him sing.'

b. weil ich ihn habe singen hören.  
    because I him have sing-INF heard-INF  
    'because I heard him sing.'

I leave it for further study to strengthen the antecedent in (17) appropriately so that it applies to modal auxiliaries only.

7.1.1 Problems for a phrase structure-based account of the verb cluster

The theory developed in Hinrichs & Nakazawa (1994a) assumes the common phrase structure-based relation between syntactic structure and linear order. This predicts, for instance, that a verb that governs a cluster of two or more dependent verbs will never be able to occur interspersed among the latter. There exists, however, substantial evidence that this view is too strict, as such interspersals do indeed occur in a number of dialects. Meurers (1994) gives a number of grammatical examples in which the flipped auxiliary's placement is within the Unterfeld. Examples of this construction, occasionally referred to as Zwischenstellung ('intermediary position') or Verbal Complex Split, are given in (20) (Meurers 1994):

---

5Such constructions have often been attributed to Southern German dialects such as Franconian (cf. Kroch & Santorini 1991:304), yet, even though I am not a native speaker of such a dialect myself, I tend to find such examples fairly good.
According to Meurers, the presence of two flipped auxiliaries leads to the following pattern of grammaticality:

\[ (20) \]

a. zu dem Zeitpunkt an dem ich mich entscheiden\(_3\) hâte\(_1\) müssen\(_2\).
   'at the point at which I should have made a decision.'

b. daß er das Examen bestehen\(_3\) wird/hat\(_1\) können\(_2\).
   'that he will be/has been able to pass the exam.'

c. daß ihm die Entscheidung nicht durchgehen\(_3\) hâte\(_1\) dürfen\(_2\).
   'that the decision should not have passed him by.'

d. daß es so kommen\(_3\) hâte\(_1\) müssen\(_2\).
   'that it had to come to this.'

According to Meurers, the presence of two flipped auxiliaries leads to the following pattern of grammaticality:

\[ ^6 \]

\[ ^6 \text{Note that the pattern in (21d) is not generally excluded, but only in those cases in which haben selects an Ersatzinfinitiv and hence must undergo Aux Flip (with respect to at least one governed verb); cf. the following example from Bech (1955:64):} \]

\[ (i) \]

daß man ihn hier wird\(_1\) liegen\(_4\) bleiben\(_3\) lassen\(_2\) können\(_1\).
   'that one will be able to let him keep lying here.'
(21) daß er das Buch ...
that he the book
a. wird₁ haben₂ kopieren₅ lassen₄ müssen₃.
will have copy let must
b. wird₁ kopieren₅ haben₂ lassen₄ müssen₃.
c. ?wird₁ kopieren₅ lassen₄ haben₂ müssen₃.
d. *wird₁ kopieren₅ lassen₄ müssen₃ haben₂.
e. kopieren₅ wird₁ haben₂ lassen₄ müssen₃.
f. *kopieren₅ wird₁ lassen₄ haben₂ müssen₃.
g. *kopieren₅ werd₁ lassen₄ müssen₃ haben₂.
h. kopieren₅ lassen₄ werd₁ haben₂ müssen₃.
i. *kopieren₅ lassen₄ werd₁ müssen₃ haben₂.
j. *kopieren₅ lassen₄ müssen₃ werd₁ haben₂.

As it turns out, once the phrase structure-based view is abandoned and all elements of the verb cluster become equal elements within one domain, a relatively simple pattern emerges, stated in (22).⁷

(22) a. \[V_i < V_{i+1} \text{ iff } V_{i+1} \text{ is } [\text{FLIP } +]\]
b. \[V_{i+1} < V_i \text{ iff } V_{i+1} \text{ is } [\text{FLIP } -]\]

In other words, the proper linearization conditions do not make reference to the whole complement constituent as in (3) above, but rather, a head is ordered with respect to the head of the verbal complement it selects. Crucially, this formulation may allow more than one linearization in Aux Flip constructions. Take for instance (21h). The

⁷The departure from a strict phrase structure-based representation for verbal complexes is already foreshadowed in Zwicky (1986), who suggests that alongside the clear asymmetries in government relations among different verbs in both English and German, the linear representation should eliminate these distinctions (via his operation of direct liberation, cf. Chapter 4).
highest auxiliary *wird* is followed by the head of its complement, *haben*, which in turn is followed by the head of its complement, *müssen*. Since *müssen* does not undergo Aux Flip in Standard German, it requires the head of its complement, *lassen*, to precede it, though no immediate adjacency is required. The same holds for the linear relation between *lassen* and (the head of) its complement, *kopieren*. The fact that *wird haben* occurs interspersed between the verb sequence of its complement is immaterial for the linear precedence conditions. In contrast, in (21d,g,i,j), *haben* follows the head of its complement, *müssen*. But the latter has the *Ersatzinfinitiv* form, hence bears the specification [FLIP +]. Therefore, this order violates the constraint in (22a). As a corollary of the constraints in (22), in nonAux Flip environments, the head is final at each step along the way. This follows from the fact that in such cases, the head of the complement must already be final within its domain; hence a governor can only be added on to the right. In this respect, a flat domain approach is equivalent to one in which the complement cluster comprises a monolithic, opaque constituent. But as soon as Aux Flip cases in tolerant dialects are considered, the first approach is clearly superior.

The way I propose to formalize the constraints above is by means of the following two LP constraints:

\[(23) \begin{align*}
a. \quad & [v[vcomp ([head \square])] < [...|head \square|flip +]] \\
b. \quad & [...|head \square|flip -] < [v[vcomp ([head \square])] ]
\end{align*}\]

A number of comments are in order. First note that unlike in (3) above, no explicit reference in terms of subfeatures of DTRS such as HEAD or COMPLEMENT is made to
the respective function of the elements to be ordered. Such features are superfluous on the approach taken here because domain objects contain synsem information. So long as some constituent is licensed by some valence or other selectional feature such as MOD or SPEC, all relations such as head-complement and head-adjunct can directly be recovered from the domain objects themselves.

Next, the way that the statements in (23) make reference to the head of a complement as opposed to the complement itself is by means of structure sharing between selected verbal complement and the other domain object in terms of their HEAD value ([T]). While it is intuitively clear that each constituent should only contain one head, it is not entirely certain that this can also be taken for granted in our formalization. In other words, what prevents the accidental unification of HEAD values in (23) when the domain object in question clearly is not the head of the constituent selected by the other? Such a scenario may arise in examples such as the following:

(24) a. daß Otto zu singen zu versuchen scheint.
    that Otto to sing to try seems
    'that Otto seems to try to sing'

    b. \[
    \begin{array}{l}
    \text{HEAD} \\
    \text{FLIP} - \\
    \text{VFORM zu-inf} \\
    \text{AUX} - \\
    \end{array}
    \]

The HEAD value for both zu singen and zu versuchen will minimally contain the information given in (24b) and nothing will prevent both HEAD values from ending up structure-shared. Intuitively, however, we do not want the position of scheint to be licensed in terms of its relation to zu singen—the only head of scheint's complement is zu versuchen.

This is a part of a larger issue with the formulation of grammatical constraints in
HPSG. In general, we want to say that unless we have explicit knowledge that two feature structures are structure-shared, we can assume them to be unequal. However, a convention of "totally inequated feature structures" appears to be too strong as it incorrectly reduces the range of possible structure sharings among nominal indices in binding relations.

As a solution to the issue at hand, I would like to assume a more limited constraint to the effect that domains may only contain domain objects with pairwise distinct HEAD values.® This can be formulated in terms of the following LP constraint:®

\[(\text{head} [\overline{1}]) \prec [\text{head} [\overline{1}]]\]

This constraint is based on the same intuitive idea that ensures that positional topological fields may only contain one element, cf. Chapter 5. It requires uniqueness of HEAD values among domain objects because by definition, LP statements order distinct domain objects. If more than one element were to satisfy either of the descriptions in (25), contradictory linear precedence requirements would result. Therefore the only type of domains that can ever satisfy (25) are those in which HEAD values are unique.

Another issue worth noting is that as it stands, the LP constraint in (23b) is strictly speaking inconsistent with the TLPS of Chapter 5 because in the case of V1/V2 placement, that constraint requires the verb to follow its governed verb(s).

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®There is no issue here regarding the structure sharing (or LOCAL values) among fillers and traces, as the latter do not contribute any domain object to begin with.

®It should be clear that similar constraints could straightforwardly rule out accidental structure sharings regarding the value of other features such as SYNSEM and LOCAL. No such constraints will be needed in the present study, though.
whereas the verb’s cf marking occasions it to precede all vc elements, including the governed verb(s). This problem can be remedied fairly easily by specifying in the descriptions in (23) that the domain objects to be ordered all satisfy [TOPO vc]. We may even go one step further and assume that unless otherwise specified, an LP constraint will be understood as strictly local in that it only imposes ordering requirements among elements belonging to the same topological equivalence classes. If such a principle is adopted, then the LP constraints in (23) will automatically be understood to only make reference to those cases in which the domain objects to be ordered are part of the same topological subdomain. But, of course, the only field in which multiple verbal elements, selected by VCOMP, may cooccur is vc.

Given this, we can also give the LP constraints for less tolerant dialects in a straightforward way. These are varieties of German that do not allow Zwischenstellung constructions and limit the placement of auxiliaries to the right and left peripheries of the respective constituents they head. All that is required in those cases is the addition of a constraint that orders flipped auxiliaries before any verbal domain objects that do not themselves trigger Aux Flip:

\[
(23) \quad \text{c. } \left[ \text{V[VCOMP } \langle [\text{HEAD [FLIP +]}] \rangle \right] \prec \left[ \text{HEAD [FLIP -]} \right]
\]

\[10\] A similar proposal is also made in Ahrenberg (1994). In that framework, topological fields are modeled as possibly list-valued members of a topological frame, which is itself a list. Hence, what are clausal domain elements in our approach may not be members of the same list. Therefore, it seems virtually impossible to state ordering constraints across different fields in that model.
7.1.2 The case for VCOMP

Turning now to the question of what licenses the combination of verbs with their nonphrasal complements, I follow Rentier (1994) in assuming a schema separate from that for ordinary complementation (via SUBCAT) which involves a different valence feature called V(ERBAL)COMP(LEMENT). Its value is a list of at most one verbal sign. Moreover, I adopt Rentier's use of LEX to impose the absence of any phrasal arguments or adjuncts within the verbal complement. That is, as long as only verbal elements are combined into what Hinrichs & Nakazawa refer to as the "verbal complex", the value of LEX will remain positive. As soon as a phrasal constituent is added via the Head-Complement Composition relation, its value will switch to "-", which prevents any subsequent saturation of VCOMP values. As a result, the only way to derive a fully saturated verbal projection, i.e. a clause, is for any (quasi-)lexical valence requirements to have been discharged before phrasal ones. The relevant licensing statement, called Head-Verbal-Complement Composition Relation, is given in its preliminary form in (26):

(26) A sign M is licensed in a HEAD-VERBAL-COMPLEMENT COMPOSITION RELATION, provided there exist two signs H and V, such that:

1. M's SYNSEM|LOCAL|CAT|VAL|VCOMP value is token-identical to H's SYNSEM|LOCAL|CAT|VAL|VCOMP value minus V's SYNSEM value;

---

11This feature is equivalent to the feature GOV, first proposed by Chung (to appear) for Korean and later adopted for Dutch by Rentier (1994). "VCOMP" is arguably a more descriptive name. Still, this is not entirely unambiguous because phrasal VP complements will not be selected via VCOMP, but SUBCAT.

12Thus, the value of LEX is the polar opposite of the value for Hinrichs and Nakazawa's NPCODE feature. Since the range of phrasal complements to be barred from the verb cluster includes PPs, LEX is a more adequate feature name. It also reflects better the quasilexical status of the complex predicate formed by Argument Composition.
2. M’s SYNSEM|LOCAL|CAT|LEX value is +, as is
V’s SYNSEM|LOCAL|CAT|LEX value (to be revised later);

3. M’s DOM value is the shuffle of H’s DOM value with V’s DOM value (to
be revised later).

This relation licenses local trees of the following kind:

\[
(27) \quad \begin{array}{c}
\text{[H:] [sign} \\
\text{DOM [1]} \\
\text{...[VCOMP (1)]}
\end{array}
\quad \begin{array}{c}
\text{[M:] [sign} \\
\text{DOM [1]} \\
\text{...[CAT} \\
\text{VLEX + VAL[VCOMP ()]}
\end{array}
\quad \begin{array}{c}
\text{[V:] [sign} \\
\text{DOM [2]} \\
\text{SYNSEM [1]} \\
\text{...[LEX +]}
\end{array}
\]

The idea of assuming a separate ID schema for verbal complexes is by no means
new and has been proposed in various forms before, cf. for instance Chung’s (to
appear) “Gov-Head Schema” or the “Verbal Complex ID Schema” of Hinrichs &
Nakazawa (1994b). There, however, no separate valence feature is assumed, but
instead, verb clusters are selected along the same ways that regular, phrasal con­
stituents are, i.e. by means of COMPS, that is, our SUBCAT. While in general, it seems
preferable to posit as few valence features as possible, there are certain advantages to
be gained from separating the selection of (quasi-)lexical complements from ordinary
ones by means of VCOMP.

First, note that in order for our analysis of the placement of flipped auxiliaries
in Aux Flip constructions to work, it is necessary that the complement’s domain be
shuffled together with that of the head—other kinds of domain construction allowed
in (26) will be discussed in Section 7.7 below. Contrary to ordinary complementation,
no compaction occurs. As a result of having a separate VCOMP schema, we are able to keep the constraints on domain formation for SUBCAT-type complementation uniform.

Next, the interaction of VCOMP selection with our LEX feature ensures that, in Bech's terms, it is always the case that $V_i$ selects the constituent consisting of $V_{i+1}$ through $V_{i+n}$, where $i + n$ is the index of the lowest element in the complex predicate. As seen in Chapter 2, not every analysis incorporating the idea of Argument Composition will necessarily make this assumption. Thus, in Kiss (1992), the order of combination also proceeds in binary fashion, but in the opposite order; cf. (28), where LEXICAL indicates lexeme status similar to its use in Pollard & Sag (1987) (SUBJ values are ignored):

(28)

```
(28)

S
\[ \begin{array}{c}
  \text{NP} \\
  \text{Peter} \\
  \text{NP} \\
  \text{das Buch} \\
  \end{array} \]

\[ \begin{array}{c}
  \text{VP} \\
  \text{VP} \\
  \text{VP} \\
  \end{array} \]

\[ \begin{array}{c}
  \text{LEXICAL + COMPS (1)} \\
  \text{LEXICAL + COMPS (2)} \\
  \text{LEXICAL + COMPS (2)} \\
  \end{array} \]

\[ \begin{array}{c}
  \text{V} \\
  \text{V} \\
  \text{V} \\
  \end{array} \]

\[ \begin{array}{c}
  \text{LEXICAL + COMPS (2)} \\
  \text{LEXICAL + COMPS (1)} \\
  \text{LEXICAL + COMPS (2)} \\
  \end{array} \]

\[ \begin{array}{c}
  \text{können} \\
  \text{wird} \\
  \end{array} \]

Recall also from Chapter 2 that Pollard et al. (1993) (cf. also Baker 1994) alternatively advocate an entirely flat analysis:
On either of these accounts, it becomes more difficult to state the placement conditions in the Aux Flip cases than if the "left branching" structure advocated by Hinrichs & Nakazawa (1994a) is adopted. The Aux Flip trigger (können) forms a constituent with the flipped auxiliary to the exclusion of other verbal elements (28) or no constituent at all (29), respectively. To see the effects of this, consider the difficulties that the structures in (28) and (29) face vis-à-vis the ordinary Aux-Flip linearization. wird lesen können in dialects tolerant of Zwischenstellung: lesen is not an Aux Flip trigger; however, since wird attracts können's arguments—including all verbal ones—lesen becomes an argument of wird. This means that wird's COMPS list contains one element that triggers Aux Flip and one that does not. Given the view that the FLIP value on complements determines the position of the head, this means that if wird precedes both verbal complements, an inconsistency among the ordering constraints will arise unless the LP constraints are rendered more complicated to avoid the interference from the FLIP value of "more deeply embedded" dependents such as lesen above.13

More evidence for the "left-branching" composition structure of verbal complexes will be adduced below in Section 7.7, when the issue of Partial VP Fronting will be

13For instance, we could require that only the "most local" verbal complement should be considered in the LP constraint so that lesen's FLIP value is ignored by wird. This, of course, comes rather close to reintroducing the notion of "head of verbal complement", which is the basis of the LP constraints proposed here.
Now let us briefly consider the cost of trying to achieve Hinrichs & Nakazawa's branching structure without a separate valence feature. To this end, they restrict the range of arguments that verbs such as modals can attract from their complements to be nonverbal:

\[(30) \quad \text{können} \begin{array}{l}
\text{COMPS} \square \text{list}((-\text{HEAD verb}) \circ \left(\text{HEAD verb} \circ \text{COMPS} \square \right))
\end{array}\]

The intended effect of this is that an auxiliary in the verbal complex should not attract any verb complex-internal arguments of the verb it governs. If this is allowed, then, as illustrated in (28), the verbal complex can be given a right-branching structure. However, as it stands, this requirement is too strong as it prevents the attraction of VP arguments from governed constituents, such as in (31):

\[(31) \quad \text{daß Peter versuchen kann zu schlafen.}
\quad \text{that Peter try can to sleep}
\quad \text{‘that Peter may try to sleep.’}
\]

Here, zu schlafen is the complement of versuchen and hence attracted by the governing verb, kann. It is not immediately clear how one can modify the constraint in (30) so as to correctly allow the attraction of VP complements while ruling out the attraction of verb complex internal verbal elements. After all, in terms of its valence properties and the value for NPCOMP/LEX, an intransitive verb such as zu schlafen will be identical in its extraposed (phrasal) form and within a verbal complex.\(^{14}\)

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\(^{14}\)The two could be distinguished if one assumes something like Pollard's (in press) Schema B', which allows the creation of a phrasal verbal projection even when there are no complements to discharge, i.e. which applies as a unary rule in the case of lexical intransitives.
Once the distinction is made between selection via VCOMP vs. SUBCAT, it becomes straightforward to treat complements differently in each case, regardless of whether the internal syntax of the complement reflects the quasi-lexical/phrasal distinction.

### 7.2 The lexical representation of (in)coherence

To render the discussion somewhat more concrete, let us now take a closer look at the way that coherent and incoherent constructions are projected from the lexicon.

To some extent the easiest class to characterize is the set of verbs that can only occur in coherent constructions. Translated into our framework, this means that such categories form a verbal complex with their complement via VCOMP and at the same time attract all the arguments from their complement. This pattern can be observed for tense auxiliaries such as *haben*, classical raising verbs such as *scheinen*, and modal auxiliaries such as *können*. As was observed for instance by Kiss (1992), there is no strict correlation between the construction type and the morphology of the complement, hence each of the verbs below governs a different status: *psp*, *inf*, *zu-inf*, respectively.

(32) *haben, scheinen, können*

Also, as with Kiss' proposal, this characterization does not impose any requirement on the presence of subjects. That is, 1 above may instantiate a nonempty or an empty list. Thus, the presence/absence of a subject within the embedded predicate
is simply passed on to the level of the matrix verb.

Next, there are those verbs that instantiate what has been referred to as “optional coherence”. Such verbs may either attract all the arguments as in the coherent case in (32) or alternatively embed a VP complement.

(33)  
*beginnen, anfangen*

a. as in (32)

b. 

\[
\begin{array}{c}
\text{VAL} \\
\text{SUBCAT} \left( \begin{array}{c}
\text{SUBJ} \\
\text{VP}
\end{array} \right) \\
\text{VCOMP} \left( \begin{array}{c}
\text{SUBJ} \\
\text{VAL}
\end{array} \right)
\end{array}
\]

In the incoherent case, the embedded predicate has to necessarily contain a subject. This is illustrated in (34–35), where the addition of the (optional) subject expletive *es* helps the otherwise subjectless predicate become eligible for embedding under *anfangen*.

(34)  
a. daß ihm schlecht wird.
that him sick becomes
that he feels sick.

b. *daß anfängt [ihm schlecht zu werden].
that begins him sick to become

(35)  
a. daß es ihm schlecht wird
that it him sick becomes
that he feels sick.

b. daß es anfängt [ihm schlecht zu werden].
that it begins him sick to become
that he is starting to feel sick.

Membership in this class appears to be rather unpredictable, as the properties of such verbs in the coherent cases are quite similar to those of *scheinen* above (lack
of subject selection, government of zu-inf), yet the latter never occurs in incoherent constructions:

(36) *daß es scheint zu regnen.
    that it seems to rain

There is a small class of control verbs that also can occur in coherent constructions. What sets them apart from the verbs above is the fact that the subject as the controller of the embedded predicate is always required to be thematic, regardless of construction type. This is indicated by means of structure sharing with one of the participant attributes in the CONTENT value.\(^\text{15}\)

(37) 
\begin{itemize}
  \item versuchen
    a. \[
    \begin{array}{c}
    \text{CAT} \\
    \text{VAL} \\
    \text{CONTENT}
    \end{array}
    \begin{array}{c}
    \text{SUBJ} [1] \\
    \text{SUBCAT 2} \\
    \text{VCOMP}
    \end{array}
    \begin{array}{c}
    \text{SUBJ [1]} \\
    \text{VAL} \\
    \text{VCOMP [2]}
    \end{array}
    ]
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b. \[
\begin{align*}
\text{SUBJ} & \langle 1 \mid 3 \rangle \\
\text{VAL} & \langle \text{SUBCAT} \langle 1 \rangle \rangle, \langle \text{VP} \rangle \\
\text{VCOMP} & \langle \rangle
\end{align*}
\]

What now is the relationship between obligatory and optional coherence? This question has received a lot of attention for instance in Kiss (1992). There, it is assumed that a subset relation holds between the specification of the two construction types.

(39) a. Optional coherence
\[
\langle \text{SUBCAT} \langle 1 \rangle \circ \langle V \text{SUBCAT} \langle 1 \rangle \rangle \rangle
\]
b. Obligatory coherence
\[
\langle \text{SUBCAT} \langle 1 \rangle \circ \langle V \text{LEXICAL} + \rangle \rangle
\]

Thus, in (39a), no requirement is made regarding the lexical status or the valence of the selected verbal complement. Therefore, the description is compatible either with the selection of a phrasal (incoherence) or a lexeme-level complement (coherence). On the other hand, only the second possibility is allowed in (39b), where the range of allowable complements is reduced to lexemes. The problem with this approach, however, is that it incorrectly makes the prediction that "mixed coherence" should also be possible in the first case. For example, nothing bars a ditransitive verb such as *erzählen* from combining first with one argument and then have the resulting V-constituent be selected by the verb *versprechen* via (39a). The remaining arguments of the V are then attracted by the matrix predicate. If such a mode of combination were possible, one would expect to see such Vs occurring in the same places that VPs
are found, for instance in the *Mittelfeld*, together with the raised arguments. Yet, as is illustrated in (40), such constructions are ungrammatical:

(40) *weil er [dieses Märchen zu erzählen] nur seiner Tochter versucht hat.
    because he this fairy tale to tell only his daughter tried has.

In Section 7.8, I will discuss grammatical constructions superficially similar to the one in (40) and the conditions under which they can occur.

As an alternative, I want to suggest a somewhat different approach to the relationship between optional and obligatory coherence. The pattern appears to be that every control verb taking a verbal complement with *zu-infinitival* morphology will have one entry in which the complement is realized as a VP complement. For the vast majority of verbs, this appears to be the only possibility; yet, for the small group of verbs that manifest optional coherence, this option will exist in addition to the one involving total argument inheritance. Thus, to ensure that control verbs of the latter type are associated with VP-selecting entries, we can assume a lexical rule along the following lines:¹⁶

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¹⁶If it were not for obligatorily coherent verbs such as *scheinen*, this rule would also apply to all raising verbs governing *zu-inf*. Conversely, the rule is restricted to control verbs governing that status because control verbs such as *wollen* which govern bare infinitives may not participate in incoherent constructions.
As a result of this rule, it is now sufficient to list optionally coherent control verbs only in their coherent form. The variant that takes a full VP complement can then be derived via (41). Obligatorily incoherent verbs only possess an entry that selects a VP complement, hence the rule in (41) cannot apply and produce an entry with an alternative valence specification.

Another question worth asking is whether the class of optionally coherent verbs is in any way predictable. Haider (1993:250–251) notes that it is tempting to assume that it is coextensive with the class of subject control verbs without any nominal objects of their own. Kiss (1992:355) reaches a similar conclusion and moreover tries to motivate this constraint in terms of analogy with Baker’s (1988) Case Frame Preservation Principle. According to that principle, a complex X° category may only assign the set of cases that would be permissible for noncomplex specimens of the same category. Similarly, argument composition effected by verbal complexes may not create subcategorization lists that are illicit for single verbs. As a result, if a verb
with an additional NP argument were to attract the arguments of its complement, the resulting argument structure might contain multiple occurrences of NP[ACC] or NP[DAT]. The problem with this kind of explanation is that it does not explain why certain control verbs with extra NP arguments are obligatorily incoherent even if the resulting argument structure would not contain any offending extra NP argument with the same case. For instance, *zwingen* ‘force’ with its accusative object will remain incoherent even if the embedded predicate such as *helfen* only takes a dative complement:

(42) *Ich werde ihr den Schüler schon zu helfen zwingen.*

I will her-DAT the student-ACC already to help force

Even more damaging is the fact that, as Haider (1993) notes, neither lack of NP-arguments nor subject control are sufficient conditions for optional coherence, as proven by the badness of the following subject control verbs in coherent constructions:

(43) a. *daß sich Max nicht darum zu kümmern fortführ.*

that self Max not there.about to care continued

b. *daß mich Max nicht wiederzusehen verzichtete.*

that me Max not see.again declined

Nor are they necessary; in (44a,b) below, we find coherence with object control. while the example familiar from Reape’s work, stated again as (44c), has an additional dative argument:

(44) a. daß ihn uns niemand auszukosten erlaubte.

that it us no one to.enjoy allowed ‘that no one allowed us to enjoy it.’

b. daß ihn mir jemand zu konsultieren geraten hat.

that him me someone to consult recommended has ‘that someone recommended to me to consult him.’
Thus we are led to conclude, with Haider, that despite certain trends, the class of optionally coherent verbs is essentially not predictable.

7.3 Linearization and Scope

Within the framework developed so far, there is nothing that prohibits different composition structures from being linearized into the same surface representation. It is therefore tempting to let the combinatorial history play a significant role in the syntax-semantics interface. In this section I take a close look at the appropriateness of this strategy.

The prima facie indeterminacy of order domains has been exploited for instance by Reape (1993) to account for certain facts about scope relations between modals and negation. Citing an observation by Hubert Haider, Reape points out that a sentence such as in (45) is three-ways ambiguous, depending on the scope of the negation nicht:

(45) weil ein Wachsoldat die Königin nicht anstarren können muß.
because a guard the queen not stare.at can must

a. 'because a guard does not have to be able to stare at the queen.'

b. 'because a guard has to be unable to stare at the queen.'

c. 'because a guard has to be able not to stare at the queen.'

Reape (1993:169-170) proposes to treat these different interpretations as a result of three different composition structures. Thus, (45a) results from the negation attaching higher than all verbs, while the reading in (45b) involves an intermediate

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17 This is essentially the way that scope differences are handled in Montague Semantics.
attachment site between muß and können. Finally, (45c) according to Reape is effected by the negation modifying the verbal projection before the addition of any modal auxiliaries. Even though on the approach being developed here, the adoption of Argument Composition will entail somewhat different order domains, it is nevertheless straightforward to carry over Reape’s basic idea. Assuming that negation modifies verbal projections specified as \[
\text{[vCOMP ()]},
\]
we can derive all three readings from variation as to the attachment site of negation within the verb cluster.\(^{18}\)

(46)  
\[
\begin{align*}
\text{a.} & & V \\
& & \underline{\text{nicht}} & & V \\
& & V & & \underline{\text{muß}} \\
& & \underline{\text{anstarren}} & & \underline{\text{können}} \\
\text{b.} & & \begin{array}{c}
V \\
\text{DOM} \left\langle \begin{array}{c}
\{\text{nicht}\} \\
\text{mf} \\
\text{DOM} \left\langle \begin{array}{c}
\{\text{anstarren}\} \\
\text{vc} \\
\{\text{können}\} \\
\text{vc} \\
\{\text{muß}\} \\
\text{vc}
\end{array} \right\rangle
\end{array} \rightangle
\end{array}
\]
\]

\(^{18}\)Note that such an analysis would also require that the combination of an adverb such as nicht does not alter the status with respect to LEX, i.e. that the resulting constituent count as quasi-lexical so that the governing verbs in (46b,c) have an eligible vCOMP argument. This would be in violation of the assumption made in this study that any combination with an adjunct or a phrasal (SUBCAT) argument results in a \([\text{LEX }+]\) constituent.
In (46b), the order domain of the two highest verbal projections are shown to illustrate that with the particular assumptions made earlier about domain formation in the case of VCOMP selection, the fact that an adverbial has combined will have no effect on the linear structure of the verb cluster. That is, because of the lack of compaction with VCOMP selection, the adverbial's presence will not interfere with the placement of muß, which is simply added to the domain. The topological LP statements will then ensure that the position of the adverb is outside of the verb cluster because of the latter's assignment to Mittelfeld.\(^\text{19}\)

Despite its intuitive appeal, there are a number of reasons to be skeptical whether this is really the most appropriate way to handle scopal interactions. First, recall how in Chapter 5, the scope-based arguments for verb movement were found wanting. Here, we are faced with a very similar situation, except that the syntactic configurations that determine scope relations do not correspond to different surface representations (as in the case of verb movement).

More importantly, it can be shown that a configurational view of scope determina-

\(^{19}\)While I have little to say here about the topological assignment of adverbs, I assume that their occurrence in the Mittelfeld is the result either of lexical specification, or, more plausibly the consequence of some general constraints.
tion does not lend itself well to generalize to other cases of scope interactions. The first set of relevant examples involves Aux Flip constructions. As Reape (1993:171) (citing Netter 1991) acknowledges without being able to give an explanation, sentences such as the following only permit a wide-scope reading for the negation:  

(47) weil er nicht hat kommen dürfen.
    because he not has come may
    a. 'because he was not allowed to come.'
    b. not: 'because he was allowed not to come.'

(48) weil ein Wachsoldat die KönIGIN nicht muß anstarrn können.
    because a guard the queen not must stare.at can
    a. 'because a guard does not have to be able to stare at the queen.'
    b. not: 'because a guard has to be unable to stare at the queen.'
    c. not: 'because a guard has to be able not to stare at the queen.'

The initial response may be to correlate this fact with syntactic selection properties of the negation. Thus, negation (and other adverbials) may be barred from selecting Aux Flip triggers. However, this would still allow the negation to combine with the lowest verbs (kommen and anstarrn) which are specified as [FLIP —]. More significantly, there is evidence that facts such as (47) and (48) are part of a larger pattern that cannot be accounted for properly in terms of distinctions made in compositional structure. As Frey (1993:202–203) has noted, a very similar effect arises in Aux Flip constructions with respect to the scope of quantificational NPs. Thus, while (49) is ambiguous between a wide and a narrow scope reading for the quantificational NP viele Sprachen, only a wide scope is available if the sentence exhibits Aux Flip word order, as in (50):

---

20The judgement for (48) is by those speakers who permit modal auxiliaries to undergo Aux Flip.
(49) **WEIL er viele Sprachen lernen wollen wird.**
because he many languages learn want will

a. 'because there are many languages that he wants to learn.'
b. 'because he wants to learn many languages with no specific one in mind.'

(50) **WEIL er viele Sprachen wird lernen wollen.**
because he many languages want want learn

a. 'because there are many languages that he wants to learn.'
b. not: 'because he wants to learn many languages with no specific one in mind.'

The problem is of course that the NP *viele Sprachen* as an argument of the verbal complex will obligatorily combine higher than the modal contained within the verbal complex. This not only entails that the scope ambiguity here must be due to some other process that is unrelated to syntactic selectional properties. This also means that we miss a generalization if the obligatory narrow scope of the verb complex-internal modal is due to two different constraints in (47–48) vs. (50).\(^{21}\)

For these reasons I want to sketch a somewhat different approach that does not rely on syntactic structure, but instead treats the different scope possibilities in terms of quantifier retrieval.\(^{22}\)

\(^{21}\)In Frey (1993:203), the ambiguity of (49) is assumed to follow from the different c-command relations holding between modal and NP in the two structural analyses (ia) and (ib):

(i)

a. daß er [viele Sprachen [lernen [wollen wird]]],
that he many languages learn want will

b. daß er [[[viele Sprachen lernen] wollen] wird],
that he many languages learn want will

However, as Kiss’ and Hinrichs & Nakazawa’s work on Argument Composition has shown, there does not exist any unambiguous evidence for the existence of such V + argument combinations in coherent constructions.

\(^{22}\)Cf. also Kroch & Santorini (1991:278–284), who also argue against treating scope ambiguities in
As was argued in Chapter 6, the HPSG theory of quantifier scope as laid out in Pollard & Sag (1994) is too restrictive. By making QSTORE an attribute of signs, quantifier retrieval is in effect dissociated from the selectional properties of heads. This situation no longer holds given the feature architecture assumed in Chapter 6, where QSTORE instead is a part of the information contained in objects of sort local. As a result, heads may impose specific requirements in terms of the quantificational structure of their complements.

Moreover, as Kiss (1992:298–340) has shown, it is fairly straightforward to extend the treatment of nominal scope in terms of quantifier retrieval to other kinds of “operators” such as modals and negation using an OPERATORS attribute. Once this move is made, however, the pattern behind the scope possibilities in Aux Flip constructions becomes apparent: verbs that undergo Aux Flip require of their complements to have emptied their QSTORE/OPERATORS value. This requires any modals inside the verbal complex to take scope before any scopebearing adverbs (such as negation) or quantificational arguments are added in the Mittelfeld or Vorfeld. As a result, any constituents outside the verbal complex can only take wide scope with respect to scope-sensitive elements within the verb cluster. This is reminiscent of the scope terms of different (S-structure) configurations. For them the ambiguities are not a matter of indeterminate quantifier retrieval, but rather result from different permissible structural configurations at Logical Form (LF).

Note, however, that for Kiss, the scope of quantificational NPs is directly correlated with their tree-configurational relations to each other, which in effect rules out the possibility of scope ambiguities among different nominal quantifiers. Among the consequences of this assumption—whose correctness is directly contradicted by the findings on possible scope relations in Frey (1993)—is that narrow scope of the quantifier vis-à-vis raising predicates must be the result of delayed retrieval of his OPERATORS store.
relations that extraposed VPs allow. As can be seen in (51), a negation may not scope out of the extraposed VP complement:

(51) a. daß Karl nicht bat [kommen zu dürfen].
    that Karl not ask come to may
    ‘that Karl did not ask to be allowed to come.’
    not: ‘that Karl asked to be allowed not to come.’
    not: ‘that Karl asked to not be allowed to come.’

b. daß Karl bat [nicht kommen zu dürfen].
    that Karl ask not come to may
    ‘that Karl asked to be allowed not to come.’
    ‘that Karl asked to not be allowed to come.’

Yet, it would be wrong to assume that because of this, Aux Flip and extraposed VPs instantiate the same type of construction. To wit, the same behavior with respect to scope can also be observed if the VP complement precedes the verb. Thus, the temporal adverbial gestern in (52) can only locate the time of the asking, not the time of the coming or when the permission is granted:

(52) daß Karl [kommen zu dürfen] schon gestern gebeten hatte.
    that Karl come to may already yesterday asked has
    ‘that Karl already yesterday had asked to be allowed to come.’
    not: ‘that Karl had asked to be allowed to come already yesterday.’

7.4 Separable prefixes and linear order

Next, some attention needs to be devoted to the interaction of the different linearization possibilities of separable prefixes. As we was already discussed in Chapter 5, the linear behavior of such prefixes is essentially the same as that of governed nonfinite verbs, hence it is natural to extend the VCOMP-based treatment to such elements, even though we do not want to characterize them as verbal in their categorial status. As a result of its [FLIP −] marking, a separable prefix will always precede the verb
it accompanies if the latter occurs within the verb cluster. However, this also entails a wrong prediction with respect to the placement of flipped auxiliaries. In analogy to the cases involving "pure" verbal clusters, we would expect the flipped auxiliary to be able to intervene between the separable prefix and the verb; yet, as illustrated in (53b), this always results in ungrammaticality in Standard German:

(53)  a. daß er hat [auf wachen] wollen.  
     that he has up wake want  
     'that he wanted to wake up.'

  b.*daß er auf hat wachen wollen.  
     that he has wake up want

  c.?daß er [auf wachen] hat wollen.  
     that he up wake has want

Intuitively, what we may want to say is that the verb and its prefix in clause-final position constitute a kind of lexical unit which is impenetrable for any syntactic material. One way to account for this is to assume some morphological process that merges verb and prefix into one unit if the two are adjacent. However, as is discussed in detail in Uszkoreit (1987:85-99), there are a number of reasons to reject this type of analysis. Quite apart from the issue whether such nonmonotonic processes on domain objects should be allowed on general principle, this also leaves unexplained why parts of inflectional morphology such as the past participle prefix ge- or the infinitival marker zu occur between the prefix and the main verb.24

(54)  a. Peter hat alle Regale abgesucht.  
     Peter has all shelves off.PSP.searched  
     'Peter searched all shelves.'

24Note that inseparable prefixes differ from separable ones in this respect; consider for instance the following forms, where the unstressed inseparable prefix blocks the participial ge- morpheme and intervenes between zu and the verbal stem: durchführen ('drive through'), durchführen PSP. zu durchführen INF.
b. *Peter hat alle Regale geabsucht.
   Peter has all shelves searched

c. Peter versucht alle Regale abzusuchen.
   Peter tries all shelves to search
   ‘Peter tried to search all shelves.’

d. *Peter hat alle Regale zuabsuchen.
   Peter has all shelves to search

While the addition of the prefix has all the trappings of a derivational process, such tense morphemes instead seem to pattern with inflectional morphology. If this is correct then analyzing the prefix + verb combination as a single morphological word would entail that the tense marking is the result of inflexion, which is otherwise not attested in German.

For that and other reasons to be discussed in due course, the solution I propose is syntactic in nature in that it does not involve morphological operations. Yet, it is similar to morphological operations in that a linear unit is formed that disallows intrusion from the outside. This is achieved by means of a constraint that enforces immediate adjacency for any verb + prefix sequences:

\[(55) \quad \text{SYNSEM} \left[ \text{HEAD se pref} \right] \rightarrow \text{VCOMP (T)} \]

Empirically, the effect of the statement in (55) is quite similar to that of Dowty’s notion of “attachment” (see Chapter 4). But note that the notion of adjacency involved here is somewhat stronger than in Dowty’s case because any two domain objects matching the descriptions in (55) will be required to be adjacent. In Dowty’s system, on the other hand, it is in principle possible to have two sets of domain objects matching the some pair of descriptions \(X\) and \(Y\) such that the first pair is attached, \(\{X_1, Y_1\}\), while the second is not, \(\{X_2, Y_2\}\).
Separable prefixes also constitute another area in which order domains can be used to arrive at a more fine-grained framework of description than previously available. Specifically, they enable us to implement rather directly the idea that verbs and idiosyncratic prefixes form a single lexical entry, without constituting a single morphological word. This intuition can be cashed out in the following fashion:

\[
\text{aufwachen}
\]

\[
\begin{array}{l}
\text{...}\mid \text{VCOMP}() \\
\text{...}\mid \text{HEAD} 1\text{verb} \\
\text{DOM} \left( \left[ \langle \text{auf} \rangle \right] \right) \circ \left( \left[ \langle \text{wachen} \rangle \text{SYNSEM} 2 \left[ \text{...}\mid \text{HEAD} \text{sepref}\text{FLIP -} \right] \right] \right)
\end{array}
\]

Because in this entry, the separable prefix satisfies the VCOMP requirement of the verb's domain object, it in effect represents a piece of syntactic structure. The advantage of this approach is that we can state the fact that the prefix is syntactically selected by the verb without having to make the former into an actual lexical entry. Thus, prefixes such as auf, which synchronically no longer have a compositional contribution to the meaning of the whole complex entry only possess existence as a domain objects, but not directly as a firstclass citizen of the lexicon.

\footnote{A similar idea is proposed for English particle constructions in Dowty (in press:51).}

\footnote{Note that the domain consists of the shuffle of two singleton lists, which allows for any order among the elements contained in these lists. This indeterminacy of order is necessary to allow for both orders between verb and prefix in V1/V2 and Vfinal environments.}

\footnote{Concomitantly, the morphological spellout of inflectional features has to be associated directly with the phonology on the verbal domain object.}

\footnote{Note that such a concept faces considerable obstacles in ordinary HPSG as syntactic structure would entail the presence of the DTRS feature, which in turn is limited to nonlexical signs (unless, of course, one assumes a word-syntactic representation format such as LEX-DTRS).}
As a corollary, we can dispense with the need for a multitude of diacritic features (cf. Uszkoreit 1987:84) that are needed to distinguish among different prefixes, similar to HPSG's PFORM attribute.

(57) a. Schlafen will Karl bis mittag.
sleep wants Karl until noon
'Karl wants to sleep until noon.'

b. *Auf wird Karl am mittag wachen.
up will Karl at noon wake

Another prediction made is that prefixes that form part of the entry cannot be fronted, in contradistinction to governed main verbs. This follows from the fact that the combination of the prefix and the verb is not licensed by the VCOMP schema. As we will see in Section 7.7, it is this schema that is licenses frontings of part of the verbal complex.

On the other hand, as Uszkoreit (1987:100) points out, prefixes with a more or less compositional meaning contribution can be fronted:

(58) a. Runter kommt er immer.
down comes he always
'He always manages to come down.'

b. Auto fährt er selten.
car drives he seldom
'He seldom drives.'

c. Weiter geht es nicht.
farther goes it not
'It doesn't go any farther.'

d. Heraus sprang ein junger Offizier.
out jumped a young officer
'A young officer jumped out.'

This suggests that here, the prefix is not part of the lexical representation of the verb, but instead is licensed by the VCOMP schema. Therefore in these cases, the prefix
is selected via VCOMP, but it is not represented in the order domain of the lexical entries for *kommen, fahren*, etc.

Note, however, that even though fronting is possible in the examples in (58), *Zwischenstellung* is generally not, as is illustrated in (59). This is correctly accounted for by the constraint in (55) as the relevant domain property is dissociated from the question of whether or not the prefix is compositional (i.e. licensed by the VCOMP schema).

(59) a. *daß er runter wird kommen können*  
    that he down will come can

b. *daß ein junger Offizier heraus wird springen können.*  
    that a young officer out will jump can

Furthermore, in no instances of prefix + verb combinations can the verb be fronted while leaving the prefix behind:

(60) a. *Wachen wird er bald auf*  
    wake will he soon up

b. *Springen wird ein junger Offizier heraus.*  
    jump will a young officer out

This follows in (60a) from the lexical integrity of the verbal entry that *wachen* is a part of, while the badness of (60b) follows straightforwardly from the conditions on partial VP fronting, to be discussed in Section 7.7.29

Finally, there is another aspect in which the formation of verbal complexes via VCOMP seems advantageous over an approach that does not distinguish between

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29There is one complicating factor which I have ignored so far, namely the existence of verbs such as *anfangen* that select for both a separable prefix and a verbal complement. Given what has been said so far, the most straightforward account is in terms of a complex lexical entry whose verbal domain object has more than one complement on its VCOMP list:
phrasal and quasilexical arguments. In (58b), we saw an example of a verb + noun combination (autofahren), in which the nominal part arguably has the status of a (semantically transparent) separable prefix. In some cases, such “incorporated” nouns occur in the plural, as for instance in Kartenspielen (‘play cards’). If the object Karten is selected via VCOMP, then we have the prediction that even though it is accusative, it should not be eligible to undergo passivization—the latter being a valence alternation only for subcategorized, phrasal arguments. As a result, the whole predicate should count as intransitive, allowing for impersonal passive. As Kroch & Santorini (1991:295) observe, this is precisely what we find, as shown by the number inflection on the passive auxiliary in (61):

(61) Damals wurde/*wurden häufig Karten gespielt.
then was/were often cards played
‘At that time, there was frequent playing of cards.’

\[
(i) \quad \text{anfangen}
\]

\[
\begin{align*}
\ldots & | \text{VCOMP} \begin{bmatrix} 3 & \text{HEAD verb} \end{bmatrix} \\
\ldots & | \text{HEAD} \begin{bmatrix} 1 & \text{verb} \end{bmatrix} \\
\text{DOM} & \left( \begin{bmatrix} (\text{fangen}) \\
\ldots & | \text{VCOMP} \begin{bmatrix} 3 & 2 \end{bmatrix} \\
\ldots & | \text{HEAD} \begin{bmatrix} 1 \end{bmatrix} \end{bmatrix} \right) & \bigcirc & \left( \begin{bmatrix} (an) \\
\text{SYNSEM} & 2 & \ldots & | \text{HEAD} \begin{bmatrix} \text{sepref} \\
\text{FLIP} & \ldots \end{bmatrix} \end{bmatrix} \right)
\end{align*}
\]

This requires a reformulation of the LP constraints in (23) in such a way that they do not make reference to the VCOMP argument, but instead establish an ordering with respect to any element on the VCOMP list. While at first blush, this seems reminiscent of flat structure analyses in which all verbal constituents are recursively collected by the topmost predicate, the situation here is very different. Flat structure analyses allow the unconstrained accumulation of verbal complements, which amounts to making second- and higher degree dependencies direct complements of the topmost predicate. In contrast, on our account, each of the VCOMP elements in (i) is a direct complement of the main verb and hence no confusion can ever arise with respect to which governing predicate is to be ordered by a complement’s FLIP value.

If the locus of passive is the passive auxiliary, as suggested in Chapter 4, then the nominal would be invisible to passivization as a matter of principle because every constituent selected by VCOMP is itself required to be \{VCOMP \{\}\}. 
7.5 A comparison with Dutch

At this point, it may be a worthwhile exercise to test whether the system set up so far can be extended, in its fundamental properties, to dialects of languages other than German. To this end, I turn now to a brief discussion of linear order within the verb cluster in Dutch. As it turns out, the facts in that language can be accounted for by the same basic mechanisms; the only differences lie in the lexical specifications and different adjacency constraints.

Dutch is well-known in the literature on weak generative capacity for its so-called "cross-serial dependency" constructions. Here, the order of elements in the verb cluster replicates the order in which the nominal dependents of these verbs occur in the Mittelfeld:

(62) a. dat Jan\textsubscript{1} het boek\textsubscript{2} wil\textsubscript{1} lezen\textsubscript{2}.
    that Jan the book wants read
    'that Jan wants to read the book.'

b. dat Jan\textsubscript{1} Marie\textsubscript{2} het boek\textsubscript{3} wil\textsubscript{1} laten\textsubscript{2} lezen\textsubscript{3}.
    that Jan Marie the book wants let read
    'that Jan wants to let Marie read the book.'

Such constructions are possible, I want to argue, not because of some deep difference between Dutch and German, but instead they simply result from a wider range of occurrence of [FLIP +] markings on verbs. At the same time, Dutch has essentially the same LP statements as German, repeated below:

(23) a. \[\text{v}[\text{vCOMP }([\text{HEAD [□]}])] < [...|\text{HEAD [□]}|\text{FLIP +}]

b. [...|\text{HEAD [□]}|\text{FLIP -}] < \[\text{v}[\text{vCOMP }([\text{HEAD [□]}])]

For instance, in (32b), lezen bears the specification [FLIP +], requiring its governor laten to precede it. If laten itself bears this specification, then as the head of the verbal
complex *laten lezen*, it in turn also occasions its governor *wil* to precede it.\(^{31}\) As a result, the descending chain of government relations is the only possible linearization.

The majority of verbs in coherent constructions in Dutch select what in German were called Aux Flip triggers.\(^{32}\) The LP constraints in (23) guarantee that a sequence of such verbs can only be aligned according to an ascending chain of government. As a result, in a great many cases, the serialization within Dutch verb clusters is a mirror image of the one seen in the corresponding German examples. However, while in German, Aux Flip constructions (and *Zwischenstellung*) destroy the simplicity of this picture, there are complicating factors for Dutch as well. Tense and modal auxiliaries may also *follow* their verbal complement in so-called “inversion constructions” in Dutch, illustrated by (63b) (van Noord & Bouma (1995)):

(63)  

\begin{tabular}{ll}
   a. & dat Jan het boek wil lezen.  
    & *that Jan the book want read*  
    & *that Jan wants to read the book.*  
   b. & dat Jan het boek lezen wil.  
    & *that Jan the book read want*  
    & *that Jan wants to read the book.*
\end{tabular}

The range of occurrence of such linearizations is severely limited (cf. also den Besten &

\(^{31}\)Because of misleading connotations of markedness, it would probably be advisable to replace the binary values with a more neutral range of FLIP values. But for reasons of consistency with Hinrichs & Nakazawa's work, I keep with the original formulation.

\(^{32}\)This preponderance of ascending government chains also extends into morphology as is witnessed by the following examples Kroch & Santorini (1991:291,296):

(i)  

\begin{tabular}{ll}
   a. & das [Singen lernen wollen] meiner Mutter  
    & *the sing learn want my mother-GEN*  
    & *my mother's wanting to learn to sing*  
   b. & het willen-leren-zingen (van mijn moeder)  
    & *the want-learn-sing of my mother*  
    & *my mother's wanting to learn to sing*
\end{tabular}
Edmondson 1983:190 on this point). First, it is not possible if the verbal complement is complex, that is, if the head of the verb cluster itself has a nonempty VCOMP value. While van Noord & Bouma (1995:17) require a feature VR to distinguish “verb raisers” from verbs without a verbal complement, we can instead exploit our VCOMP feature in an implicative constraint of the following kind:

\[(64) \quad \text{VCOMP} \left( \left[ \text{HEAD verb} \right] \right) \]

\[\downarrow \]

\[\text{HEAD|FLIP +} \]

This automatically rules out the examples in (65b,c) below, in which moeten illicitly precedes its governor, heeft.\(^{33}\)

\[(65) \quad \begin{align*}
\text{a. & dat Jan dit boek heeft moeten lezen.} \\
& \quad \text{that Jan this book has-FIN must-INF read-INF} \\
& \quad \text{‘that Jan had to read the book.’}
\end{align*} \\
\text{b.*dat Jan dit boek moeten lezen heeft.} \\
\quad \text{that Jan this book must-INF read-INF has-FIN} \\
\text{c.*dat Jan dit boek moet hebben lezen.} \\
\quad \text{that Jan this book must-INF has-FIN read-INF}
\]

As van Noord & Bouma (1995) note further, modal and tense auxiliaries differ from one another in that the former class permits inversion, i.e. the selection of a verbal complement preceding its head, only with its finite forms. Tense auxiliaries, on the other hand, allow inversion in both finite and nonfinite forms. Thus, in the following example, nonfinite hebben follows the governed nonraiser gelezen. Because hebben has a nonempty VCOMP value, the constraint in (64) applies, hence its own governor, moet, is required to precede. Without any additional constraints, the following two serializations are possible:

\(^{33}\)Dutch also displays the *Ersatz infinitiv* (or infinitivum pro participio) phenomenon discussed earlier in German.
A rather interesting contrast emerges if we compare the behavior of separable prefixes in Dutch with that in German, cf. also den Besten & Edmondson (1983:193).

The prefix is not bound to its preverbal position and hence may float to other positions within the verb cluster. These facts constitute precisely the opposite of the situation in German where prefixes and their verbs cannot be separated within the verb cluster. Therefore, the lack of an adjacency condition such as the one proposed for German will correctly predict the above orderings. At the same time, if separable prefix verbs are treated as complex lexical entries, that is, as single entries with a nonsingleton DOM value, the following serializations are ruled out for the same reason as in German above:

(68)  a. *Jan aansprekt Marie.
    Jan PREF.speaks Marie

b. *dat Jan Marie gesproken zou aan hebben.
    that Jan Marie spoken would PREF have

 c. *dat Jan Marie gesproken aan zou hebben.
    that Jan Marie spoken PREF would have
In (68a), the verb cluster element *aan* precedes the comp/finite verb *sprekt*. In (68b,c), the [FLIP —] domain object *aan* illicitly follows its verbal governor *gesproken*.

As van Noord & Bouma (1995) observe, however, the example in (67b) is not acceptable in all dialects of Dutch. Similarly, there are speakers that find (66b) ungrammatical:

(69) a.*dat Jan Marie zou aan hebben gesproken.
   that Jan Marie would PREF have spoken
   b.*dat Jan het boek moet gelezen hebben.
   that Jan the book must-FIN read-PSP have-INF

What is common among both examples is that a chain of ascending governing verbs is interrupted by either another verb or a separable prefix. Therefore, the less tolerant dialects can be accounted for if we assume an adjacency constraint of the type given in (70):

(70) \[ \ldots |FLIP + \]
\[ \ldots |VCOMP (5) \] \[ \leftrightarrow \]
\[ \ldots |SYNSEM 5 \]
\[ \ldots |FLIP + \]
\[ \ldots |VCOMP (\{verb\}) \]

I will leave it to further study to examine whether the dialectal difference converge along this constraint or whether finer distinctions need to be made.34

7.6 V-Projection Raising

Apart from the increased number of placement options for flipped auxiliaries, Hinrichs & Nakazawa's account faces another challenge posed by constructions in which nonverbal material is interspersed between the latter and the remainder of the verb

---

34For instance, from Noord & Bouma's description, it seems that in less tolerant dialects, speakers are in general more willing to accept interventions of prefixes than of full verbs, hence more speakers reject (69a) than do (69b). The current account does not reflect this fact.
cluster. This is sometimes referred to as *Verb Projection Raising*. The following examples are from Bech (1955:67) and Meurers (1994), respectively:

(71) a. da ihm von einem Vorhaben der Blaukittel müsse Kunde arrive be 'because he must have obtained knowledge of a plan by the Blaukittel.'
   because him of a plan of the Blaukittel must knowledge-NOM
   zugekommen sein,
   'because he must have obtained knowledge of a plan by the Blaukittel.'

   b. ... hâtte das Kind sich lieber sollen zu Tode foltern lassen?
had the child self rather should to death torture let
   '... should the child rather have let herself be tortured to death?'

(72) daß Karl dem Mann wird das Buch geben wollen.
that Karl the man will the book give want
   'that Karl will want to give the man the book.'

There are (at least) two strategies one can pursue to extend the existing analysis to cover such data, both of which have been proposed by Hinrichs & Nakazawa at different points.

The first way to accommodate verb projection raising constructions is to assume that the position of the flipped auxiliary is not actually within the *verb cluster* when interspersals occur. If instead, a verb occurring leftmost in an Aux Flip constructions may also exceptionally be part of the *Mittelfeld,* the observed pattern is straightforwardly accounted for by slightly modifying the two lexical entries for *werden* and *haben,* such that the latter are assigned to the *Mittelfeld*; such an analysis is sketched in (73):

[35] This is also suggested by Hohle (1986:331,n.3).

[36] In Hinrichs & Nakazawa’s (1994b) terms, this possibility arises from the fact that the flipped auxiliary is a sister of its NP arguments, while at the same time, the LP statements regulating its placement have been relaxed.
The placement of flipped auxiliaries in the Mittelfeld also predicts that their ordering behavior is indifferent to the argument/adjunct status of the intervening material. As the following example from Meurers (1994) clearly demonstrates, this prediction is borne out. In (74), the adverb ganzlich occurs between the flipped auxiliary and the remainder of the verb cluster, similar to the verb placement preceding complements in (72) and (73) above.

(74) dass Pepe die Wiederaufnahme [...] wird ganzlich durchsetzen konnen.

‘that Pepe will be able to completely put through the resumption of [...]’

However, there may be reason to doubt the adequacy of this approach. First, as Hinrichs & Nakazawa (1994b) note, the placement of the flipped auxiliary in the Mittelfeld is not arbitrary, but appears to be subject to a number of constraints. Among the ones that Hinrichs & Nakazawa posit is that the auxiliary must precede any nominative NP. This condition is too strong though, as it rules out the example in (72a), where Kunde is the subject of the verb zukommen. The relevant generalization instead seems to be that the flipped auxiliary may not precede an agentive subject. Also relevant in this connection is a proposal that Hinrichs & Nakazawa (1994a:34) make, when they cite a suggestion by Hans Uszkoreit to the effect that verb-projection...
raising is constrained in terms of an implicational hierarchy of elements that can be skipped over:

(75) indirect object < direct object < directional modifier

Interestingly, a very similar hierarchy seems to be at work in the constraints on partial VP fronting, as will be discussed more fully in the next section. If this is correct, it appears that there is a structural parallelism between partial VP fronting and verb-projection raising. Haider (1993:283) also suggests that there is a direct connection between constituents that follow the highest verb in Aux Flip constructions and those that can be fronted. 37 Specifically, both constructions share the aversion to including agentive subjects within the verbal constituent:

(76) a. daß er die Lösung nicht hat/wird [finden können].
that he the solution not has/will find can
'that he could not/will not be able to find the solution.'

b. daß er für ihn nicht hatte [die Firma am Leben erhalten wollen].
that he for him not had the company-ACC alive keep wanted
'that he didn't want to keep the company alive for him.'

c. *daß sie nicht hatte [der Sohn am Leben erhalten wollen].
that it-ACC not had the son-NOM alive keep wanted

(77) a. [Finden können] hat er die Lösung nicht.
find can has he the solution not
'He could not find the solution.'

b. [Die Firma am Leben erhalten wollen] hat er für ihn nicht.
the firm-ACC alive keep wanted has he for him not
'He didn’t want to keep the company alive for him.'

c. *[Der Sohn am Leben erhalten wollen] hatte sie nicht.
the son-NOM alive keep wanted had it-ACC not

37 See also Uszkoreit (1987:421) for the suggestion that what follows the finite auxiliary is a constituent.
Assuming that the fronting cases are indicative of constituency, then, if the parallelism between the two construction types goes through, the phrasal element following the flipped auxiliary should be considered part of the verbal complex. From this point of view, the question is no longer what kinds of constituents a flipped auxiliary can "skip" over. Instead, the issue is what kinds of elements can be grouped into a partial VP. The fact that agentive subjects can follow the flipped auxiliary neither in verb projection raising cases nor in partial VP fronting constructions is then subsumed under a single generalization. By contrast, on the Hinrichs & Nakazawa (1994b) approach, the first would be the result of LP constraints, whereas the second follows from the constraints on frontable VPs.

Thus, it seems preferable to pursue an analysis along the lines suggested in earlier work by Hinrichs & Nakazawa (1994a:28). They propose additional lexical entries for Aux Flip triggers such as helfen in order to allow for the presence of nominal complements within the verbal constituent that helfen selects. As a result, the new entry exceptionally subcategorizes for a [LEX -] verbal complement. This allows Hinrichs & Nakazawa to assume the structure in (78b) for sentences such as in (78a):

---

38 This combination is allowed because the projection level of the verbal complement of a lexical head is not specified in their ID rule in (i) (Hinrichs & Nakazawa 1994a:23):

(i) \( V[\text{NPCOMP} -] \rightarrow H[\text{LEX} +], V \)

This, however, makes the wrong prediction that VP (if not even clausal) complements may always be part of the verbal complex, regardless of whether its governing ever construed its complement in the coherent manner. For instance the obligatorily incoherent predicate zwingen cannot be a part of verbal complex together with its VP complement:

(i) *daß er ihn wird [[den Hund zu füttern] zwingen] wollen.
   that he him will the dog to feed force want
It is not entirely clear whether Hinrichs & Nakazawa intend their LEX feature to only register the presence of complements or whether the addition of adjuncts also triggers a "−" value. If the former, then the example in (74) clearly shows that this view is too restrictive. But, more importantly, it seems that the analysis in (78) can be implemented without having to resort to a multiplicity of lexical items. Note that in the discussion of lexical entries and their selectional properties in Section 7.2, the only important distinction is whether a given item has an nonempty VCOMP value. Crucially, the entries do not impose specific requirements as to the verbal complement's LEX status. In the definition of the Head-Verbal-Complement Composition Relation in (26), only the case in which the verbal complement is given as [LEX +] was considered. What I want to propose for the analysis of verb-projection raising (and
similarly also for partial VP fronting) constructions is that the VCOMP composition relation can also, under certain conditions, license the combination of a verbal head with a [LEX —] complement. Specifically, verb-projection raising arises if an Aux Flip trigger takes a [LEX —] complement and assigns its compaction to vc. Under that analysis, the example in (78) receives the following structural description:39

39 Incidentally, there may be another reason to favor an analysis of this kind with partial V-projections in the verb cluster over one along the lines outlined in (73) because the constituency relations involved are rather similar to those in separable prefix constructions—modulo the SUB-CAT/VCOMP distinction. In the alternative model it would remain a mystery how true complements such as Rad ('bicycle') can, over time, develop elements with prefix status, as in radfahren ('travel by bicycle') if complements are assumed to always occur verb cluster-externally.
Here, the direct object of *gewinnen* is combined with its head to yield a VP. Its internal structure is regulated by the topological assignment constraints which in effect require the object to precede its head. When *helfen* takes this VP as its VCOMP argument,
the original version of the VCOMP composition relation in (26) cannot apply because of the nominal contained inside the VP which triggers a [LEX — ] specification. On the revised version to be presented shortly, the VP will be compacted and inserted as a vc domain element. Note that because the LP constraints in (23) do not make reference to the value of LEX, the [FLIP — ] marking of the whole VP die Schlacht gewinnen— itself inherited from the head gewinnen—will correctly position the governing verb helfen after its complement.

While this account, unlike Hinrichs & Nakazawa’s, does not require multiple lexical entries for each governing verb, it does necessitate a more refined characterization of the Head-Verbal-Complement Composition Relation (cf. (26)), given in (80):

\[
\begin{align*}
\text{(80)} & \\
\text{[M:]} & \begin{cases}
\text{sign} \\
\text{DOM} \{x\} \\
\ldots \text{CAT} \begin{cases}
\text{LEX} + \\
\text{VAL} \text{VCOMP} \{\} \\
\end{cases}
\end{cases} \\
\text{[H:]} & \begin{cases}
\text{sign} \\
\text{DOM} \{x\} \\
\ldots \text{VCOMP} \{x\} \\
\ldots \text{HEAD} \{x\}
\end{cases} \\
\text{[V:]} & \begin{cases}
\text{sign} \\
\text{DOM} \{x\} \\
\ldots \text{SYNSEM} \{x\} \\
\ldots \text{LEX} \{x\}
\end{cases}
\end{align*}
\]

\[\begin{aligned}
a. & \quad \{x\} + \land \text{shuffle}(\{x, y, z\}) \\
b. & \quad \{x\} - \land \{y\} [\text{FLIP }+] \\
& \quad \land \text{compaction}(\{y, (x \text{TOPO }\text{vc})\}) \land \text{shuffle}(\{x, (y, z), \{x\}\}) \\
c. & \quad \text{compaction}(\{x, (x \text{TOPO }\text{vf})\}) \land \text{shuffle}(\{x, (y, z), \{x\}\})
\end{aligned}\]

The three subcases in (80) state the conditions under which we get regular verbal complex formation (a.), Verb Projection Raising (b.), and Partial VP Fronting (c.), respectively. Before turning to the third one shortly in Section 7.7, let me make a few remarks about the domain elements that are licensed by the second disjunct.
Prima facie, this condition creates spurious ambiguities in that the phrasal argument can combine with different parts of the verbal complex without a corresponding difference in linear order or interpretation. Thus, recall from Section 7.1 that an auxiliary undergoing Aux Flip will itself become an Aux Flip trigger by virtue of the structure sharing between the auxiliary’s FLIP value and that of the selected VCOMP complement (cf. (8)):\(^{40}\)

(81) \( \text{haben/werden} \)

\[ \begin{align*}
&\text{FLIP [1]} \\
&\text{VCOMP \langle \langle \text{FLIP [1]} \rangle \rangle}
\end{align*} \]

This means that in an example such as in (82) from Meurers (1994), the verb cluster can be associated with two domains: one in which \text{damit} directly combines with \text{sagen}, and one in which the PP is an argument of the verbal complex \text{sagen wollen}:

(82) a. \text{was ich habe damit sagen wollen.}
   \text{what I have there.with say want}
   \text{‘what I wanted to say with that.’}

b. \[ \text{DOM} \langle \langle \text{habe} \rangle, \langle \text{damit sagen} \rangle, \langle \text{wollen} \rangle \rangle \]

c. \[ \text{DOM} \langle \langle \text{habe} \rangle, \langle \text{damit sagen wollen} \rangle \rangle \]

Data like these suggest that the V-Projection Raising construal should be limited to those environments in which the governing predicate is a nonfinite predicate marked \([\text{FLIP +}]\). However, this still would not eliminate the attachment ambiguity in a case such as in (83), again from Meurers (1994):

\(^{40}\)Note that here I depart from Hinrichs & Nakazawa in that \text{werden} too is taken to inherit its Aux Flip status from its verbal complement. As we will see in Section 7.7, this assumption facilitates the formulation of a generalization regarding the impossibility of fronted PVPs governed by flipped \text{werden}.
(83) a. Karl wird dem Mann haben auf die Beine helfen wollen.  
   Karl will the man have on the legs help want  
   ‘Karl will have wanted to help the man back on his feet.’

\[
\begin{align*}
\text{b. } & \text{DOM} \left\langle \{ (haben) \}, \{ (auf die Beine helfen) \}, \{ (wollen) \} \right\rangle \\
\text{c. } & \text{DOM} \left\langle \{ (haben) \}, \{ (auf die Beine helfen wollen) \} \right\rangle
\end{align*}
\]

Here, both \textit{haben} and \textit{wollen} are infinitival and specified as [FLIP +], hence both allow the compaction of their respective VCOMP arguments if the latter contain a phrasal constituent.

Moreover, there may be positive evidence that the governing auxiliaries in V-Projection Raising constructions can be finite. Consider the following example from Meurers (1994):

(84) a. daß Karl dem Mann wird das Buch haben geben wollen.  
   that Karl the man will the book have give want  
   ‘that Karl will have wanted to give the man the book.’

\[
\text{b. } \text{DOM} \left\langle \{ (wird) \}, \{ (das Buch haben geben wollen) \} \right\rangle
\]

Here, a flipped auxiliary (\textit{haben}) intervenes between the verb \textit{geben} and its cluster-internal object \textit{das Buch}. Short of allowing the governed constituent in V-Projection Raising constructions to be shuffled into the domain,\footnote{This brings about a host of additional problems, the most significant one being the licensing of the \textit{mf} phrase surrounded by \textit{vc} elements.} the only way to derive this example is if the finite auxiliary \textit{wird} is the head licensing the V-Projection Raising construal as indicated in (84b).
It would certainly be preferable if the present proposal could be couched into an account that manages to avoid spurious ambiguities. Whether this is possible will have to await future study.

### 7.7 Partial VP Extraction

In Section 7.1.2, I mentioned some of the evidence that favors Hinrichs & Nakazawa's analysis of the structure of the verb complex over the ones by Kiss and Pollard et al.

More support of this “left-branching” view comes from fronting facts. It is possible
to front a sequence of governed verbs as a single unit in V2 constructions such as the following (cf. Hinrichs & Nakazawa 1994b:3):

(86) [Lesen können] wird Peter das Buch.

read can will Peter the book

'Peter will be able to read the book.'

Since *lesen können* does not form a constituent on Kiss’ and Pollard et al.’s analyses, other mechanisms such as lexical rules will have to be adduced to account for such data. Kiss (1992:282–289 and 1994:96–101) argues on the basis of other constructions in which nonconstituents appear to be fronted that examples like those in (86) do not necessarily count as counterevidence to his analysis of the verb cluster based on lexeme-selection (see also Nerbonne 1994:120). However, this line of reasoning really turns out to be a nonargument. Even if not all instances of topicalization involve a constituent that is fronted, this does not mean that the reverse conclusion must hold, i.e. that initial occurrence is in any way a reason to *rule out* the assumption of constituenthood. In fact, if one analysis allows a straightforward extension from one domain to a related set of facts, then—all things being equal—it is to be preferred over a competing analysis that has to remain completely silent on the second set of data. In other words, even if a given empirical domain (such as topicalization) is not entirely understood, there is no reason to reject the reduction of some subregularity (e.g. the fronting of verbal sequences) to another (e.g. the fronting of syntactic constituents in general).

It is one of the virtues of having a separate *VCOMP* attribute that it allows one to capture quite elegantly the class of verbal constituents that permit fronting. As has been pointed out for instance by Nerbonne (1994:136) (see also Baker 1994 and
there is a stark contrast between the frontability of different elements within the verb cluster. Thus, while the lowest verb can be topicalized without any problem, ungrammaticality results if the fronted element leaves behind dependent verbal elements:

(87) a. Erzählen hat er es ihr sollen.
    tell has he it her should
    'He should have told it to him.'

b. *Sollen hat er es ihr erzählen.
    should have he it her tell

c. *Es sollen hat er ihr erzählen.
    it should has he her tell

In the analysis developed by Nerbonne (1994:139), the way that this is accounted for is by means of a condition on verbal signs that meet the input description of his Complement Extraction Lexical Rule. It requires of any verb subcategorizing for a modal auxiliary, that that auxiliary in turn must not have a SUBCAT list that contains a verbal element (in somewhat simplified form):

(88) \[
\left[ \text{SUBCAT} \left( \ldots, \left[ \text{LOCAL} \right], \ldots \right) \right]
\]
\[\downarrow\]
\[
\left[ \text{SUBCAT} \left( \left[ \text{NONLOCAL,SLASH} \left( \left[ T \right] \right) \right] \right) \right]
\]

For \( T \) a modal-V-synsem, \( \neg \exists V \in [T] \) where \( T[\text{CAT}][\text{SUBCAT}] \).

This is quite similar in spirit to the way that Hinrichs & Nakazawa ensure the right branching structure within the verb cluster by disallowing attraction of verbal complements (see (30) above). Aside from its great complexity, this condition shares with the latter the property of being too restrictive. Again, the problematic cases are phrasal VP-complements, dependent on verbs in fronted position:
In (89), the verb *versprechen* has a VP complement, but nevertheless its topicalization is significantly better than in (87b).

On the proposal made here, the characterization of frontable (parts of) verb complexes can be drastically simplified. Only those structures that are specified as \([\text{VCOMP }\emptyset]\) may occur in the *Vorfeld*. Because modal and other auxiliaries and raising verbs are all involved in Argument Composition via their unsaturated VCOMP feature, they all automatically disqualify for fronting. In fact, this condition does not have to be stated anywhere, but is implicit in the lexical generalization that all VCOMP complements must themselves be specified as \([\text{VCOMP }\emptyset]\) and, as will become clear shortly, frontability of a (partial) VP is directly tied to the relation licensing the realization of VCOMP complements.

In addition to its simplicity, this approach also has the virtue of avoiding the undesirable consequences of the solution to the fronting problem proposed in Hinrichs & Nakazawa (1994b:15), where valence features have lists of signs as their value such that their version of the complement extraction rule may only remove *phrasal*, as opposed to *word*-level, objects of sort *sign* from the valence list into SLASH. Needless to say, such a move defies the concept of locality of syntactic selection that is the very motivation behind the SYNSEM feature.

As has been mentioned earlier in connection with the account of V-Projection Raising, verbs that have a nonempty VCOMP specification do not impose any requirements on their complement’s LEX value. As a result, such verbs may prima facie
govern verbal complements that contain phrasal elements and hence are specified as [LEX -]. This possibility is exploited in the third subcase of the revised Head-Verbal-Complement Composition Relation in (80) above. In fact, that case does not make any reference to the [LEX ±] status of the verbal complement. As a result, the VCOMP complement may match against a verbal projection with only some of its complements saturated. For example, in (90), the accusative NP *ein Märchen* is fronted together with the infinitival verb, while the other object (the dative NP *ihr*) is raised and realized in the Mittelfeld as an argument of the verbal complex remnant. As is stated in (80), in this case, the verbal complement is compacted and assigned to the Vorfeld.

(90)  [Ein Märchen erzählen] hat er ihr sollen.

a fairy tale  tell  has he her should

‘He should have told her a fairy tale.’
Note that according to the subconditions in (80), the only way that a [LEX -] verbal complement is licensed is either as the argument of an Aux Flip trigger (in V-Projection Raising cases) or as a fronted constituent. This means, however, that partial VPs are only "generated" in very particular environments, but not as part of verb complexes in general. This avoids the spurious ambiguity problem of the ap-
proach in Pollard (in press), discussed in great detail in Hinrichs & Nakazawa (1994b) and Nerbonne (1994). On Pollard’s analysis nominal constituents combine at various places in the verbal complex, creating a multiplicity of structures without any differences in interpretation. The lexical rule approaches of Nerbonne (1994) and Hinrichs & Nakazawa (1994b) are attempts to avoid spurious ambiguities by allowing verb clusters with nominal arguments only to occur within the SLASH value of the governing auxiliary. Thus, the proposal made here is in the same spirit, but dispenses with the use of SLASH (and lexical rules) in favor of finer distinctions in the linear composition (and lexical underspecification). Suggestive evidence that this is on the right track comes from the observation, made by Nerbonne (1994:147), that extractions of partial verbal complexes out of complement clauses are ungrammatical:

(92) *[Erzählen können] hat er gesagt,
    tell can has he said
    [daß der Babysitter den Kindern ein Märchen muß.]
    that the babysitter the children a fairy tale must

Since (80) requires of the VCOMP complement that it contain no missing element, this leaves direct linearization as the only source of PVP fronting and correctly accounts for the badness of (92).

The example in (92) involves the fronting of a verb complex without any internal phrasal elements. That such constituents are indeed in general eligible to occur preposed follows again from the lack of any LEX requirement on the fronted constituent in (80). If it is instantiated as [LEX +], it matches structures in which the fronted

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42But cf. Höhle (1995) for the suggestion that such case may be grammatical.
constituents are "pure" verbal complexes. An example is given in (93) (from Nerbonne 1994:117):

(93) [Lesen können] wird er das Buch schon.
read can will he the book certainly
'He will certainly read the book.'

(94) 

The case in which a single verb is fronted, as in (95) simply represents the special subcase in which the topicalized constituent does not consist of any branching structure.43

43As Carl Pollard (p.c.) has pointed out to me, this predicts that it should be possible to have
(95) [Lesen] wird er das Buch schon können.
read will he the book certainly can
'He will certainly be able to read the book.'

Conceptually, this type of analysis has a significant advantage over lexical rule-based approaches, as the same constituents that are involved in the (binary) derivation of main verb + argument structures, as in (96), are also brought to bear in PVP Fronting constructions.

(96) daß er ihr das Märchen erzählt.
that he her the fairy tale tells
'that he tells her the fairly tale.'

This very intuition has been the basis for early proposals for PVP Fronting, such as Nerbonne (1986) and Uszkoreit (1987).44 In the model adopted here, this means that what can be fronted are precisely those constituents that otherwise arise when the declarative sentences containing impersonal constructions with nothing but the participle fronted and the governing verb in cf. However, an example such as the one in (i) seems ungrammatical to me, although other native speakers appear to be more tolerant:

(i) *Gelacht wurde.
laughed was

While I do not have a full explanation for this, this fact seems related to the observation made by Haider (1993:153) that acceptability of PVP constructions is greatly impaired if all nominal arguments are contained in the fronted PVP while little or no syntactic material is left in the Mittelfeld:

(ii) a.?>[Wichtige Akten verschwunden] sind hier noch nie.
important files disappeared are here never
'Important files have never disappeared from here.'

b. *[Wichtige Akten verschwunden] sind.
important files disappeared are.

44Uszkoreit notes that the LP constraints that hold in the fronted PVP are the same as in the Mittelfeld. He is required to reconcile binary branching structures (to get the partial VPs) with the ordering of non-sister constituents by means of a subcategorization stack which restricts the order of binary combinations of a head with its arguments and adjuncts. This additional complication is unnecessary as order domains automatically provide a flat representation for the linearization of combinatorially binary structures.
main verb combines directly with its complements. This combination is “preempted” by Argument Composition when such a verb is embedded by a governor in a coherent construction.

In comparison, on Hinrichs & Nakazawa’s (1994b) analysis, there is no intrinsic connection between the output of the lexical rule and any constituency in the case of direct combination as the authors take the phrasal arguments to be part of an entirely flat structure which does not contain any subconstituents formed by the successive addition of arguments to the verbal head. Thus, in the following lexical rule proposed in Hinrichs & Nakazawa (1994b:10), the fact that the elements missing in the fronted PVP (13) are matched precisely by the ones that are attracted by the governing verb (13) is essentially a matter of stipulation.45

\[
\text{(97)} \quad [\text{CAT} \left[ \begin{array}{c}
\text{HEAD} \left[ \begin{array}{c}
\text{verb} \\
\text{AUX +}
\end{array} \right] \\
\text{VAL|COMPS} \end{array} \right] \circ \left[ \begin{array}{c}
\text{SYNSEM} \end{array} \right] \left[ \begin{array}{c}
\text{VAL} \left[ \begin{array}{c}
\text{COMPS }[2] \\
\text{SUBJ }[2]
\end{array} \right]
\end{array} \right] \right] \\
\text{[\ldots|\text{INH|SLASH }\{\}}
\]

\[
\downarrow
\left[ \begin{array}{c}
\text{\ldots|\text{COMPS }[2] \circ \text{list}(-[\ldots|\text{HEAD verb}]}) \\
\text{\ldots|\text{INH|SLASH}} \left[ \begin{array}{c}
\text{\ldots|VAL} \left[ \begin{array}{c}
\text{COMPS ( )} \\
\text{\ldots|\text{SUBJ }[2]}
\end{array} \right] \\
\text{\ldots|\text{INH|SLASH }[2]
\end{array} \right] \end{array} \right] \right]
\]

Where: same-members([2],[2])

Another aspect in which Hinrichs & Nakazawa’s (1994b) account is somewhat defective has to do with fronted partial VPs which contain a subject. As was mentioned in Section 7.6, an agentive definite subject may in general never be part of a fronted

45Note also that the value of SLASH is taken to be not a set of objects of sort local, but sign, which makes it possible to reference missing constituents within SLASHed material, and which consequently blurs the distinction between local and nonlocal information.
(partial) VP. However, it has been observed that with certain kinds of subjects and certain predicates, the initial PVP may indeed contain a subject, as for instance in (98) (cf. Haider 1990):

\[(98)\]
\[
a. \text{[Eine Concorde gelandet] ist hier noch nie.} \\
\quad \text{a Concorde landed has here yet never} \\
\quad \text{‘A Concorde has never landed here.’} \\
\]
\[
b. \text{[Ein Außenseiter gewonnen] hat hier noch nie.} \\
\quad \text{an outsider won has here yet never} \\
\quad \text{‘An outsider has never landed here.’} \\
\]
\[
c. \text{[Ein Fehler unterlaufen] ist ihr noch nie.} \\
\quad \text{a mistake happened is him-DAT yet never} \\
\quad \text{‘Never has a mistake happened to him.’} \\
\]

One crucial factor for the acceptability of such examples is the indefiniteness of the subject. The corresponding counterparts with definite subjects are significantly worse in their grammaticality:

\[(99)\]
\[
a. ?\text{[Diese Concorde gelandet] ist hier noch nie.} \\
\quad \text{a Concorde landed has here yet never} \\
\]
\[
b. *\text{[Der Außenseiter gewonnen] hat hier noch nie.} \\
\quad \text{an outsider won has here yet never} \\
\]
\[
c. *\text{[Dieser Fehler unterlaufen] ist ihr noch nie.} \\
\quad \text{this mistake happened is her-DAT yet never} \\
\]

Moreover, it seems that in the acceptable fronting cases, the subject to some extent counts as “nonagentive”. This is clearly the case with unaccusative predicates such as \textit{landen} and psych-predicates like \textit{unterlaufen}. In the latter case, there is even another argument—experiencer dative NP—which is left in the \textit{Mittelfeld}. Likewise, in the case of transitive predicates without experiencer subjects, the latter is not frontable at all (with or without the object), presumably because the presence of the object
forces proto-agent entailments in the sense of Dowty (1991) on the subject. The following example from Haider (1990:94) illustrates.\footnote{It is claimed in Haider (1990:97) that even with non-psych transitive predicates, the subject may front to the exclusion of the object if the immediately follows the finite verb, as in (i):}

(100) *[Ein Einäugiger geführt] hat dort einen Blinden.
    a one-eyed-NOM guided has there a blind-ACC

Some notion related to nonagentivity also seems to play a role in the acceptability of cases such as in (98b) that contain a predicate such as \textit{gewinnen} that normally does not show unaccusative or psych-predicate diagnostics. The exact circumscription of the necessary and sufficient conditions of frontings with subjects has eluded theoretical characterization for quite a while and I will not have much to add to the topic here.\footnote{But note for instance that nominatives in fronted PVPs usually do not allow other complements to front along with them:} However, what is important for the current discussion is the fact that Hinrichs and Nakazawa's lexical rule in (97) predicts PVP-internal subjects \textit{never} to be possible, contrary to fact. This is because the fronted PVP may only contain elements from the original verb's \textsc{comps} list, but crucially not the subject, which remains constant between rule input and output. This is one instance where the uniform representation of subjects and other arguments in terms of \textsc{subcat} provides the required

\footnote{But note for instance that nominatives in fronted PVPs usually do not allow other complements to front along with them:}
combinatorial possibilities as there is no condition on the valence properties of the PVP assigned to vc in (80). While this at first blush appears to overgenerate, we have already seen that there is strong evidence for semantic factors such as definiteness and the kind of thematic role assigned to the subject being significantly involved in constraining the range of such constructions. Therefore it is arguably misguided to burden the syntactic component with the task of stating the exact conditions under which a subject may be part of fronted nonfinite PVPs.

7.7.1 The order of binary combinations

So far, I have operated under the assumption that the composition structure of a clause is determined directly from the sequence of binary head-argument combinations. This means that given a SUBCAT list will only engender a unique sequence of successively larger constituents. Moreover, the account of V-Projection Raising and PVP-Fronting above is based on the idea that the verbal constituents that occur with the verb cluster or fronted, respectively, in effect constitute intermediate stages in the binary composition structure, with the remaining arguments being raised by the embedding predicate. However, if the subcategorization list of a verb is fixed once and for all, then for a ditransitive predicate, one should never find a partial VP containing the second most oblique complement to the exclusion of the subject and the most oblique object. In other words, only one kind of object should be eligible to occur alone with the nonfinite head, but not either. The grammaticality of an example such as in (101b) with a dative object cooccurring with the nonfinite head is indeed generally judged to be somewhat lower than the corresponding accusative
object construction (101a). But we are certainly not dealing with an ungrammatical
construction here.48

(101) a. [Ein Märchen vorgelesen] hat er seiner Tochter.
a fairy tale-ACC read.to has he his daughter-DAT
‘He read a fairy tale to his daughter.’
b. [Seiner Tochter vorgelesen] hat er ein Märchen.
his daughter-DAT read.to has he a fairy tale-ACC
c. [Seiner Tochter ein Märchen vorgelesen] hat er gestern.
his daughter-DAT a fairy tale-ACC read.to has he yesterday
d. *[Er vorgelesen] hat seiner Tochter ein Märchen.
he read.to has his daughter-DAT a fairy tale-ACC

Of course, the formation of partial VPs is not random, and while both objects may
occur in the fronted phrase (101c), an agentive subject is utterly impossible, as ex­
pected.

What these data suggest is that for the purposes of forming a constituent with
a nonfinite predicate, both objects count as equally oblique. Such an assumption

48 However, there may be evidence to support the claim that true asymmetries exist and moreover,
that such asymmetries are to some extent lexeme-specific. Hence, depending on the predicate one
of the objects tends to form a closer bond with the nonfinite verb in fronting constructions, as is
for instance argued in Frey (1993:34). For instance, while in (i), the accusative object seems to
group more closely with the predicate than the dative object, while the opposite is the case in (ii).

(i) a. [Einen Fehler nachsehen] sollte man einer schönen Frau schon.
a mistake-ACC pardon should one a beautiful woman-DAT PART
‘One should certainly excuse a beautiful woman’s mistake.’
b. [Einer schönen Frau nachsehen] sollte man einen Fehler schon.
a mistake-ACC pardon should one a beautiful woman-DAT PART
(ii) a. [Einem Test aussetzen] sollte man eine schöne Frau niemals.
a test-DAT expose should one a beautiful woman-ACC never
‘One should never expose a beautiful woman to a test.’
b. [Eine schöne Frau aussetzen] sollte man einem Test niemals.
a beautiful woman-ACC expose should one a test-DAT never
would dovetail with the observation in the previous chapter that for the purposes of WCO and Condition C, what counts is the difference between subjects and other dependents, but crucially no finer distinction needs to be made among the latter. If this is on the right track, we can implement this idea in a rather straightforward manner in the lexical description of ditransitive predicates such as *vorlesen*. As shown in (102a), the SUBCAT list consists of the subject appended to a list consisting of the shuffle of accusative and dative object. This means that this lexical description is compatible with either ordering among the complements, while the subject will always head the list. Similarly, cases in which nominatives exhibit quasi-complement status with respect to fronting, as in (98c), may be amenable to treatment based on lexical descriptions like the one in (102b). Here, the place of the nominative in the obliqueness order is not fixed, which in principle allows it to form a constituent with the infinitival. Yet, since the nominative argument is structure-shared with the value of SUBJ, we are able to subsume this case under general principles of agreement and case assignment, regardless of how the argument list is manifested.

\[(102)\]

\[\text{a. } [\text{VAL|SUBCAT } \langle \text{NP[NOM]} \rangle \circ (\langle \text{NP[DAT]} \rangle \circ \langle \text{NP[ACC]} \rangle)]\]

\[\text{b. } [\text{VAL|SUBCAT } (\text{NP[NOM]} \circ \langle \text{NP[DAT]} \rangle) \circ \langle \text{NP[ACC]} \rangle] \text{ SUBJ (I)}\]

As has been suggested earlier, V-Projection Raising is structurally rather similar to PVP-Fronting and therefore, it is not surprising if the range of partial VPs parallels that in (102), from Geilfuß (1991:19):\(^{49}\)

\(^{49}\)Hinrichs & Nakazawa (1994a:33-34) report that V-Projection is generally disallowed for ditransitive predicates, but at least according to my judgements, this assessment is too restrictive.
Despite its initial appeal the solution proposed here admittedly has one drawback. It predicts that constituents projected from underspecified lexical descriptions like (102) containing both complements have multiple composition structures that map into the same linear structure, hence producing what appear to be spurious ambiguities. So far as I can tell, this does not per se make wrong predictions, but avoidance of undermotivated multiplicity of analyses is desirable on general grounds. While I have little of insight to offer on this point, one possible solution would be to assume a tighter connection between obliqueness and order among complements in the Mittelfeld. Thus, if \( X \) precedes \( Y \), then \( X \) must also be taken to be less oblique then \( Y \) in the particular instantiation of the SUBCAT list at hand. The resulting system would then bear some resemblance to the one proposed in Yatabe (1993), where noncanonical binary analyses are assumed for certain constructions containing an object preceding a subject.

### 7.7.2 Additional complications

Meurers (1994) observes the following pattern of grammaticality:
The data in (104) are as expected. However, the examples in (105b-e) exhibit a surprising pattern of ungrammaticality. While in (105b-d), werden may or may not select an Aux Flip trigger complement, the additional auxiliary haben, by virtue of its own [FLIP +] specification, will unambiguously render werden's VCOMP value into an Aux Flip trigger (cf. also the contrast in (105a)). It appears then that when werden selects an Aux Flip trigger, it is required that all of the constituents of the latter occur within the verb cluster.50

50While formalizing this constraint in the current approach is somewhat involved, there is a rather natural way of expressing the generalization in an approach to PVP-Fronting as slash-
By contrast, this property is not shared by haben; as shown in (106), even when it selects an Aux Flip trigger, it allows (parts of) the latter to be fronted:

(106) a. daß er ihr das Märchen [hat erzählen sollen] / *[erzählen sollen hat].
    that he her the fairy tale has tell should tell should have
    'that he should have told her the fairy tale.'

    b. [Das Märchen erzählen] hat er ihr sollen.
        the fairy tale tell has he her should

    c. ?[Erzählen] hat er ihr das Märchen sollen.
        tell has he her the fairy tale should

    d. ?[Erzählen sollen] hat er ihr das Märchen.
        tell should has he her the fairy tale

Next, consider the range of verbs that allow PVP fronting. So far, all verbs involved in coherent constructions have been treated alike with respect to Argument Composition (modulo control behavior). However, this makes a wrong prediction regarding the possibility of PVP fronting. Thus, in analogy to the fronting of the nonmaximal VP in (91), we should expect similar constructions to be possible with other types of coherently embedding verbs. Yet, what we find is ungrammaticality:

(107) a. *[Ein Märchen zu erzählen] pflegte er ihr Sonntags.
    a fairy tale to tell used.to he her on.Sundays

    b. *[Ein Märchen zu erzählen] begann er ihr heute.
    a fairy tale to tell began he her today

---

percolation—the evidence against long distance relations in (92) notwithstanding. Thus, as an alternative to (80c), one could assume a lexical rule on vCOMP governors of the sort given in (ia). Then, if werden in its variety selecting an Aux Flip trigger is specified as in (ii), the observed pattern in (104) is accounted for.

(i) a. $\ldots[vCOMP \langle\{LOC[1]\}\rangle] \Rightarrow \ldots[vCOMP \langle\rangle]$

    b. $[vCOMP \langle\ldots[FLIP + \ldots[INH-SLASH \{\}]\rangle\rangle]$
(108) a. *[Ein Märchen zu erzählen] versucht er ihr selten.
    a fairy tale to tell tries he her rarely

    b. *[Ein Märchen zu erzählen] vergaß er ihr selten.
    a fairy tale to tell forgot he her rarely

In (107), we have examples involving raising verbs, while (108) illustrates that PVP extraction is not possible with control verbs. In contrast, the sentences in (109) below show that PVP extraction involving modals is generally okay:

(109) a. *[Ein Märchen erzählen] kann er ihr immer.
    a fairy tale to tell tries he her rarely

    'He can always tell her a fairy tale.'

    a. *[Ein Märchen erzählen] will er ihr selten.
    a fairy tale to tell wants he her rarely

    'He rarely wants to tell her a fairy tale.'

The conclusion to draw from these facts appears to be that coherently embedding verbs that govern zu-infinitival complements obligatorily require the latter to be [LEX +]. Thus, unlike tense and modal auxiliaries, they may never select a fronted V-constituent. As a result, the only type of coherent construction admissible with such verbs is the one in which all phrasal arguments are raised, leaving behind a verbal complex. However, (parts of) this verbal complex may be fronted, as has been observed by Haider (1993:282), who notes the following pattern of grammaticality:

(110) a. daß er mir sein Argument zu erläutern zu versuchen vergessen hat.
    that he me his argument to explain to try forgotten has

    'that he forgot to try to explain his argument to me.'

    b. [Mir sein Argument zu erläutern zu versuchen] hat er nicht vergessen.
    me his argument to explain to try has he not forgotten

    c. *[Sein Argument zu erläutern] hat er mir (nicht) vergessen zu versuchen.
    his argument to explain has he me not forgotten to try

    d. [Zu erläutern zu versuchen vergessen] hat er mir sein Argument nicht.
    to explain to try forgotten has he me his argument not
Haider considers these facts as evidence that the verbal complex can be topicalized (cf. (110d)) and so can the VP complement (cf. (110b)), but crucially, intermediate $V$-projections cannot undergo fronting (cf. (110c)). This is reminiscent of relativization with pied piped verbal projections very similar lines, where the minimal pair in (111) shows that the latter are required to be full VPs. Of course, this is accounted for as VP arguments are selected by SUBCAT and hence are permitted to occur in cf, rendering the clause marked and imposing a nonempty REL specification.

(111) 

   a fairy tale that to tell he his daughter often tried has

b. ein Märchen [das seiner Tochter zu erzählen] er häufig versucht hat.
   a fairy tale that his daughter to tell he often tried has

There is unfortunately a problem with Haider’s explanation and our own rendering in terms of obligatory [LEX +] selection. To see this, consider the sentences in (112):

(112) 

a. *[Sein Argument zu erläutern zu versuchen vergessen] hat er mir nicht.
   his argument to explain to try forgotten has he me not

b. *[Sein Argument zu erläutern vergessen] hat er mir nicht.
   his argument to explain forgotten has he me not

The problem is that the prohibition against attracting only partial VPs does not necessarily apply at the level at which PVP fronting occurs. Thus, in (112b), vergessen is required to attract all the arguments of zu erläutern. However, the matrix auxiliary haben is not subject to the requirement of [LEX +] selection. Consequently, there is nothing to prevent this auxiliary from taking the [LEX –] $V$ complement (sein Argument zu erläutern vergessen) and in effect “distributing” the different NP objects of zu erläutern among the fronted verbal cluster on the one hand (sein Argument) and the Mittelfeld (mir) as a complement of the clause-final verb cluster remnant:
In other words, the fact that vergessen is required to attract all of the arguments of erläutern is of no significance once the entire complex sein Argument zu erläutern vergessen is formed and selected by haben.

Intuitively the problem that examples such as in (112) pose is that the argument in the Mittelfeld is not thematically connected to the fronted complex. Thus, for instance in (112b), the dative mir is an argument of erläutern, but crucially not of vergessen. But since the meaning of the whole fronted complex is projected from that of its head vergessen, the dative in the Mittelfeld cannot bear a direct thematic relation to the complex as a whole. As a result, the example in (112b) is ungrammatical.

In contrast, this problem does not arise if the fronted PVP contains only the main verb and some of its arguments because there is no intervening predicate that could interrupt the thematic relation between fronted PVP and the Mittelfeld. Embedding under modals does not seem to perturb the thematic relations either, hence the
following example allows PVP extraction with subsets of arguments attracted:

(114) [Ein Märchen erzählen können/wollen] hat er seiner Tochter immer.
     a fairy tale tell can/want has he his daughter always
     'He always was able to/wanted to tell his daughter a fairy tale.'

Assuming that this is the right generalization, we may express this by requiring
that verbs governing argument composition with $[\text{LEX} -]$ comply with the following
restriction, where $\text{thematic}$ is a relational constraint which holds of a list of arguments
and a $\text{CONTENT}$ value only if each of the elements of the first is coindexed with the
value of a thematic attribute in the second.

(115) $\begin{align*}
\text{VCOMP} & \left( \begin{array}{c}
[\text{LEX} — ] \\
\text{SUBCAT} \ [1] \\
\text{CONTENT} \ [2]
\end{array} \right) \\
\wedge & \text{thematic}([1,2])
\end{align*}$

### 7.8 Third Construction

In the discussion so far, there has been a fairly clear-cut distinction between those
verbs that occur in coherent constructions and those that occur in extraposed VPs. In
other words, a dependent Aux Flip nontrigger either occurs to the left of its governor
in German (coherent) or it occurs as part of a $\text{phrasal}$ projection that is usually
placed extraposed. What this dichotomy does not permit is the case in which a single
dependent verb occurs to the right of its governor, i.e. extraposed, while all (or some)
of the verb's argument are realized in the Mittelfeld. Yet, this is precisely what we
find in examples such as in (116c):

(116) a. daß er es zu reparieren versucht.
     that he it to repair tries
     'that he tries to repair it.'
b. daß er versucht # [es zu reparieren].
  that he tries it to repair

c. daß er es versucht (#) zu reparieren.
  that he it tries to repair

Because such examples appear to demonstrate the existence of a type of construction besides Argument Composition within the verb cluster and extraposition of a phrasal constituent, they are often referred to as the Third Construction, following the terminology coined for the corresponding examples in Dutch by den Besten & Rutten (1989:42).\textsuperscript{51} One of the questions raised by this construction is whether this classification is correct or whether it could not be subsumed under one of the other construction types. The second position is in fact taken by Kiss (1992), who regards examples like (116) as the result of a permutation effect between the governing and the governed verb in a coherent construction. One piece of evidence for this view is that extraposition, particularly of VPs, in general induces an intonational break between the governing verb and the extraposed constituent. Yet, no such break is usually heard between versucht and zu reparieren. Instead, both are part of a single intonational phrase, which is indicative of coherence. The force of this argument turns out to be rather weak, however, once it is realized that the absence of intonational breaks cannot be taken as clearcut evidence for the coherent type of construction. For note that an intonational break is no less optional with obligatorily incoherent control verbs if they take intransitive complements, as in (117):

\textsuperscript{51}Another name, used much more rarely, is Focus Raising, first suggested by Hans Uszkoreit and adopted for instance in Reape (1993).
At least according to my intuitions, *versucht zu reparieren* in (116c) and *fortfuhr zu lügen* in (117a) are identical in their ability to occur without a distinctive intonational break. Yet, we know independently that (117a) cannot be an instance of a coherent construction. For that reason, we reject the claim that intonation can unambiguously differentiate among construction types.

I will take a different position which is in fact more in line with the one taken by den Besten & Rutten (1989). Under that view, the Third Construction involves an extraposed (= incoherent) complement, some of whose arguments are realized within the *Mittelfeld* of the governing verb. This first requires arguing against the coherent analysis of the Third Construction.

First of all, note that Kiss’ account leaves it a complete mystery why the only kinds of verbs in coherent constructions that would ever allow this type of permutation should be those with *zu*-infinitives. Thus, we never find a corresponding alternation with bare infinitives or the past participle:

(118) a. *daß er es will reparieren.*
    that he it want repair
    b. *daß er es hat repariert.*
    that he it has repaired

If the Third Construction is instead based on the extraposition of some phrase whose elements get into the *Mittelfeld*, then it follows automatically that if a verb does not
permit the extraposition of its complement to begin with, then it also will not be allowed to trade places with the latter.

The second argument is somewhat more indirect and is based on the premise that there exists a basic structural similarity between the analysis of the Third Construction in Dutch and German. In Dutch, the evidence that the Third Construction is not subsumable under (the Dutch equivalent of) coherence is twofold. First, only verbs that can occur in coherent constructions may exhibit *Ersatzinfinitiv* if selected by the tense auxiliary *hebben*. This for instance allows a verb such as *probeer* (‘try’) to occur with a bare infinitive in coherent constructions (119b), in addition to the expected participial morphology in the Third Construction (119a):

\[
\begin{align*}
(119) & \quad a. \text{ dat Jan Marie heeft geprobeerd te kussen.} \\
& \quad \text{that Jan Marie has tried-PSP to kiss} \\
& \quad \text{‘that Jan tried to kiss Marie.’} \\
& \quad b. \text{ dat Jan Marie heeft pro beeren te kussen.} \\
& \quad \text{that Jan Marie has try-INF to kiss}
\end{align*}
\]

However, as den Besten & Rutten (1989:45) point out, the Third Construction cannot just be an alternation of coherence because verbs such as *beloven* (‘promise’) only occur in the first, but never in the second, as can be seen by the impossibility of *Ersatzinfinitiv* in (120b):

\[
\begin{align*}
(120) & \quad a. \text{ dat Jan de deur heeft beloofd te schilderen.} \\
& \quad \text{that Jan the door has promised-PSP to paint} \\
& \quad \text{‘that Jan promised to paint the door.’} \\
& \quad b.*\text{ dat Jan de deur heeft belooven te schilderen.} \\
& \quad \text{that Jan the door has promise-INF to paint}
\end{align*}
\]

The second argument pertains to the order of governing and governed verbs. As we saw earlier in Section 7.5, a governed verb may only occur in an Inversion cluster
(i.e. in head-final order) if it is not a verb raiser; thus there may not be any other verbs dependent on it within the cluster. Inversion may, however, occur with the Third Construction, as shown by the following alternative to (119b):

(121) dat Jan Marie geprobeerd heeft te kussen.

that Jan Marie tried has to kiss

‘that Jan has tried to kiss Marie.’

If the relationship between *geprobeerd* and *te kussen* was the same as in the coherent cases, this sentence would be predicted to be ungrammatical. If, on the other hand, *te kussen* was selected via SUBCAT and not by VCOMP, then the possibility of Inversion is no longer surprising.

Returning to German, Kiss claims that one does not find grammatical examples of the Third Construction in which the argument in the Mittelfeld cooccurs with an extraposed verbal projection that also contains other arguments or adjuncts of that verb. However, this claim is factually wrong, as Kvam (1983) has documented a number of instances where one does precisely find such constellations:

(122) a. Ich moechte auf Ihre prazise Frage versuchen,

I want on your precise question try

[eine prazise Antwort zu geben].

a precise answer to give

‘I’d like to answer your precise question with a precise answer.’

b. wenn ich Ihnen versuchen darf [ein wenig zu helfen].

if I you try may a little to help

‘If I may try to help you a little.’

Other examples can be found for instance in Uszkoreit (1987):

(123) a. Darum hatte ich dieses Fahrrad den Kindern versprochen

therefore had I this bicycle the children promised

[bis morgen zu reparieren].

until tomorrow to repair

‘Therefore, I had promised the children to repair this bicycle by tomorrow.’
b. Dann hatte er den Bestohlenen die gleichen Bücher versucht
then had he the theft.victimes the same books tried
[zu Schleuderpreisen zurückzuverkaufen].
for dumping.prices back.to.sell
'Then he had tried to sell the same books back to the theft victims
at dumping prices.'

We can conclude that at least for some speakers, the Third Construction does indeed
exist, independently of the coherent construction. At the same time, however, we
acknowledge Kiss’ observation that the range of grammaticality varies widely from
speaker to speaker and also among different predicates. This is reflected in the lexicon-
based approach to the Third Construction proposed here. One issue that we need
to address, however, is the relationship between the constituent in the Mittelfeld
and the extraposed V-complement. The first option is to implement in an HPSG
framework den Besten & Rutten’s proposal to treat this as a type of genuine syntactic
dislocation on a par with extraction phenomena. This is, for instance, the proposal
made in Uszkoreit (1987:154), where a new slash cancellation rule is proposed covering
extraction into noninitial (= Mittelfeld) position. However, there are, on Uszkoreit’s
own admission, a number of important differences from genuine extraction phenomena
into initial position. First, note that unlike in the case of extraction into Vorfeld, it
is not possible to place the verbal head of the VP complement into the Mittelfeld.

(124) *Dann hatte ich [zu reparieren] den Kindern versprochen
then had I to repair the children promised
[bis morgen das Fahrrad].
until tomorrow the bicycle

Similarly, adverbials cannot be extracted into the Mittelfeld from the VP complement.

As was observed for instance by Bayer & Kornfilt (1994:26), this can explain an
interesting contrast in the number of readings available in the following two examples:
(125) a. Dreimal hat Heinrich versprochen [den Rosenkranz zu beten].
three times has Heinrich promised the rosary to pray
‘Heinrich promised three times to pray the rosary.’
‘Heinrich promised [to pray the rosary three times].’

b. weil Heinrich dreimal versprochen hat [den Rosenkranz zu beten].
because Heinrich three times promised has the rosary to pray
‘because Heinrich promised three times to pray the rosary.’
not: ‘because Heinrich promised [to pray the rosary three times].’

If the dislocation from the VP involved in the Third Construction differs from extraction into Vorfeld, then the difference in readings is expected. In (125a), the fronted adverbial can be construed as in a filler-gap relation with the embedded VP, allowing narrow scope. In (125b), on the other hand, the occurrence in the Mittelfeld excludes a filler-gap linkage with the VP, and assuming that adverbials cannot undergo the process that “liberates” complements within the VP, the construal with the higher predicate is the only possibility.

Moreover, as seen earlier in (123), more than one element can be taken from the VP complement; in fact this situation seems to occur with special frequency, giving it the resemblance of a coherence phenomenon, as Kiss claims. However, this drives a wedge between the Third Construction and extraction phenomena in general, which, at least as far as German is concerned, are limited to the dislocation of a single constituent.

Instead, I want to pursue here a different approach that involves a more direct linkage between the argument structure of the VP complement and the matrix verb in the Third Construction. The basic idea is that for those control verbs that attract the arguments of their VCOMP, there is an alternative argument structure in which the verbal complement is instead selected via SUBCAT and some, possibly all, of its
nonsubject arguments are raised into the matrix verb's SUBCAT list.\textsuperscript{52}

\begin{equation}
(126) \left[ \text{SUBCAT} \right]_o \left( \text{v} \left[ \text{SUBCAT} \right]_o \left[ \text{SUBJ} \right]_i \right) \right]
\end{equation}

This difference in valence features has two immediate consequences. First, unlike in the VCOMP case, there is no requirement that \textit{all} arguments are inherited, allowing for the selection of partial VPs. Second, because the source of the attracted arguments is selected by SUBCAT, the positioning is no longer inside the verbal cluster, but instead, as all arguments of this kind, in \textit{fin-args}. Finally, unlike in the V-Projection Raising and PVP-Fronting constructions, the VP complement can never saturate \textit{all} of its complements. Even if no argument is raised out of the phrasal verbal complement, the latter will always miss an overt subject, hence the following example is utterly impossible:

\begin{equation}
(127) ^*\text{daß gestern versuchte [er es zu reparieren]}
\end{equation}

that yesterday tried he it to repair

One interesting prediction that this approach makes is that if the raised constituent becomes part of the matrix verb's SUBCAT frame, then, as in the case of long distance passivization in coherent constructions, it should be possible to have the raised argument undergo passivization (with a comparable grammaticality status to that of distant passives in general). One such case can actually be found in Kvam (1983:167), given in (128a). While the passivized and subsequently \textit{wh}-fronted relative pronoun \textit{die} is indeterminate between nominative and accusative case, the plural marking on the passive auxiliary, \textit{wurden}, indicates that we are indeed dealing with a

\textsuperscript{52}Cf. Hinrichs & Nakazawa (1995) for a similar idea.
genuine accusative/nominative alternation and not with an impersonal construction here. In (128b), I also list an example where the raised constituent is placed into the *Mittelfeld*, constituting a genuine Third Construction case:

(128) a. Das waren Meinungen, die uns erlaubt wurden [zu äußern].
    that were opinions which-NOM us allowed were-PL to utter
    ‘That were opinions that we were permitted to utter again.’

b. weil uns dieser Satz erlaubt wurde, [nochmal zu äußern].
    because us this sentence-NOM allowed was-SG again to utter
    ‘because we were permitted to utter this sentence again.’

Finally, as Uszkoreit (1987:154) observes, there are interactions between the arguments of the embedding predicate and those raised from a lower VP constituent. Thus, in (129), both the matrix and the raised argument bear dative case marking, which noticeably reduces acceptability.

(129) ??Ich hatte ihm darum diesen Kindern versprochen [zu helfen].
    I had him-DAT therefore these children-DAT promised to help
    ‘I had therefore promised him to help these children.’

A similar observation can be made for raising in coherent constructions, which also tends to avoid multiple occurrences of NPs marked for the same case values. If the raised constituent was inserted into the *Mittelfeld* as an instance of SLASH termination, we would not necessarily expect this. Thus, for instance, temporal adjuncts expressed as interval-denoting accusative NPs never interfere with genuine accusative objects. On the other hand, the occurrence of the raised constituent on the matrix SUBCAT list will lead to a double dative argument structure, which is otherwise unattested in German.

As an illustration of how the proposed lexical approach to the Third Construction is able to extend to somewhat more complicated cases, let us now consider an array
of data from Rambow (1994). Studying the interplay of verbs such as *versuchen* and *versprechen*, each of which allows for various modes of complementation, Rambow tries to derive all possibilities from the interaction of scrambling within the *Mittelfeld* and extraposition of VP-constituents. As will become obvious shortly, the lexical approach not only extends rather naturally to all the data describable in movement terms, but moreover also seems to offer a plausible approach to unacceptable cases which on Rambow’s analysis do not violate any *grammatical* constraints.

First, since *versuchen* occurs in coherent constructions, it is to be expected that a nominal object dependent on not just a single verb, but a whole verbal complex involving that verb should be allowed raise into the *Mittelfeld*:

(130) a. weil niemand verspricht [das Fahrrad [zu reparieren zu versuchen]].
    because no one promises the bicycle to repair to try
    ‘because no one promised to try to repair the bicycle.’

    b. weil das Fahrrad niemand verspricht [zu reparieren zu versuchen].
    because the bicycle no one promises to repair to try

Next, consider sequences of extraposed VPs. We expect that each time a verb combines with a VP argument, constituents from that VP may be raised into the embedding phrase. This means that a sentence such as (131a) should allow two instances of the Third Construction: one where the raising occurs into the immediately higher VP, which is in turn extraposed (131b), and one where the raising extends one step further into the finite matrix clause (131c):

(131) a. weil niemand verspricht [zu versuchen [das Fahrrad zu reparieren]].
    because no one tries to try the bicycle to repair

    b. weil niemand verspricht [das Fahrrad zu versuchen [zu reparieren]].
    because no one tries the bicycle to try to repair
c. weil das Fahrrad niemand verspricht [zu versuchen [zu reparieren]].
   because the bicycle no one promises to try to repair

Since the VP-argument in (131a) is a SUBCAT argument, it may also be placed into the Mittelfeld as an alternative linearization possibility. The following two examples illustrate this, with (132b) exemplifying the case in which das Fahrrad is raised internally to the VP argument.

(132) a. weil [zu versuchen [das Fahrrad zu reparieren]] niemand verspricht.
   because to try the bicycle to repair no one promises
b. weil [das Fahrrad zu versuchen [zu reparieren]] niemand verspricht.
   because the bicycle to try to repair no one promises

Moreover, in analogy to (131c), the raised constituent should also be able to be raised from the VP-complement by the matrix verb and be placed in the Mittelfeld. As (133a) shows, this is indeed the case; however, the badness of (133b) suggests that an additional linear constraint is at work here.

(133) a. weil das Fahrrad niemand [zu versuchen [zu reparieren]] verspricht.
   because the bicycle no one to try to repair promises
b.*weil [zu versuchen [zu reparieren]] das Fahrrad niemand verspricht.
   because to try to repair the bicycle no one promises

Specifically, the raised constituent has to be ordered before its “extraction” source, i.e. the VP complement. This is captured by the following LP constraint:\footnote{Incidentally, note that example (89) from the last section does not violate the constraint in (134). According to the account of extraposition developed in the next chapter, the versprochen has the status of a saturated VP, hence the LP constraint does not apply in this case.}

(89) ?Versprochen wird er ihr wohl nicht haben [den Wagen zu waschen].
   promised will he her probably not have the car to wash
   ‘He will probably not have promised her to wash the car.’
Projections of zu-infinitives are only required to follow their phrasal arguments if the former occur outside of the verb cluster. Thus, the constraint in (134) correctly permits zu-infinitives to occur as part of a verbal cluster and with dependent arguments, such as VPs, following, as in (135):

(135) daß er [versucht hat] [zu schlafen].
\[
\text{'that he tried has to sleep'}
\]
\[
\text{'that he tried to sleep.'}
\]

Moreover, the constraint in (134) captures the generalization, observed in the previous section, that zu-infinitives may not participate in PVP fronting constructions. Thus, if the fronted constituent is a verbal projection some of whose complements are discharged in the Mittelfeld, the result is considerably worse than if the entire VP is topicalized:

(136) a. [Ihr ein Märchen zu erzählen] versucht er selten.
\[
\text{her a fairy tale to tell tries he rarely}
\]
\[
\text{'He rarely tries to tell her a fairy tale.'}
\]

b.*[Ein Märchen zu erzählen] versucht er ihr selten.
\[
\text{a fairy tale to tell tries he her rarely}
\]

c.*[Zu erzählen] versucht er ihr ein Märchen selten.
\[
\text{to tell tries he her a fairy tale rarely}
\]

As expected, the same pattern obtains if the fronted constituent contains multiple zu-infinitives:

(137) a. [Mir sein Argument zu erläutern zu versuchen] vergaß er nicht.
\[
\text{me his argument to explain to try forgot he not}
\]
\[
\text{'He did not forget to explain his argument to me.'}
\]
Returning to the Third Construction, the LP constraint in (134) correctly extends to the reverse of (135); i.e., if the raised complement is a VP, it may not follow the verb that it is an argument of:


because to try no one the bicycle to repair promises

The linear constraint in (134) is in effect regardless of the respective topological assignments of the raised constituents and the raising “source”. Thus, it is possible to raise from a VP-argument a constituent which is itself a VP, as shown in (139a). Yet, if the order of the raised VP and the VP that it has been raised from is reversed, ungrammaticality results, as illustrated in (139b).

(139) a. weil [das Fahrrad zu reparieren] niemand verspricht [zu versuchen].

because the bicycle to repair no one promises to try

b. weil [zu versuchen] niemand verspricht [das Fahrrad zu reparieren].

because to try no one promises the bicycle to repair

Note that (139b) may appear to have an alternative derivation based on (132a), in which the VP argument is not raised from versuchen and hence made an argument of versprechen, but instead is extraposed directly from versuchen. As will be discussed in more detail in the next chapter, though, VPs in the Mittelfeld in general do not permit extraposition, hence this possibility is excluded. This is in contrast to Rambow (1994:20), who notes that examples like (139b) are predicted to be grammatical in a theory like his that tries to derive the pattern of judgements from the interaction of scrambling and extraposition movements on the one hand and a prohibition against
ungoverned traces on the other. Instead, Rambow is forced to assume additional processing factors, which does not seem to adequately reflect the severity and robustness of the deviance.

Next, let us consider iterative raising. In the system developed so far, we predict that it should be possible to raise some constituent and then have this constituent and its raising source itself be raised from the original raising predicate. As a result, all three should end up as direct arguments of the highest verb. This is indeed what we find in sentences such as (140):

\[(140)\text{ weil das Fahrrad niemand [zu reparieren] verspricht [zu versuchen].}
\begin{align*}
\text{because the bicycle no one to repair promises to try}
\end{align*}\]

Here, \textit{zu versuchen} raises the NP-argument \textit{das Fahrrad} from \textit{zu reparieren}. As arguments of \textit{zu versuchen}, both are then eligible to be raised further from \textit{zu versuchen} by the higher predicate \textit{verspricht}. The resulting sentence also complies with the linearization constraint as \textit{das Fahrrad} precedes its raising source \textit{zu reparieren}, while both in turn precede their subsequent raising source \textit{zu versuchen}. As expected, any alternative linearization leads to ungrammaticality, as is demonstrated in the following representative examples:

\[(141)\begin{align*}
\text{a. weil [zu versuchen] das Fahrrad niemand [zu reparieren] verspricht.} \\
\text{because to try the bicycle no one to repair promises}
\end{align*}\]

\[(141)\begin{align*}
\text{b. weil [zu versuchen] niemand das Fahrrad verspricht [zu reparieren].} \\
\text{because to try no one the bicycle promises to repair}
\end{align*}\]

\[(141)\begin{align*}
\text{c. weil das Fahrrad [zu versuchen] niemand [zu reparieren] verspricht.} \\
\text{because the bicycle to try no one to repair promises}
\end{align*}\]

\[(141)\begin{align*}
\text{d. weil das Fahrrad [zu versuchen] niemand verspricht [zu reparieren].} \\
\text{because the bicycle to try no one promises to repair}
\end{align*}\]
A brief remark is also in order about the order in which complements are saturated. Suppose we are given the argument structure of a predicate governing the Third Construction along the lines in (142):

\[(142) \quad \ldots [\text{SUBCAT} [\text{NP}, \text{V} [\text{SUBCAT} [\text{], } [\text{]]}]]]\]

Implicit in this representation and our general binary approach to argument saturation is that the (partial) VP argument of the governing verb will be saturated before the NP argument \((\text{[ ]})\) is. If this was not so, we would falsely predict that the governing verb could combine with the nominal argument first. But this would mean that at a higher level of embedding, this combination would behave like a constituent in terms of placement possibilities, to the exclusion of the original raising source. Illicit cases of this kind, such as the following, are correctly ruled out:

\[(143) \quad *\text{weil niemand [zu reparieren] verspricht [das Fahrrad zu versuchen].} \quad \text{because no one to repair promises the bicycle to try}\]

Next, let us consider an interesting constraint on possible Third Construction configurations. While (144a) shows that via Argument Composition, \text{versprechen} can inherit \text{versuchen}'s extraposed VP argument, raising an argument from that constituent results in ungrammaticality, as witnessed by (144b):

\[(144) \quad \text{a. weil niemand [zu versuchen verspricht] [das Fahrrad zu reparieren].} \quad \text{because no one to try promises the bicycle to repair}\]

\[\text{b. *weil das Fahrrad niemand [zu versuchen verspricht] [zu reparieren].} \quad \text{because the bicycle no one to try promises to repair}\]

In order to derive (144b), \text{versuchen} would have to select the partial VP \text{zu reparieren} and inherit its direct object \text{das Fahrrad}. Both arguments would then be attracted by \text{versprechen}. However, there appears to be a general constraint against control verbs
inheriting nonmaximal verb phrases. Thus, a nonfinite verbal argument attracted from the \textit{VCOMP} complement may only be a full VP, as shown in (145a). But if the selected VP is among the governor's own \textit{SUBCAT} arguments, it may be partial as in the Third Construction cases, cf. (145b):

(145) a. \[
\text{SUBCAT} \left( \ldots, V \left[ \text{SUBCAT} \left( \ldots, \text{V[INF]} \left[ \text{SUBCAT} \left[ \text{SUBJ} \right] \ldots \right] \right) \right] \right) \]

b. \[
\text{SUBCAT} \left( \ldots, \text{V[INF]} \left[ \text{SUBCAT} \left[ \text{SUBJ} \right] \text{nelist} \ldots \right] \right) \]

This restriction appears to be limited to control verbs, though, as tense auxiliaries are indifferent to the maximality of any inherited VP argument:

(146) weil das Fahrrad niemand versucht hat [zu reparieren].
because the bicycle no one tried has to repair

It remains to clarify what kinds of constituents can be raised in the Third Construction. If we were to assume a rigid order among the complements within an embedded verb's argument structure, one would expect that complements "closer" to the verb are unavailable for raising if there are less oblique elements on the \textit{SUBCAT} list. Thus, we would in effect have the same problem that was raised in Section 7.7.1 above. Yet, as has been observed for instance by Geilfuß (1991:19), there does not seem to be in general any significant difference in terms of what kind of complement and how many can be raised.

(147) a. wenn er versucht [einem Kind das Märchen vorzulesen].
if he tries a child-DAT the fairy tale-ACC to read
'if he tries to read a fairy tale to a child.'

b. wenn er einem Kind versucht [das Märchen vorzulesen].
if he a child-DAT tries the fairy tale-ACC to read
c. wenn er das Märchen versucht [einem Kind vorzulesen].
if he the fairy tale-ACC tries a child-DAT to read

d. wenn er einem Kind das Märchen versucht [vorzulesen].
if he a child-DAT the fairy tale-ACC tries to read

Given the proposal in Section 7.7.1 for variability in obliqueness relations among complements, the pattern in (147) is precisely as expected.

7.9 Summary

The area of verbal syntax covered in this chapter has been one of the most active areas of research on German in the framework of HPSG. While the proposals made here fall short of covering the entire range of data in all variants of West Germanic, they at least attempt to show that a linearization-based perspective may offer some new insights into this domain of inquiry. Specifically, this chapter continues the "constructionist" bent of Chapter 6. Thus, while much of recent work in HPSG has relied heavily on lexical rules and a concomitant multiplication of the lexicon to capture the generalizations involved (cf. in most notably Nerbonne 1994 and Hinrichs & Nakazawa 1994a on PVP-Fronting), the current model attempts to keep the lexicon relatively simple and instead shift some of the burden into the combinatorial system. While in the aftermath of GPSG, there was a heavy emphasis on the lexicalization of grammar, the analysis proposed here to some degree represents a return to a less lexicalist perspective, even though it is still very much valence-based and a long shot from the multiplicity of ID rules of the GPSG era. The fact that relatively simple analyses are possible seems to indicate that this strategy may strike more of a balance than previous attempts.
At the same time, the role of the lexicon is still quite significant. So, for instance, the treatment of the Third Construction in the previous section is predicated on the premise that the degree of heterogeneity found in the behavior of different embedding predicates as well as among different speakers reflects a high degree of lexical variation.

The next chapter presents a natural next step after this one, as it attempts to tackle some of the issues relating to the placement of elements following the verb cluster.
CHAPTER VIII

Extraposition

One area of German syntax which has received relatively little attention is the Nachfeld, i.e. the kinds of constituents that can follow the array of verbal elements in the verb cluster. There exists a wide-spread belief, both in transformational and nonderivational work, that the Nachfeld provides in some sense a "derived" position (cf. Baltin 1981, Guéron & May 1984, among others), that is to say that it hosts constituents which would normally take a clause-internal position, either as part of smaller constituents (NP, PP, VP) inside the preceding clausal structure, or as direct clausal dependents. It is for that reason that this position is often discussed in terms of some means of "extraposition" process.\(^1\) In this chapter, I propose a somewhat different approach which instead relies on constraints on topological assignments and/or domain formation. First, I will review the extent to which the linearization-based account developed so far implicitly already covers extraposition cases. In section 8.2 below, I will then discuss the shortcomings of an HPSG-based account that relies on a new nonlocal feature to effect the clause-final placement of

\(^1\)There is also another tradition that, does not regard the relation between the extraposed constituent and its extraposition "source" as a strictly syntactic relation at all, but instead an interpretive one, cf. for instance Rochemont & Culicover (1990), Wittenburg (1987). I have nothing to say about this kind of analysis here.
the extraposed element. The approach advocated here is in certain respects similar to the one in Nerbonne (1994); however, it will be shown to be superior in both coverage and linguistic adequacy.

8.1 Extraposition via topological assignment

Let us first consider extraposition from (actually: within) the clause itself, i.e. of direct arguments or adjuncts of the finite clausal head. In the discussion of head-complement structures in Chapters 5 and 6, we primarily focussed on those cases in which complements occur in the Mittelfeld or the left periphery of the clause in question. However, as was mentioned briefly at that point, these are in general not the only legitimate options for arguments. Rather, the case in which the subcategorized for element instead occurs after the verb cluster is simply another linearization possibility. This holds for arguments of nonfinite predicates, and, by subsumption, also in the finite case, as both \( mf \) and \( nf \) are subsorts of \( inf-args \):

(1) \[ \begin{array}{c}
mf \\
nf \\
\downarrow \\
inf-args
\end{array} \]

Along similar lines, any type of adverbial modification on the clausal level should—in principle—be assigned to \( fin-args \), abstracting away from any more particular constraints.

As a result of this approach, we can now address the great heterogeneity of elements that can occur extraposed regardless of the “source” of the dislocation.
8.1.1 Extrapolation of verbal constituents

The Nachfeld is the most common host for nonfinite verb phrases in incoherent constructions of the type encountered in Chapters 2 and 6. Thus, even though there is significant evidence that VP-level arguments do occur within the Mittelfeld, in by far the vast majority of cases constituents of that kind occur clause-finally, cf. (2):

(2) a. daß Peter versucht [das Buch zu lesen].
    that Peter tries the book to read
    ‘that Peter tries to read the book.’

   b. daß Peter mich überzeugt [das Buch zu lesen].
    that Peter convinces me to read
    ‘that Peter convinces me to read the book.’

The Nachfeld is also the canonical place for fully sentential complements. In general, (short) daß-marked clauses can also occur intraposed within the Mittelfeld, usually with somewhat reduced acceptability, as shown in (3) (cf. also Webelhuth 1992, 108):

(3) a. daß Hans glaubt [daß die Erde flach ist].
    that Hans believes that the Earth flat is
    ‘that Hans believes that the Earth is flat.’

   b. daß Hans [daß die Erde flach ist] glaubt.
    that Hans that the Earth flat is believes
    ‘that Hans believes that the Earth is flat.’

As was seen in Chapter 6, if the complement clause has verb-second word order, the Nachfeld is the only legitimate linearization. The same is true for VP or S-complements that cooccur with a so-called “correlate” or “antecedent” expletive es. On an intuitive level, the expletive is some kind of placeholder for the full clausal or VP-level argument which occurs later—specifically in the Nachfeld—in the sentence.
(4) a. daß Karl es verspricht [das Buch bis morgen zu lesen].
that Karl EXPL promises the book until tomorrow to read
‘that Karl promises to read the book by tomorrow.’

b.*daß Karl es [das Buch bis morgen zu lesen] verspricht.
that Karl EXPL promises the book until tomorrow to read

that Karl the book until tomorrow to read EXPL promises

(5) a. daß Hans es bedauert [daß Maria schon fährt].
that Hans EXPL regrets that Maria already leaves
‘that Hans regrets that Maria already leaves.’

b.* daß Hans es [daß Maria schon fährt] bedauert.
that Hans EXPL regrets that Maria already leaves

b.* daß Hans [daß Maria schon fährt] es bedauert.
that Hans that Maria already leaves EXPL regrets

To account for this behavior, let us briefly look at the treatment of similar constructions in English, as proposed in Pollard & Sag (1994:149). There, the entry for the verb * bother in examples like (6a) is given as in (6b):

(6) a. It bothers Kim that Sandy snores.

b. \[ \text{CAT|SUBCAT} \left( \text{NP} \_ \text{NP} \_ \text{S} \right) \]

\[ \begin{array}{c}
\text{bother} \\
\text{CONTENT BOTHERED} \\
\text{PSOA-ARG} \\
\end{array} \]

The subject in (6a) is taken to be the expletive form * it which does not bear a semantic role. There has long been an intuition—not reflected in the standard HPSG analysis—that correlate forms—* es in German and * it in English—are in some sense “linked” to the constituent that they are correlated with. For instance, in transformational terms, such expletives have often been subsumed under similar constraints of chain formation that are taken to relate moved constituents and the traces left behind (cf. for instance Chomsky 1981:338). On a less abstract level, there is an intuition that
the role of the antecedent es in some sense "signals" the presence of a propositional or property complement later in the clause. This is the idea that will be implemented here. In particular, if the lack of thematic role is taken to be a defining criterion for the status of a syntactic argument as an expletive, then on the current proposal, es will not count as an expletive. Unlike subjects of meteorological predicates, es is an argument in the semantics. Thus, it is the pronominal that bears the thematic role previously thought to be borne directly by the propositional complement. The latter in turn is not a direct semantic argument of the predicate in question, but instead is linked to the role assigned to the index of es. For concreteness' sake, I assume that this linkage consists of a condition in the CONTEXT that anchors the index of the pronominal to the content of the propositional argument. In other words, on the proposal advanced here, the relationship between syntactic complements and their semantic representation is exactly reversed from the treatment in Pollard & Sag (1994). The lexical entry for stören 'bother' in an example such as (7a) is given in (7b):

(7) a. daß es Kim stört [daß Sandy schnarcht].
    that it Kim-ACC bothers that Sandy snores
    'that it bothers Kim that Sandy snores.'

b. stören

---

2A similar suggestion, expressed in terms of the extraposed clause inheriting its θ-marking from the expletive via co-superscripting, is advanced in Chomsky (1981:338).
Note that we could not simply structure-share the index of the expletive with that of the correlated clause, because constituents projected from verbs are generally taken to denote parameterized states of affairs, but not restricted indices, as NPs do. Thus, the semantic type of the second argument in the bother relation (7), given in (7b) as the value of the BOTHER-CAUSE attribute, has the semantic type of an NP. This assumption is independently motivated by the fact that predicates such as stören may also take full NP subjects without any clausal complements, as in (8).3

3 I do not make the claim, however, that all correlate es constructions can directly be associated synchronically with ones in which es corresponds to a regular (thematic) NP argument. In fact, subjects in constructions with scheinen are never thematic, hence sentential subjects are generally not possible, cf. (ia). This suggests that the corresponding correlate es construction patterns after Pollard & Sag’s (1994) analysis for English in (6b), as outlined in (ib):

that Sandy snores seems

b. scheinen

\[
\begin{align*}
\text{CAT} & | \text{VAL} | \text{SUBCAT} \left( \text{NP:ppro}^1, \text{NP[ACC]}^2, \text{S}^3 \right) \\
\text{CONTENT} & \left( \text{bother} \right) \\
\text{BOTHERED}^3 & \left( \text{ref} \right) \\
\text{PER} & 3rd \\
\text{NUM} & \text{sing} \\
\text{GEN} & \text{neut} \\
\text{CONTEXT} & \left\{ \begin{array}{l}
\text{anchor} \\
\text{ARG1}^1 \\
\text{ARG2}^2 \end{array} \right\}
\end{align*}
\]
(8) Dieser Flecken stört mich sehr.
   this spot bothers me much
   "This spot bothers me much."

Another way to think of correlate *es* constructions is in terms of an appositional relationship that holds between the antecedent *es* and the correlated clause. Moreover, this allows us to assimilate the occurrence of *es* in correlate constructions to its use as a regular pronominal in reference to propositions, cf. (9):

(9) Hans glaubt [daß die Erde flach ist], und Lisa glaubt *es* auch.
    Hans believes that the Earth is flat and Lisa believes it too
    "Hans believes that the Earth is flat and Lisa does too."

We now have the basis for expressing the generalization on order in correlate constructions: if the S/VP argument is in an appositional relationship with some other argument, then the former has to be assigned to *nf*. This can be expressed formally in terms of the following implicational constraint on domains:

\[(10) \quad \text{sign} \rightarrow \neg \left[ \text{DOM} \left[ \begin{array}{c}
\text{TOPO} - \text{nf} \\
\ldots|\text{CONTENT}| \\end{array} \right] \circ \ell \\
\ldots|\text{CONTEXT} | \ldots, \left[ \begin{array}{c}
\text{anchor} \\
\text{ARG1} \text{index} \\
\text{ARG2} \text{psoa} \\
\end{array} \right] \ldots \right] \]

What this constraint in effect says is that any domain containing a constituent whose content value is linked via the anchor relation to the index of some other entity is required to occur extraposed.

One interesting consequence of this treatment is that it immediately accounts for an asymmetry with respect to fronting in V2 clauses. As long as antecedent *es* precedes the complement it is correlated with, it can occur either inside the *Mittelfeld* (11a) or preverbally in a V2 sentence (11b). On the other hand, the badness
of (11c) shows that the clausal argument cannot be fronted in the presence of antecedent es, as is predicted by the constraint in (10) (cf. also Keller 1994:50). But, as (11d) illustrates, the constraint against fronting does not hold if no correlate es is present:

(11)  a. daß es Kim stört [daß Sandy schnarcht].
      that it Kim bothers that Sandy snores
      ‘that it bothers Kim that Sandy snores.’

      b. Es stört Kim [daß Sandy schnarcht].
          it bothers Kim that Sandy snores
          ‘It bothers Kim that Sandy snores.’

      c.*[Daß Sandy schnarcht] stört es Kim.
          that Sandy snores bothers it Kim

      d. [Daß Sandy schnarcht] stört Kim.
          that Sandy snores bothers Kim
          ‘That Sandy snores bothers Kim.’

Aside from correlate es constructions, it has been noted that there are other types of predicates that only allow a very limited range of occurrence for their clausal complements. As the following data from Keller (1994:50-52) show, verbs such as sich freuen (über) ‘enjoy’, informieren ‘inform’ only allow prepositional arguments (12/13a,b) or clausal complements, the latter only in the Nachfeld (12/13c):^[4]

        I have self about the good weather enjoyed
        ‘I was enjoying the good weather.’

        b. Ich habe mich [pp darüber [daß die Sonne schien]] gefreut.
        I have self there.about that the sun shines enjoyed
        ‘I was enjoying the fact that the sun was shining.’

^[4]When the sentential complement occurs with a prepositional head (darüber), the two can also occur noncontiguously. See Section 8.4.1 for discussion.
c. Ich habe mich gefreut [s daß die Sonne schien].
I have self enjoyed that the sun shone
‘I was happy that the sun was shining.’

Lisa has Otto about the accident informed
‘Lisa informed Otto about the accident.’

Lisa has Otto there about that an accident happened is informed
‘Lisa informed Otto about the fact that an accident had happened.’

c. Lisa hat Otto informiert [s daß ein Unglück passiert ist].
Lisa has Otto informed that an accident happened is
‘Lisa informed Otto that an accident had happened.’

Predicates of this sort never allow NP arguments, and their resistance even extends
to cognate objects:

(14) a.*Ich habe mich die Freude gefreut.
I have self the joy enjoyed

b.*Lisa hat Otto die Information informiert.
Lisa has Otto the information informed

With correlate es constructions they share the property that the clausal comple­
ment can neither occur in the Vorfeld nor the Mittelfeld, as demonstrated here for

informieren:

(15) a.*[Daß ein Unglück passiert ist] hat Lisa Otto informiert.
that an accident happened is has Lisa Otto informed

Lisa has Otto that an accident happened is informed

The behavior of these predicates can be accounted for by the same constraint in (10)
that was invoked for correlate es constructions earlier. To see how this works, consider
the argument structure associated for a verb like informieren in the PP complement
case in (13a,b) and the S-complement construction in (13c), given in (16a,b), respec­
tively:
The basic idea is that while there are different syntactic subcategorization frames, the semantic argument structure stays the same. In particular, the fact that the issue that the informing event is about, given as the value of the role INFORM-CONTENT, remains constant in both entries entails that the complement clause cannot fill the role in the semantics directly. Rather, this is mediated by the index (7) of an implicit correlate constituent. The reason that this correlate has to remain implicit is probably due to the fact that this class of predicates never allows NP arguments in lieu of the propositional complement, including correlate es. In a matter of speaking, in the argument structure in (16b) the PP is "skipped" in the syntax, elevating the embedded S complement within the PP to a direct argument of the verb. Semantically, however, the PP still determines the type of object that serves as the argument of the inform relation. But the fact that we have an appositional relationship, albeit with a syntactically unexpressed entity, will make these cases exactly parallel to the ones with overt es above, and, as a result, the constraint in (10) limits the order
possibilities of the clausal complement in precisely the same way as in the former class.

8.1.2 Extrapolation of nonverbal constituents

Other kinds of constituents in *n* include PP complements as well as adjuncts in general, including clausal adjuncts (cf. Keller 1994:4-5):

(17) a. Sie hat Rudi hingewiesen [auf diese Tatsache].
    she has Rudi alerted on this fact
    ‘She alerted Rudi of this fact.’

b. Er hat sie getroffen [in München].
    he has her met in Munich
    ‘He met her in Munich.’

c. Mirjam ist gekommen [nachdem das Gewitter vorüber war].
    Mirjam is come after the thunderstorm over was
    ‘Mirjam came after the thunderstorm was over.’

Keller (1994:5) notes the absence of NP complements:

(18) a. *Sie hat nicht geglaubt [diese Geschichte].
    she has not believed this story

b. *Peter hat gesehen [den Präsidenten].
    Peter has seen the president

Attested cases of NP-extrapolation almost exclusively occur in literary contexts and in particular with a rather archaic connotation. Sometimes, it has been claimed that extrapolation requires a sufficient amount of “heaviness” on the part of the NP argument. However, even in cases such as (19a) from Uszkoreit (1987:27), there is a sharp contrast in grammaticality when compared with the alternative construction

\[\text{\textsuperscript{5}For instance, Keller (1994) and Müller (1994) cite translations from the Bible and the Kamasutra, respectively.}\]
in (19) featuring the head of the NP in the *Mittelfeld* and only the dependent relative clause extrapoosed:

(19) a. In seinem Buch hat Peter vor allem beschrieben
    in his book has Peter above all described
    [Kinder, die in der Schule gescheitert waren].
    children who in school failed were
    'In his book, Peter in particular described children who had failed in school.'

b. In seinem Buch hat Peter vor allem Kinder beschrieben
    in his book has Peter above all children described
    [die in der Schule gescheitert waren].
    who in school failed were
    'In his book, Peter in particular described children who had failed in school.'

I conclude, then, that NP arguments in the *Nachfeld* are excluded by a principle of grammar in Standard German. On the other hand, bare NP adverbials, in particular accusative NPs denoting time intervals in German, tend to be notably more tolerant with respect to assignment to the *Nachfeld*:

(20) Otto ist nicht nach Hause gekommen [letzte Nacht].
    Otto is not home come last night
    'Otto did not come home last night.'

The constraint I propose to account for these facts is such that it requires of every NP occurring in the *Nachfeld* that it have the status of a modifier. In HPSG terms, modifiers are characterized by virtue of a *synsem*-valued MOD attribute. Otherwise the value of this feature is *none*. Thus, it is necessary to require of each NP occurring extrapoosed that it be of the former, rather than the latter, kind, as shown in (21):

(21) \[ sign \rightarrow \left[ \text{DOM list} \left( \left[ \text{NP} \rightarrow \left[ \ldots \text{MOD synsem} \right] \right] \right] \right] \]

---

The underlying premise here is that such expressions are really NPs, and not, say, PPs in disguise.
As we will see in Section 8.3.2, this constraint also carries over to extraposition of NPs from NPs.\(^7\)

### 8.2 Dislocation-based analyses

As mentioned earlier, there have been a number of attempts to assimilate extraposition to other instances of true syntactic dislocation phenomena, such as fronting to the left in topicalization and \textit{wh}-fronting constructions. Within the framework of HPSG, this idea has been implemented by Keller (1994) (cf. also Müller 1994) by means of another nonlocal feature, EXTRA.\(^8\) Its purpose is to record within a constituent elements which are to be realized in the \textit{Nachfeld}. Thus, all instances of extraposition involve a cancellation of the EXTRA store and never just underspecification in terms of topological assignment. As a nonlocal feature, the value of the EXTRA attribute is passed up to the mother node according to Pollard & Sag’s (1994) Nonlocal Feature Principle. Finally, Keller assumes that all nonlocal dependencies (i.e. SLASH, EXTRA) are discharged at once by means of a single modified Filler-Head Schema applying at the sentential level (cf. Keller 1994:37), which gives rise to structures along the following lines (in cases of single extraposition):

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\(^7\)As Stefan Müller has suggested to me (p.c.), extrapositions of NPs do seem to occur, albeit rarely, in certain registers. This would suggest that the constraint in (21) may not hold for all varieties of German.

\(^8\)The use of a nonlocal feature, specifically SLASH in GPSG goes back at least to Gazdar (1981). Carl Pollard (p.c.) also pointed out to me that the use of a separate nonlocal feature, EXTRA, has its precursors in the Hewlett-Packard grammar project.
As an example of an extraposition of an PP complement from an NP, consider the structure in (23b) for the sentence in (23a):^{9}

(23) a. daß Hans einen Bericht verfaßt über das Projekt.
    that Hans a report drafts about the project
    'that Hans drafts a report about the project.'

b. S
   
   \[
   S \left[ \text{INHER}\text{EXTRA } \left\{ 1 \right\} \right]
   \text{TO-BIND}\text{EXTRA } \left\{ 1 \right\}
   \]
   
   \[
   \text{NP} \left[ \text{INHER}\text{EXTRA } \left\{ 1 \right\} \right]
   \text{VP} \left[ \text{INHER}\text{EXTRA } \left\{ 1 \right\} \right]
   \]
   
   \[
   \text{Hans}
   \]
   
   \[
   \text{NP} \left[ \text{INHER}\text{EXTRA } \left\{ 1 \right\} \right]
   \text{V}
   \]
   
   \[
   \text{DeN}\left[ \text{INHER}\text{EXTRA } \left\{ 1 \right\} \right]
   \]
   
   \[
   \text{einen}
   \]
   
   \[
   \text{Bericht}
   \]
   
   \[
   \text{über das Projekt}
   \]

9In the discussion here and throughout, I will ignore prosodic constraints such as the one against crossing phonological phrases (notated as "\(\phi\)") in PP-extraposition, cf. Truckenbrodt (1995):

(i) a. Peter hat einem Kollegen (\(\phi\) ein Buch gekauft) [von Chomsky].
Peter has a colleague a book bought by Chomsky
'Peter bought a colleague [a book by Chomsky].'

b. Peter hat einem Kollegen (\(\phi\) ein Buch gekauft) [aus Italien].
Peter has a colleague a book bought from Italy
Intended: 'Peter bought [a colleague from Italy] a book.'
The value of the \textsc{inherent-extra} attribute originates within the object NP (via the Extraposition lexical rule applying to the N-head) and is passed up to the higher clause. This nonlocal dependency is then bound off by means of an application of the modified Filler-Head Schema, which matches the \textsc{inherent-extra} value by a corresponding \textsc{to-bind-extra} value and hence, via the Nonlocal Feature Principle, terminates the percolation of the \textsc{extra} value.

Since nothing limits the number of elements in the \textsc{extra} store, Keller's account also allows multiple extrapositions, as for instance in (24), where a relative clause has been extraposed from the subject and a complement clause from the object NP (Keller 1994:41):

(24) Ein Mann hat das Argument geäußert [dass Rauchen schädlich ist] [den Rudi kennt].
A man has the argument uttered that smoking harmful is who Rudi knows

'A man who Rudi knows made the argument that smoking is harmful.'

Moreover, extraposition from fronted elements is accounted for, as seen for instance in examples such as (25) (Keller 1994:7)

(25) Ein Buch hatte Planck geschrieben [das ihn später weltberühmt machte].
one book had Planck written that him later world-famous made

'Planck had written one book that later made him world-famous.'

However, on Keller's own admission, a special constraint has to exclude the possibility in which topicalized and extraposed constituents contain each other in their \textsc{extra} and \textsc{slash} values, respectively. One such example, which is utterly uninterpretable, is given in (26), with traces for expository purposes (Keller 1994:43):

(26) a.*[die Tatsache e1], [daß mich e2 verwunderte],
the fact goes Maria that me astonished
Note that the intermediate material, *geht Maria*, has no syntactic relationship with the topicalized and extraposed phrases at all, but this is irrelevant for the case in point, as neither topicalization from extraposed material nor extraposition out of fronted constituents involves an immediate syntactic relationship with the rest of the clause.

What renders analyses such as Keller’s problematic are cases of obligatory extraposition. Not all kinds of constituents that can occur in the Nachfeld are also grammatical in other positions. For example, we saw in Chapter 6 that verb-second complements are invariably bad in non-nf position:

(27) * daß Hans [die Erde sei flach] glaubt.
    that Hans the Earth is flat believes

This does not pose a technical problem for Keller’s analysis, as one can posit lexical entries which already have a nonempty value for the EXTRA feature. This is indeed the solution proposed by Keller, who assumes the following lexical rule for verbs taking verb-second complements which are characterized by a positive value for the BRIDGE (for “bridge verb”) feature (cf. Keller 1994:52):
In transformational theories, this corresponds to the situation where the movement to the right is obligatory, that is, where the constituent cannot stay in the position occupied at D-structure. In Keller's nonderivational approach, we have a nonlocal dependency which is introduced lexically without there being an alternative construction that shows the dislocated element in its nondislocated position. Thus, while in cases of fronting via SLASH, the displaced element may occur overtly in its extraction site in alternative constructions, the situation with extraposed V2 complements is markedly different in that such complements are never grammatical as direct complements of the verb in the *Mittelfeld*.  

Another questionable aspect of Keller's analysis is the very fact that extraposition dependencies are expressed in terms of nonlocal features. The intuition behind packaging features such as SLASH, REL, and QUE in Pollard & Sag (1994) into one type nonlocal is because this is the kind of information that can be shared across an arbitrarily complex syntactic structure—at least in English; hence the term "unbounded dependency construction". However, it is well-known since at least Ross's (1967)

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10In this regard, even the DSL analysis for the treatment of verb placement in German discussed in Chapter 5, patterns with UDC constructions in that the finite verb may actually occupy the extraction site in verb-final clauses.
"Right Roof Constraint"\(^{11}\) that sharing of EXTRA information is strictly bounded within a clausal domain (see also Rochemont & Culicover 1990:33), in contrast to the unboundedness of dislocation phenomena in general, such as leftward extraction.

The following contrast from Keller (1994:11) illustrates this point:

\begin{align*}
(29) \quad & \text{a. } [\text{Daß Peter sich auf das Fest freute}, \quad [\text{das Maria veranstaltete}]]. \\
& \text{that Peter self on the party looked.forward.to that Maria organized} \\
& \text{hat niemanden gewundert.} \\
& \text{has no one surprised} \\
& \text{‘No one was surprised that Peter was looking forward to the party} \\
& \text{that Maria was organizing.} \\
& \text{b. } [\text{Daß Peter sich auf das Fest freute}], \quad \text{hat niemanden gewundert} \\
& \text{that Peter self on the party looked.forward.to has no one surprised} \\
& \text{[das Maria veranstaltete].} \\
& \text{that Maria organized}
\end{align*}

Similarly, what is untypical of nonlocal dependencies, at least as far as German is

\(^{11}\)It is occasionally claimed (cf. Culicover & Rochemont 1994) that result clauses constitute a counterexample to the Right Roof Constraint, based on data such as in (i), which carry over to German, as shown in (ii):

\begin{align*}
(i) \quad & \text{a. Everybody is so strange whom I like that I can’t go out in public with them.} \\
& \text{b. *Everybody is so strange that I can’t go out in public with them whom I like.}
\end{align*}

\begin{align*}
(ii) \quad & \text{a. Alle die Leute sind so verrückt, die ich kenne,} \\
& \text{all the people are so crazy who I know} \\
& \text{daß ich mich nicht öffentlich mit ihnen sehen lassen will.} \\
& \text{that I me not in.public with them see let want} \\
& \text{‘All the people I know are so crazy that I don’t want to be seen with them in public.’} \\
& \text{b. *Alle die Leute sind so verrückt, daß ich mich nicht öffentlich mit ihnen} \\
& \text{all the people are so crazy that I me not in.public with them} \\
& \text{sehen lassen will, die ich kenne.} \\
& \text{see let want who I know}
\end{align*}

However, as Dowty (in press) has shown, there is evidence against the assumption that the link between the result clause and the so-phrase involves some means of separating the first from the second. He instead proposes a “base-generation” approach in terms of a nonlocal feature registering the presence of the so-phrase in the first clause to be “bound off” by the result clause. Without further discussion, I will assume that all instances of extraposition in the stricter sense are clause-bounded.
concerned, is the fact that more than one constituent may be extraposed at the same time.

The problem of missing nonlocal relationships becomes even more acute if we shift our attention from clauses to smaller domains, such as VPs or NPs. Note that Keller’s modified Filler-Head Schema only accommodates the case in which the extraposition store is cancelled at the sentential level. Yet, one does not have to look far to see that what appear to be extraposed elements (in terms of their final placement) are direct dependents of smaller constituents. For instance in (30a), we have a case of extraposition of a VP from a VP which in turn occurs extraposed, while in (30b), the extraposed clause is a dependent of the fronted partial VP:

(30) a. daß er verspricht [zu versuchen [das Buch zu lesen]].
    that he promises to try the book to read
    ‘that he promises to read the book.’

b. [Behauptet [daß die Erde flach sei]] hat Lisa noch nie.
   claimed that the Earth flat is has Lisa never
   ‘Lisa has never claimed that the Earth is flat.’

Keller is specifically agnostic (cf. Keller 1994:1) about occurrences of complements or adjuncts that are not extraposed from NPs. Here, the plausibility of an account based on a nonlocal relation between the right-peripheral element and a virtual extraction site is compromised severely in virtue of the fact that none of these constituents can ever be placed prenominally. Moreover, there is generally a very close relationship between right-peripheral, NP-internal placement and extraposability. Crucially, the very same array of constituents that occur right-peripherally in NPs can also be extraposed,12 including PP complements, sentential complements, nonfinite VP com-

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12Cf. Stucky (1987) for an approach along similar lines for English which makes reference to the
ponents, PP adjuncts, relative clauses, and other kinds of adjuncts which are not plausibly PPs. In (31-36), I give examples of grammatical (a) and ungrammatical (b) placement possibilities within NPs as well as grammatical, extraposed (c) occurrences within clauses, all based on data from Keller (1994:3-4).

(31)  a. den Wunsch [nach einer Gehaltserhöhung]
the desire for a pay raise
‘the desire for a pay raise’

b.*den [nach einer Gehaltserhöhung] Wunsch
the for a pay raise desire

 haciendo den Wunsch geäußert [nach einer Gehaltserhöhung].
she has the desire expressed for a pay raise
‘She expressed the desire for a pay raise.’

(32)  a. die Entdeckung [dass Licht Teilchennatur hat]
the discovery that light particle.nature has
‘the discovery that light has particle characteristics’

b.*die [dass Licht Teilchennatur hat] Entdeckung
the that light particle.nature has discovery

 c. Planck hat die Entdeckung gemacht [dass Licht Teilchennatur hat].
Planck has the discovery made that light particle.nature has
‘Planck made the discovery that light has particle characteristics.’

postnominal occurrence within an NP as a prerequisite for extraposition.

13While comparative phrases present further complications in that their interpretation is often not local to the NP they occur in, they seem to generally follow the same pattern, as shown in (i):

(i)  a. mehr Bücher [als Ludwig]
more books than Ludwig
‘more books than Ludwig’

b.*mehr [als Ludwig] Bücher
more than Ludwig books

 c. Bettina hat mehr Bücher veröffentlicht [als Ludwig].
Bettina has more books published than Ludwig
‘Bettina published more books than Ludwig.’
What we observe is that none of the constituents which can be extraposed from NPs can ever occur in a non-right-peripheral position in those NPs. 14

14 The same observation is also made by Dowty (in press), citing Stucky (1987) for extraposition in English. Thus, non-predicative adjectives such as former or future that are restricted to prenominal occurrence, never allow extraposition:

(i) *I saw some senators at the party [former and future].
This is totally unpredicted by any account in which extraposition is mediated via the nonlocal EXTRA feature. In an approach like Keller’s, we basically have two choices. We can first have separate lexical rules for adding complements vs. adjuncts into the EXTRA store. Since this lack of uniformity is clearly undesirable, we may instead, as a second possibility, try to attain a uniform level of representation for complements and adjuncts alike which then serves as the input to the extraposition lexical rule. This is in fact what Keller (1994:30) proposes in his version of the extraposition lexical rule in given in (36), which in turn is fed by the output of a rule that turns adjuncts into complements along the lines suggested by van Noord & Bouma (1994) and others.

(36)
\[
\begin{align*}
&\cdots|\text{COMPS} [1] |D\left(\cdots|\text{LOC} \left[\text{HEAD} \text{ verb} \lor \text{prep} \lor \text{relativizer}\right]\right) |D\left(\cdots|\text{VAL} |\text{COMPS (})\right) |D\left(\cdots|\text{comps} [0]\right) |D\left(\cdots|\text{HEAD} \text{ verb} \lor \text{prep} \lor \text{relativizer}\right) |D\left(\cdots|\text{COMPS} [1] |D\left(\cdots|\text{EXTRA (})\right)\right) |D\left(\cdots|\text{EXTRA Q\} U \{g\}\right)\right)
\end{align*}
\]

On Keller’s account, it is thus a matter of stipulation that say, prenominal adjectival phrases, which according to his adjunct introduction lexical rule also end up on the COMPS list, should not be extraposable.

Moreover, there does not seem to be any independent evidence for the adjunct-to-complement conversion in the NP-internal cases, leaving extraposition as the only motivation for the assimilation. But arguably postnominal relative clauses and other modifiers can be extraposed not because they have complement status, but instead because they share, with complements, the serialization after the nominal head within the NP. Thus, this generalization regarding positional properties is lost in an analysis
that uses a conversion lexical rule cum extraposition rule (36).

Post-head placement within the NP is a necessary, albeit not sufficient condition for extraposition. NP complements (marked with genitive case) may not leave the lower NP, as shown in (37b) from Keller (1994:4).

(37)  a. Maria hat [eine Imitation [einer berühmten Schweitzer Uhr]] gesehen.

Maria has an imitation a famous Swiss clock seen

b.*Maria hat [eine Imitation] gesehen [einer berühmten Schweitzer Uhr].

Maria has an imitation seen a famous Swiss clock

However, this is expected given what was said in Section 8.1 because (37b) violates the prohibition against nonmodificational NPs in nf in (21).

8.3 Linearization-based analyses

8.3.1 Nerbonne 1994

A rather different approach to extraposition is taken in Nerbonne (1994), who proposes to treat extraposition in terms of a derivation of the linear sequence of a clause. Thus, for instance extraposition of a relative clause from an NP, as in (38a) are assigned the composition structure in (38b):

(38) a. einen Hund füttern [der Hunger hat]

a dog feed that hunger has

‘feed a dog that is hungry’
The structure in (38b) employs the feature UNIONED, which Nerbonne, following Reape, assumes to govern the domain formation process (cf. Chapter 4). Thus, in (38b), the [UNIONED +] specification on the higher NP occasions the VP domain to comprise not only the verb, but also both domain objects of the NP. Conversely, the [UNIONED −] on the relative clause forces that domain to become opaque once it becomes part of the higher NP domain, thus disallowing interspersal of other material. Moreover, Nerbonne, again following Reape, assumes that the relative clause bears an [EXTRA +] specification, which by means of the following LP constraint forces the relative clause to occur finally.

(39)  [-EXTRA] ≺ [+EXTRA]

One problematic aspect of Nerbonne’s proposal is the fact that on his account, the extraposability of relative clauses is directly linked to the Head-Adjunct Schema that licenses the combination of nominals with relative clauses. Crucially, the [UNIONED +] specification on the NP could not be due to selectional requirements.
by the governing verb, *füttern*. If it were, it would be impossible to distinguish NPs according to whether or not they may have the [UNIONED +]. This is only possible if an extraposable element is contained inside the NP; otherwise, the parts of an NP must never be liberated into a higher domain in German.

However, we already saw earlier that whether a clause can be extraposed is independent of its adjunct/complement status within the NP. Therefore, on Nerbonne's analysis, the extraposability of complements has to be encoded separately in the schema that licenses Head-Complement structures. Moreover, head-adjunct structures never allow liberation if the adjunct in question is a prenominal adjectival phrase. This misses the generalization pointed out earlier that extraposability of some element is tied directly to the final occurrence within the constituent it appears displaced from. Hence extraposability should be tied to the linear properties of the constituent in question, independently of the nature of the licensing relation.

Another problem arises in the case of extractions from prepositional phrases, as for instance in (40):

(40) an einen Hund denken [der Hunger hat]  
    of a dog think that hunger has  
    'think of a dog that is hungry'

On the one hand, there has to be a domain object for *an einen Hund* in the clausal domain because this element is subject to the same variations in linear order as PPs in general. On the other hand, the attachment site of the preposition will have to be higher than the relative clause because clearly, the relative clause modifies the nominal, but *not* the PP:
As a potential solution one may propose to have the preposition directly be “integrated” (phonologically and in terms of SYNSEM information) into the NP domain object corresponding to einen Hund. Yet, this would violate the inalterability condition on domain objects discussed in Chapter 4. Given that constraint, the only legitimate operations involve adding elements to an order domain or compacting that domain to form a new domain object, but crucially, operations that nonmonotonically change existing domain objects within a domain—such as the ones involved in the creation of the P+NP domain object—are prohibited.\(^\text{15}\)

\(^{15}\)Another potential drawback of Nerbonne’s analysis is the fact that he is required to assume that the relative clause modifies the entire NP. This assumption is necessary in order to allow the parts of the NP preceding the relative clause to be compacted. As a result, the determiner combines with the noun to form an NP before that NP combines with the relative clause. This contradicts the widely accepted view that determiners attach higher than any other constituents within NPs, including relative clauses. As is for instance observed by Dowty (in press:57), the most seman-
8.3.2 An alternative proposal

For these reasons, I want to pursue an alternative to Nerbonne's analysis based on an extension of the possibilities for domain formation. In particular, the proposed analysis will make use of the idea of partial compaction, which constitutes an extension of the possibilities for domain formation. This may at first blush appear to be a third option for domain formation besides total compaction (i.e. domain insertion) and domain union. However, as will become clear below, total compaction and partial compaction are not distinct possibilities; rather, the former is a subcase of the latter.

Intuitively, partial compaction allows designated domain objects to be "liberated" into a higher domain, while the remaining elements of the source domain are compacted into a single domain object. To see how this improves the analysis of expletive, consider the following alternative analysis for Nerbonne's example in (38):

---
tically adequate treatment of relative clauses will ascribe them to the category of CN-modifiers, rather than NP-modifiers. However, in current HPSG, NP and N categories within the same projection have token-identical content values, which in turn is dissociated from quantificational information in QSTORE that the determiner may contribute; hence the height of the adjunction will make no difference in the semantic representation.
---
As shown in (42), the determiner combines higher than the relative clause with the \( \overline{N} \). At the same time, the order domain within NP is essentially flat with the relative clause on a par with the other NP-internal constituents.

If the NP combines with a verbal head, the former is partially compacted. In that case, the relative clause's domain object \((3)\) is inserted into the domain of the VP together with the domain object consisting of the same \texttt{SYNSEM} value as the original NP and that NP's phonology minus the phonology of the relative clause \((2)\). By virtue of its \texttt{[TOPO nf]} marking, the domain object of the relative clause is now ordered last in the higher VP domain, while the remnant NP is ordered along the
same lines as NPs in general, i.e. in the Mittelfeld.

One important aspect to note is that on this approach, the inalterability condition on domain objects is not violated. Thus, the domain object of the relative clause (2) in the NP domain is token-identical to the one in the VP domain. Moreover, there is no danger of violating the integrity of the domain object corresponding to the remainder of the N at higher nodes in the composition structure is not affected because there is no such domain object in the first place. That is, unlike in Nerbonne’s analysis, there does not exist a domain object corresponding to this remainder before the whole NP is licensed as the complement of the verb füttern and the nonextraposed parts are compacted into a single domain element.

In order to allow for the possibility of partially compacting a domain we need to replace the compaction relation of Chapter 5 with the p-compaction relation, which is defined as follows:

\[
\text{(43)} \quad \text{p-compaction}((1, 2, 3)) \equiv \\
\begin{aligned}
&\text{sign}((1), \text{SYNSEM }1, \text{DOM }2) \\
&\land \text{dom-obj}((2), \text{SYNSEM }1, \text{PHON }7) \\
&\land \text{shuffle}(1, 2, 3) \\
&\land \text{join}_{\text{PHON}}(1, 2, 3)
\end{aligned}
\]

Intuitively, the *p-compaction* relation holds of a sign \( S (\text{1}) \), a singleton list containing the domain object \( O (\text{2}) \), and a list of domain objects \( L (\text{3}) \) only if \( O \) is the compaction of \( S \) with \( L \) being a list of domain objects “liberated” from the \( S \)-s order.
domain. This relation is invoked for instance by the schema combining a head (H) with a complement (C):

\[(44) \begin{array}{l}
[M:] \left[ \text{DOM} \begin{array}{c}1 \\ 2 \\ 3 \\ 4 \end{array} \right] \\
[H:] \left[ \text{DOM} 3 \right] \left[ \text{C:} 1 \right] \\
\land \ p\text{-compaction}(1,2,3) \\
\land \ list \left( \left[ \text{TOPO} n \right] \right) \\
\land \ (\exists \cdot \top) \lor (\exists \cdot (\left[ -s \right] \land \left[ \text{TOPO} \rightarrow n \right]))
\end{array} \]

The final two constraints associated with the Head-Complement Composition Relation ensure that nothing may be extrapolosed out of clauses in compliance with Ross's (1967) Right Roof Constraint and that nothing may be extrapolosed from a constituent that itself has been extrapolosed. The second condition correctly rules out examples such as in (45b) (cf. Keller 1994:37-38), in which the PP *mit einer Million Einwohner* is extrapolosed from *in einer Stadt* and both are placed into *Nachfeld*. If extrapolosition from extrapolosed elements were possible, then both *in einer Stadt* and *mit einer Million Einwohner* would end up in the *Nachfeld*, and in the absence of any additional ordering constraints, would predict free orderability with respect to each other. If alternatively the first PP is totally compacted into the larger PP, as in (45a), or if the "extraposition source" PP occurs in the *Mittelfeld*, as in (45c), the result is grammatical:

\[(45) \begin{array}{l}
a. \text{Hans hat Maria getroffen [in einer Stadt [mit einer Million Einwohner]].} \\
\text{Hans has Maria met in a city with one million inhabitants} \\
\text{‘Hans met Maria in a city with a million inhabitants.’}
\end{array} \]

\[\text{b.*Hans hat Maria getroffen [mit einer Million Einwohner] [in einer Stadt].} \]

\[\text{Hans has Maria met with one million inhabitants in a city} \]
Hans has Maria in a city met with one million inhabitants.

The analysis presented here is arguably superior to Nerbonne’s because the extraposability of an item is correlated only with its linear properties (right-peripheral occurrence) in a domain via \([\text{TOPO } n/f]\), but \textit{not} with its status as adjunct or complement. Our approach also makes the correct prediction that extraposition is only possible if the extraposed element is already final—modulo other post-head elements—in the extraposition source. In this sense, extraposition is subject to a monotonicity condition to the effect that the element in question has to occur in the same linear relationship in the smaller and the larger domains, viz. right-peripherally (modulo other extraposed constituents, of course).

Along similar lines, note that extrapositions from fronted constituents, noted by Nerbonne as a challenge to his claim that “fronted elements do not intermingle with others” (Nerbonne 1994:145) do not pose a problem for our account.

(46) Eine Dame ist an der Tür [die Sie sprechen will].

A lady is at the door who you speak wants

‘A lady is at the door who wants to talk to you.’

Since fronted constituents are part of the same clausal domain as the rest of the sentence, if the relative clause is inherited from the topic into the rest of the clause, we immediately get the desired result.

So far, we have only considered the case in which the extraposed constituent is inherited by the higher order domain. However, the definition of the \(p\)-\textit{compaction} relation in (12) also holds in the case where the list of liberated domain objects is empty, which amounts to the total compaction of the sign in question. As a result,
we can regard total compaction as a special case of the \textit{p-compaction} relation in
general. This means that as an alternative linearization of (38), we can also have the
extraposition-less derivation in (47):

\begin{align*}
(47) & \quad \left[ \begin{array}{c}
\text{VP} \\
\text{DOM} \left[ V \left( \begin{array}{c}
\text{NP} \\
\text{mf}
\end{array} \right), \left[ \begin{array}{c}
\langle \text{einen Hund der Hunger hat} \rangle, \left[ \begin{array}{c}
\langle \text{füttern} \rangle, \left[ \begin{array}{c}
\langle \text{Hunger hat} \rangle
\end{array} \right]
\end{array} \right]
\end{array} \right]
\end{array} \right]
\end{align*}

\begin{align*}
& \quad \left[ V \\
& \quad \text{DOM} \left[ \begin{array}{c}
\langle \text{füttern} \rangle \\
\langle \text{einen} \rangle \\
\langle \text{Hunger hat} \rangle
\end{array} \right]
\end{array} \right]
\end{align*}

\begin{align*}
& \quad \text{DOM} \left[ \begin{array}{c}
\langle \text{Hund} \rangle \\
\langle \text{REL-S} \rangle
\end{array} \right]
\end{align*}

\begin{align*}
& \quad \left[ \begin{array}{c}
\langle \text{der} \rangle \\
\langle \text{hunger has} \rangle
\end{array} \right]
\end{align*}

\begin{align*}
& \quad \left[ \begin{array}{c}
\langle \text{will} \rangle \\
\langle \text{everyone may} \rangle
\end{array} \right]
\end{align*}

\begin{align*}
& \quad \left[ \begin{array}{c}
\langle \text{will} \rangle \\
\langle \text{everyone may} \rangle
\end{array} \right]
\end{align*}

\begin{align*}
& \quad \left[ \begin{array}{c}
\langle \text{will} \rangle \\
\langle \text{everyone may} \rangle
\end{array} \right]
\end{align*}

\begin{align*}
& \quad \left[ \begin{array}{c}
\langle \text{will} \rangle \\
\langle \text{everyone may} \rangle
\end{array} \right]
\end{align*}

At this point, let us also briefly remark on a contrast in extraposability depending
on the syntactic environment. Nerbonne, citing an observation by Tilman Höhle,
notes the following paradigm:

\begin{align*}
(48) & \quad \text{a. [Einen Hund füttern [der Hunger hat]} \] \text{ wird wohl jeder dürfen.}
& \quad \text{a dog feed that hunger has will PART everyone may}
& \quad \text{‘Everyone will be allowed to feed a dog that is hungry.’}
& \quad \text{b.*Es wird wohl jeder einen Hund füttern [der Hunger hat] dürfen.}
& \quad \text{EXPL will PART everyone a dog feed that hunger has may}
& \quad \text{c. Es wird wohl jeder einen Hund füttern dürfen [der Hunger hat].}
& \quad \text{EXPL will PART everyone a dog feed may that hunger has}
& \quad \text{‘Everyone will be allowed to feed a dog that is hungry.’}
\end{align*}

Examples such as these have occasionally been adduced to support the claim that
the criteria for constituency in the \textit{Vorfeld} do not directly overlap with those in the
\textit{Mittelfeld} (Nerbonne 1994:119). On our approach, this falls out from the conditions on
verbal complex formation. That is, in (48b), the verb complex-internal extraposition
is barred because only lexical and quasilexical elements are permitted to participate in verbal complexes, hence neither the NP argument *einen Hund*, nor the dependent relative clause may be part of the verbal complex. On the other hand, in (48c), the NP argument is construed as argument-inherited by the highest predicate, *wird*. As a complement of that predicate, the relative clause may then be domain-inherited into the main clausal domain, while the extraposition “source” *einen Hund* will bear the topological properties of arguments, in particular NPs, and hence occur in the *Mittelfeld*.

As a result of treating extraposition in terms of partial compaction, there is no longer a need for the UNIONED feature for extraposition. Consequently, if conditions on extraposability are instead associated with the licensing conditions for syntactic structure, the former are predicted to be exempt from lexical variation. Finally, it should also be noted that the approach advocated here does not have to worry about excluding cases such as in (26) above, where fronted and extraposed constituents are contained in each other’s EXTRA and SLASH stores. This is a direct consequence of the fact that at most one nonlocal feature, SLASH, is employed—and no such dependency is involved in intraclausal fronting. As a result either the fronted constituent or the extraposed one bears a direct syntactic relation with the remainder of the clause (either via direct linearization, filler-gap linkage, or in terms of domain inheritance), but placement into *vf* and *nf* can never be licensed exclusively in terms of each other.

---

16 The other purpose Reape envisions for this feature is for the linearization of nonfinite complementation, but as was shown in Chapter 4, the argument composition approach is linguistically superior.
The fact that Keller's problem is a nonissue on the approach taken here clearly counts in favor of the linearization-based perspective.

8.3.3 Comparison with Dowty 1990 (in press)

Another approach to extraposition that is based on linear properties of the constituents involved, and hence quite close in spirit to ours is the proposal in Dowty (in press). Dowty assumes that in examples such as in (49a), the relative clause, being a modifier of the $\bar{N}$, combines with the latter as part of the subject. Recall from the discussion in Chapter 4 that Dowty makes an important distinction between bounded and unbounded categories. Instances of the second kind correspond in our terms to categories whose domains are shuffled into those of higher constituents, such as finite VPs. Bounded categories on the other hand disallow this kind of interspersal of their linear components with external material. While initially, NPs are classified as bounded categories, Dowty later proposes to treat it as optionally bounded. In case the subject NP is taken to be bounded, the relative clause will remain linearly adjacent to the modified head, as in (49b). If, on the other hand, the NP is assumed to be unbounded, then it will contribute all of its linear components to the mother node. In more familiar terms, the domain of the subject NP will be shuffled into the domain of the mother category. This allows the relative clause to occur discontinuously with respect to its head, as shown in the structure in (49c).

(49)  a. A woman arrived who John knew.
    b. A woman who John knew arrived.
Since unbounded categories contribute all of their linear material to the higher constituent, there is prima facie nothing to rule out the possibility in which not only the relative clause, but also the determiner is liberated into the higher phenogrammatical structure.

(50) *A arrived woman who John knew.

In order to prevent ungrammatical structures as in (50), Dowty assumes that all constituents that occur prenominally are required to occur immediately adjacent to each other. As a result of syntactic attachment, all the preverbal elements are required to cluster in all linear structures they occur in, hence ruling out (50).

While there are a number of similarities between Dowty's notion of optional boundedness and our (partial) compaction, some important differences should be pointed out.

---

17 Incidentally, note that this in principle cannot be expressed by immediate precedence constraints of the type formalized in Chapter 5. This is because the cooccurrence of two or more adjectives within the NP will rendered inconsistent by a constraint such as the one in (iib).

(i) a. { a+beautiful+tall+woman, arrived, who+{ John, knew } }s
   b. Det ← Adj ← N
First, as a consequence of optional boundedness, NPs have to be given two analyses regardless of whether extraposable material is present or not. This means that an NP such as the woman in a sentence such as a woman arrived will not only be assigned the phenogrammatical representation in (51a), but also that in (51b):

(51)
\[
\begin{align*}
\text{a. } & \{ \text{a+woman}_{NP}, \text{arrived} \}_{S} \\
\text{b. } & \{ \{\text{a+woman}\}_{NP}, \text{arrived} \}_{S}
\end{align*}
\]

By contrast, no such ambiguity in terms of the linear structure is needed given the domain-formation approach advocated here.

Moreover, Dowty adduces as support for the idea that prenominal material is attached such ungrammatical examples as the ones in (52) in which a parenthetical or adverb intrudes among the prenominal elements.

(52)
\[
\begin{align*}
\text{a.*The, however, big dalmation may take the prize.} \\
\text{a.*A very, in my opinion, absurd judgement was rendered.}
\end{align*}
\]

However, we already saw in Chapter 4 well-formed examples of parenthetical intrusion in these environments. Such examples occur to an even greater extent in German, as is shown by the impeccable example in (53):

(53)
\[
\begin{align*}
\text{ein, \{wie ich fand\}, zu teures Haus} \\
\text{\textit{a as I found too expensive house}} \\
\text{\textit{a house which I found too expensive}}
\end{align*}
\]

This means that either the conditions on parenthetical placement in German are not sensitive to attachment relations in the same way they are in English or there is no attachment involved between determiner and \(N\) to begin with. The first option is rather unsatisfactory, since Dowty uses intrusion facts to motivate the very notion
of attachment, while the second possibility is easily refuted, given that extraposition never licenses the liberation of other, prenominal material out of the NP:

(54) "Hans hat [ein] gestern [zu teures Haus] gekauft
Hans has a yesterday too expensive house bought
[das mir sehr gefällt].
that me very pleased

If instead the clustering of prenominal elements is taken to be the consequence not of attachment, but rather of compaction, this entire dilemma is avoided altogether.

Along quite similar lines, Dowty notes (Dowty in press:n21) that his account predicts that either all or no modifier may extrapose in a given environment. This is so because for anything to be liberated out of an NP, that NP has to count as a nonbounding category. But then all the nonattached elements within that NP will become part of the larger domain and, if extraposable at all, should “float” to the right periphery. However, it is easy to see that in the case of multiple modifiers, each of which optionally extraposes, one may stay inside the NP, while the other occurs in the Nachfeld, as shown in (55c), and with somewhat reduced acceptability, in (55d):

(55) a. Ich habe gestern einen Studenten gesehen
   I have yesterday a student seen
   [mit langen Haaren] [den niemand kannte].
   with long hair whom no one knew
   'I saw a student with long hair yesterday, who no one knew.'

b. Ich habe gestern
   I have yesterday
   [einen Studenten [mit langen Haaren] [den niemand kannte]] gesehen.
   a student with long hair whom no one knew seen

c. Ich habe gestern [einen Studenten [mit langen Haaren]] gesehen
   I have yesterday a student with long hair seen
   [den niemand kannte].
   whom no one knew
I have yesterday a student whom no one knew seen with long hair.

On the analysis proposed here, no such difficulty arises because the effect of partial compaction is to optionally "liberate" a list containing any number of domain objects assigned to the Nachfeld. But there is no requirement of any sort that this list exhaust all of the extraposable domain objects in the smaller constituent.

### 8.4 Extraposition from PPs

In the discussion above, we made appeal to the idea that what accounts for the right-peripheral ordering of an extraposed constituent are its topological properties within the smaller constituent that it has been extracted from. Thus, the [TOPO nf] marking, so to speak, is linearly potent, regardless of whether the domain object thus specified occurs in an NP or a sentence. The question that this raises is what the topological properties of the other elements in the extraposition source are.

While topological field-based approaches concern themselves primarily with the clausal syntax of languages like German, one can also find instances where this line of thought extends to the description of smaller syntactic units, specifically NPs (cf. for instance Duden 1984, Ahrenberg 1989). This is also the line to be taken here. However, I will not have much to say about the internal topological structure of the NP as far as the head noun and prenominal material is concerned. For concreteness, I will take all those elements to simply belong to a single topological field, called the
“nominal field” \( m_f \). Order in the \( m_f \) is determined pretty much directly from the hierarchical structure; that is, the domain of prenominal modifiers and specifiers is (totally\(^{19}\)) compacted and then prepended to the domain of the \( \overline{N} \) constituent they combine with, so that the left-to-right order directly reflects the internal composition structure. An example is given in (56):

\[
\begin{align*}
\text{NP} & \quad \text{DOM} \left( \begin{array}{c}
\text{DET} & \text{DOM} \left( \left( \text{(das)} \right) \right) \\
\text{ADJP} & \text{DOM} \left( \left( \text{(sehr)} \right) \right) \\
\text{SPEC} & \text{DOM} \left( \left( \text{(sehr)} \right) \right)
\end{array} \right) \\
\text{N} & \quad \text{DOM} \left( \left( \text{(Haus)} \right) \right)
\end{align*}
\]

Complements and modifiers other than attributive adjectives are assigned to the Nachfeld after compaction. This ensures elements that bear different syntactic relations to the head noun nevertheless bear similar topological properties.

The topological LP statement that is responsible for the ordering among post-nominal constituents and the rest within the NP is given in (57):

\(^{18}\)The topology of NPs is presumably significantly more structured. Thus, the fact that singular count nouns in languages like English or German need to be accompanied by a determiner or prenominal genitive NP may be reducible to a topological constraint that requires the position reserved for determiners or possessives to be nonempty. From that perspective, the function of these prenominal elements is quite similar to that of complementizers or \( wh \)-expressions in that their presence effects a syntactic marking of some sort.

\(^{19}\)Cf. Wittenburg (1987), who observes that prenominal genitives disallow extraposition.
Let us now turn to prepositions, which are strikingly similar to verbs in their topological properties. In particular, I assume that, like verbal heads, they compact their NP complement while they themselves bear the topological marking \([\text{TOPO } cf]\). In this fashion, they precede their complements, just like finite verbs in V1/V2 clauses precede their arguments in the Mittelfeld. In the case of total compaction, we get a structure such as the one given in (58b):

\[(58)\]

\begin{align*}
\text{a. wegen der Gründe, [die ich erwähnte] schlafen} \\
\text{because of the reasons that I mentioned sleep}
\end{align*}

\begin{align*}
\text{b.}
\text{Wegen der Gründe, [die ich erwähnte] schlafen} \\
\text{Because of the reasons that I mentioned sleep}
\end{align*}

However, while the vast majority of prepositions precede their NP complement, a
handful, including *wegen*, also exhibit postpositional behavior.\textsuperscript{20} I propose to treat such cases in a rather straightforward way by assigning them to the \textit{vc} topological field. Let us first consider the case in which total compaction occurs; that is, the relative clause stays within the NP when the latter is compacted and inserted into the prepositional domain.

\textsuperscript{20}Cf. for instance Duden (1984:727); some items such as *halber* (‘on behalf of’) and *zuwider* (‘against’) only occur as postpositions. Also, there may be evidence for bipartite adpositions in German, as illustrated by the examples in (i):

(i)  
\begin{itemize}
  \item a. von Rechts wegen  
    \begin{itemize}
      \item of law because of  
      \end{itemize}
    \begin{itemize}
      \item ‘by law’
  \end{itemize}
  \item b. um des lieben Friedens willen 
    \begin{itemize}
      \item about the dear peace on behalf
    \end{itemize}
    \begin{itemize}
      \item ‘for the sake of keeping the peace.’
  \end{itemize}
\end{itemize}

Even though such constructions are most common in idiomatic contexts, especially (ib) seems to still have a certain degree of productivity. In the current framework, such cases could be accommodated quite straightforwardly along the lines in (ii):

(ii) \[
\begin{array}{c}
\text{um} \ldots \text{wollen} \\
\begin{array}{c}
\text{P} \\
\text{...|SUBCAT (NP[GEN])} \\
\text{DOM } \begin{bmatrix}
\text{[um]} \text{P} \\
\text{cf} \\
\text{[wollen]} \text{P} \\
\text{vc}
\end{bmatrix}
\end{array}
\end{array}
\]
Next, we need to consider the case in which the relative clause is extraposed from the NP complement. By virtue of its *nf* marking, it will then follow the postposition. If subsequently, the verb combines with the PP via total compaction, then the relative clause will, so to speak, be “frozen” within the PP; hence the extraposition will only be partial. This is shown in (60):
Finally, there is the possibility that the verb combines with the PP in such a way that the relative clause is domain-inherited into the verbal domain. In that case, the \textit{Nachfeld} marking will occasion the relative clause to occur finally in the domain of the verb:
Another environment in which prepositions can occur is with nonfinite VPs. There has been a longstanding indeterminacy with respect to the status of elements such as um, statt, and ohne as prepositions or complementizers in constructions such as in (62):

(62) a. um ihrem Verlobten auszuholen den sie schon häufig unterstützt hatte to her fiancé help.out who she already often supported had ‘to help out her fiancé, who she had often supported before’

b. statt nach Berlin zu fahren wo er noch geschäftlich zu tun hatte instead to Berlin to go where he still business to do had ‘instead of going to Berlin, where he still had business affairs’

c. ohne nochmals versucht zu haben das Projekt zu retten without again tried to have the project to save ‘without having tried again to save the project’

On the one hand, it is tempting to equate the initial element in such constructions with complementizers in finite clauses. Thus, they could be considered as C⁰ categories whose only peculiarity is the nonfinite morphology of the phrases they combine with.
On the other hand, there is also a strong intuition that such elements are indeed prepositions, albeit positionally on a par with complementizers (cf. Bennis & Hoekstra 1984:9), which is bolstered by the fact that all of them, to a varying degree, can also occur with NPs:

(63)  a. Ich bitte dich [um eine Zigarette].
     'I ask you for a cigarette.'

     (63b) [Statt Otto] ist Emil gekommen.
     instead Otto is Emil come
     'Emil came instead of Otto.'

     (63c) [Ohne dieses Geld] kann Hans nicht leben.
     without this money can Hans not live
     'Hans can't live without this money.'

This property is not shared by complementizers, which, to the best of my knowledge, never have a double existence as prepositions in German.

In order to account for this duality, the proposal made here is to treat the items in (62) as prepositions in terms of their categorial status, which at the same time exhibit linear properties similar to those of complementizers, viz. the occurrence in cf. Primafacie, there are two choices with respect to the way that these prepositions construct the domain of their complement VPs. First, these prepositions may be assumed to simply domain union their complements in the same way that we have assumed complementizers to work, we get a rather flat representation, quite similar to the suggestion by Askedal (1986:217) (cf. also Höhle 1986) to extend the topological

---

21While it could be that homophonous, but distinct prepositions are involved in the case of um in (63a), note that there is arguably still a semantic commonality in that both in (62a) and (63a), the complement exhibits properties of a goal.
fields model to nonfinite cases, with prepositions taking the role of complementizers.

This is outlined in (64):

\[
\begin{array}{c}
\text{DOM} \\
\{ \langle \text{ohne} \rangle, \langle \text{nochmals} \rangle, \langle \text{versucht} \rangle, \langle \text{zu haben} \rangle, \langle \text{das Projekt} \ldots \rangle \}
\end{array}
\]

The second possibility is to assume that the VP complement is compacted. This would result in the example in (62) above being described along the lines in (65):

\[
\begin{array}{c}
\text{DOM} \\
\{ \langle \text{ohne} \rangle, \langle \text{nochmals versucht zu haben das Projekt} \ldots \rangle \}
\end{array}
\]

On closer inspection, there seem to be at least two reasons to prefer the second analysis over the one in (64).

First, on the analysis in (64), there is now a dichotomy among prepositions according to the way that the domain is formed from the complement. In the NP-complement case, compaction takes place, while with VP-complements, it does not.

Second, and more significantly, there is empirical evidence against the linear structure in (64) having to do with restrictions on extraposition. As has been noted by Haider (1993:4), VP complements occurring in the Mittelfeld do not permit extraposition from them. Thus, in (66), the placement of the subject niemand unambiguously indicates that we are dealing with a VP-intraposition construction. Yet, the badness of (66b) shows that this VP is opaque for extraposition.

\[
\text{(66) a. daß [die Tür zu öffnen [die zur Gruft führt]]} \\
\quad \text{that the door to open that to the vault leads} \\
\quad \text{niemand je zu versuchen wagte.} \\
\quad \text{no one ever to try dared} \\
\quad \text{‘that no one ever dares to open the door that leads to the vault.’}
\]
b. * daß [die Tür zu öffnen] niemand je zu versuchen wagte
that the door to open no one ever to try dared
[die zur Gruft führt].
that to the vault leads

Of course, as expected, the situation is rather different if instead we consider coherent constructions, where there is no VP argument present, but where instead, the extraposition source NP is an argument of the topmost predicate (wagte):

(67) daß er die Tür zu öffnen zu versuchen wagte [die zur Gruft führt].
that he the door to open to try dared that to the vault leads
‘that he dared to try to open the door that leads to the vault.’

If we compare this situation with the facts in prepositional phrases with VP complements, the very same behavior can be observed. Thus, while the PP may contain an extraposed relative clause, it is not possible to extrapose it further into the matrix clause.

(68) a. Hans hat [ohne nochmals versucht zu haben [das Projekt zu retten]]
Has has without again tried to have the project to save
aufgegeben.
given up
‘Hans gave up without having tried to save the project one more time.’

b. *Hans hat [ohne nochmals versucht zu haben] aufgegeben
Has has without again tried to have given up
[das Projekt zu retten].
the project to save

The obvious generalization is that VP complements in general only allow total compaction, regardless of the categorial status of the head (V or P). This argues in favor of the analysis in (65) above. Given this analysis, one can think of VPs as sufficiently “clause-like” for the Right Roof Constraint to apply. However, the parallelism with
clauses only holds for VPs in noninitial positions. In cases of VP fronting, extraposition does seem to be possible, as evidenced by the goodness of examples such as (69) (cf. also Chapter 6):

(69) [Alle die Lieder vorgesungen] hat Hans seiner Tochter
all those songs sung has Hans his daughter
[die ihm seine Großmutter beigebracht hatte].
that him his grandmother taught had
‘Hans sang all those songs to his daughter that his grandmother had taught him.’

By contrast, as was seen earlier, extraposition from finite clauses in Vorfeld is never grammatical. Also, since the relation between a preposition and its VP complement is the same regardless of where the PP as a whole is placed, we predict that fronting of the PP will not ameliorate extraposition. This is borne out by the badness of examples such as in (70b):

(70) a. [Um all den Leuten zu helfen [die von der Überschwemmung
to all those people to help that by the flood
überrascht wurden]] ist Lisa nach Köln gefahren.
surprised were is Lisa to Cologne gone
‘Lisa went to Cologne to help all those people
that were caught by surprise by the flood.’

b. *[Um all den Leuten zu helfen] ist Lisa nach Köln gefahren
to all those people to help is Lisa to Cologne gone
[die von der Überschwemmung überrascht wurden].
that by the flood surprised were

This requires that the conditions associated with Head-Argument relations are rendered somewhat more complicated and distinguish among different domain formation possibilities according to the topological assignment of the VP argument. I will not attempt to incorporate this complication into the current framework at this point.
8.4.1 Correlate constructions within PPs

Finally, there is a type of construction involving prepositions that bears a very close resemblance to the correlate es cases discussed in Section 8.1.1. For example, in (71a). the prepositional phrase damit has as much the appearance of a stand-in for the final daß clause as es does in (71b):

(71) a. Ich habe damit gerechnet [dass er kommt].
    I have there.with counted that he comes
    ‘I expected that he would come.’

b. dass Hans es bedauert [dass Maria schon fährt].
    that Hans EXPL regrets that Maria already leaves
    ‘that Hans regrets that Maria already leaves.’

For terminological convenience I refer to such examples as pseudo-correlate constructions. The parallelism with the correlate es cases extends to the ungrammaticality that results if the clause preceeds the correlate phrase:

(72) *[Daß er kommt] habe ich damit gerechnet.
    that he comes have I there.with counted

However, the two construction types differ in that the clause can occur directly within a phrase with the preposition, whereas es and the correlated clause never seem to form a constituent:

(73) a. Ich habe [damit [dass er kommt]] gerechnet.
    I have there.with that he comes counted
    ‘I expected that he would come.’

b.*dass Hans [es [dass Maria schon fährt]] bedauert.
    that Hans EXPL that Maria already leaves regrets

The constituenthood in the case of pseudo-correlate constructions is further supported by the possibility of occurring topicalized:
(74) a. [Damit [daß er kommt]] habe ich gerechnet.  
   there.with that he comes have I counted  
   'I expected that he would come.'

b. [Es [daß Maria schon fährt]] hat Hans bedauert.  
   EXPL that Maria already leaves has Hans regreted

What this suggests is that while in the correlate es construction, the antecedent es is a coargument of the complement clause, by contrast, the daß-clause in pseudo-correlate constructions is not an argument of the verb governing the PP, in this case rechnen. Instead, it is internal to the PP and where the prepositional part occurs discontinuously from the complement clause, as in (73a), the latter has been extraposed out of the PP. This conclusion is also supported by the observation that other kinds of PPs can function as the argument of rechnen as is illustrated in (75):

(75) Ich habe [mit seinem Kommen] gerechnet.  
   I have with his coming counted  
   'I expected his coming.'

What sets the type of PPs seen in the correlate construction apart from regular mit-PPs is the fact that the former exhibit postpositional word order. This is only possible with a rather small set of pronominal elements, which themselves have the status of PPs: da, wo, and hier. Among these, only the da-forms seem to allow a correlate relationship with a clause, whereas the wo- and hier-forms, being interrogative and deictic PPs, respectively, do not. Unless it can be shown that the possible PP-complements of mit have other properties in common, it is probably necessary to assume that da, wo, and hier share a common diactric feature “[PRO]” controlling the selection of only these elements in analogy to the “R”-feature known from

---

22Forms such as damit are often referred to as Pronominaladverb, cf. Duden (1984:356). However, this terminology is rather unfortunate, as such elements occur in precisely the same syntactic environments as PPs, irrespective of their complement or adjunct status.
the corresponding Dutch constructions. The entry for postpositional *mit* is given in (76):

(76) *mit*

\[
\begin{array}{|l|}
\hline
\text{SYNSEM} \{ 3 \} \\
\text{SUBCAT} \{ \text{PP[PRO]}_{1}, (\text{S[MARKED]}_{2}) \} \\
\text{CONTENT} \{ \text{index} \} \\
\text{CONTEXT} \{ \text{anchor} \} \\
\text{DOM} \{ \{ (d)mit \} \} \\
\text{TOPO vc} \\
\hline
\end{array}
\]

Note that the clausal complement is optional. If it does occur, though, it is anchored to the index of the pronominal PP.

Since I consider *da* a full-fledged PP argument of postpositional *mit*, the former is assigned to the phrase-internal *mf* field, while the correlated clause occurs phrase-finally by the same principle that accounts for the ordering in the correlate *es* constructions:

---

23 The requirement that the sentential complement be marked is motivated by the contrast in (i):

(i)

a. Meier hatte [darauf [daß man ihn wählen würde]] stark gehofft.
   Meier had there.on that one him elect would strongly hoped
   'Meier had hoped strongly that he would get elected.'

   Meier had there.on one would him elect strongly hoped

However, Reis (1985:290–291) notes that in certain cases, extraposition seems to rescue a V2 complement, as in (ii). I have no explanation for this fact.

(i) Meier hatte darauf stark gehofft [man würde ihn wählen].
   Meier had there.on strongly hoped one would him elect
   'Meier had hoped strongly that he would get elected.'
What this approach does not yet reflect is the fact that vowel-initial prepositions show alternations in form when occurring in the postpositional pattern. For instance, *da/wo + auf yields *darauf/*worauf, dialectally *dadrauf/*wodrauf, cf. Oppenrieder (1991). Since the alternation is predictable, one can account for this phenomenon by assuming a stem rule that prefixes these prepositions with *dr-. which by a rule of external sandhi in the phonological component can undergo a reduction if the pronominal PP occurs contiguously:24

(77)  
\[
\begin{align*}
&\text{PP} \\
&\text{DOM}\left\langle \left[ \text{\{\langle da\rangle\}} \right], \left[ \langle \text{mit}\rangle \right], \left[ \langle \text{da\(\overline{\text{\beta}}\) er kommt}\rangle \right] \right\rangle \\
\end{align*}
\]

Yet, when the pronominal part occurs separated from its head, only the nonreduced form can surface, as shown in (79):25

(78)  
\[
\begin{align*}
&\text{PP} \\
&\text{DOM}\left\langle \left[ \text{\{\langle da\rangle\}} \right], \left[ \langle (d(a))rauf\rangle \right], \left[ \langle \text{da\(\overline{\text{\beta}}\) er kommt}\rangle \right] \right\rangle \\
\end{align*}
\]

(79) Da hat sich Hans drauf/*rauf/*auf gefreut.

there has self Hans on looked.forward.to

'Hans was looking forward to it.

---

24 However, it is clear that other pronominal forms in postpositional constructions exhibit a certain degree of idiosyncracy, cf. wessen/dessen + wegen = weswegen/deswegen ("why"/"therefore"). Therefore, a purely morphological treatment of the postpositional cases in (76) is also a viable option. Yet, because the postpositional head may occur severed from its pronominal PP-complement (see below), this will only apply for the contiguous cases.

25 In certain dialects, the "stranded" forms may (or must) include da fully, cf. Oppenrieder (1991:164): da ... darauf, da ... damit, etc., This is indicated in (76) by the optional da-preceding the postposition. This occurrence of da is an integral part of the postposition's morphology and should therefore not be confused, with da as a PP[PRO] argument of (da)mit, as indicated by the separate domain element for the latter for instance in (78).
But what allows the separation in (79) to begin with? A common approach has been to consider constructions like these as instances of an extraction that "strands" the postposition, which in turn is taken to undergo reanalysis and become part of the higher predicate (e.g. Fanselow 1987).

In a nonderivational framework, one may think of *da* as being extracted from the PP, as is suggested by Rentier (1994) and, in a categorial framework by Hoeksema (1991), for similar constructions in Dutch. However, there are at least two objections to this type of analysis. First, the pronominal can also occur in the Mittelfeld, as shown in (80):

(80) weil ich da nicht mit gerechnet habe, [daß ...].
because I there not with counted have that
'because I did not expect that ...'

In contrast, indisputable cases of extraction out of embedded clauses never allow the Mittelfeld as a landing site. Moreover, if separation occurs, the placement of the postposition is severely limited. As shown by the contrast between (81a) and (81b), it can only occur immediately preceding the verbs in the verb cluster, whereas no similar constraint applies if the PP remains contiguous, as in (81c) (cf. den Besten & Webelhuth 1989):

(81) a. Da habe ich nicht mit gerechnet.
there have I not with counted
'I did not expect it.'

b.*Da habe ich mit nicht gerechnet.
there have I with not counted

---

26In Hoeksema's analysis, the stranded postposition becomes part of the complex predicate via functional composition. While this accounts for the badness of placements of the postposition that are nonadjacent to the verb cluster, it does not account for Mittelfeld-internal placements of the R-pronoun, as in (80).
c. Ich habe damit nicht gerechnet.
   I have there.with not counted
   'I did not expect it.'

This pattern is left totally unaccounted for by a dislocation-based analysis.

As an alternative, I want to outline a different approach which is based on an idea in Pollard et al. (1993). Let us assume that the separation is between the pronominal PP and the postposition is a linearization phenomenon. Specifically, I propose to extend the idea of partial-compaction so that it not only applies to nf elements, but also—in certain environments—to domain objects assigned to the vc field. As a result, the vc marking of the postposition will become topologically significant in the matrix domain, while the PP complement will be placed according to the possibilities holding for the whole PP that it is part of compositionally. The resulting order domain for (81a) is given in (82):

\[
(82) \quad \text{DOM } \left[ \langle \text{da} \rangle_{\text{PP}}, \langle \text{habe} \rangle_{\text{vf}}, \langle \text{ich} \rangle_{\text{mf}}, \langle \text{nicht} \rangle_{\text{mf}}, \langle \text{mit} \rangle_{\text{P}}, \langle \text{gerechnet} \rangle_{\text{vc}} \right] 
\]

While there remain a number of details to work out, there are a number of interesting consequences of this approach. First, because the prepositional head is placed in vc, it will automatically follow all mf domain elements, which predicts the badness of (82b).

However, despite its positional commonality with the verb cluster, mit is not part of

\[27\]Chief among these is the question why the postposition can only occur initially within the matrix vc field; however, as pointed out by Oppenrieder (1991:165), the postposition sometimes also occurs following the verb cluster:

(i) Da habe ich mich immer gewehrt gegen.
   there have I self always opposed against
   'I have always been opposed to that.'

Another open issue is what prevents the PP-"remnant" from occurring in the clause's Nachfeld.
a verbal complex, hence not part of a constituent that is selected via VCOMP, and hence cannot be fronted together with a nonfinite verb:

(83) *[Mit gerechnet] hat er da nicht.
    with counted has he there not

Whether this pattern is predicted on a dislocation-based account depends on whether fronting of constituents from which something is extracted is possible.

Along the same lines, the badness of (84a) falls out because da by itself is not a complement (or adjunct) of gerechnet and hence cannot form a frontable partial VP with the latter. On the other hand, the whole PP does count as a complement and can therefore be fronted along with the participle (84b). Similarly, a split PP does not interfere with the fronting of the participle it is a complement of, because the two bear independent syntactic relations to the auxiliary “pivot” hat (as SUBCAT and VCOMP arguments, respectively), cf. (84c):

(84) a.° *[Da gerechnet] hat er nicht mit.
    there counted has he not with
    ‘He did not expect it.’

b. [Damit gerechnet] hat er nicht.
    there with counted has he not
    ‘He did not expect it.’

    counted has he there not with
    ‘He did not expect it.’

8.5 Summary

There seems to be an implicit, albeit pervasive, assumption among generative syntacticians that the classification of a language into head-final vs. head-initial in some
respect reveals a deep property of that language’s syntactic make-up. For a language like German—generally classified as head-final—this entails that every construction must be fitted into this classification scheme. Obvious counterexamples have to be explained in terms of a derivational relationship. We already encountered an instance of this kind in the domain of verb placement, where the incongruent V1/V2 patterns had to be reduced to Vfinal ones. To some extent we are dealing with the mirror image at the right periphery. The fact that the least marked (often, the only grammatical) placement options for clauses and VPs is after the head appears to have left little impact on the kind of analyses proposed is documented by the continued insistence on derivation-based view for the sake of typological homogeneity, but with questionable descriptive adequacy.

The current approach does not have such preconceptions. In the same way that a derivational involvement of any kind was rejected for verb placement, the linearization-based view also offers an alternative with respect to post-head placements of arguments and adjuncts. This should be a welcome result, as it again reduces the burden of the combinatorial system in favor of a more sophisticated accounting of linear properties.

The analysis of extraposition from smaller constituents pursued here is to some extent logically independent of that of clausal dependents. Still, it builds on a rather natural extension of the descriptive devices already present which allows it to arrive at a linguistically arguably more adequate description of the phenomena. Some ex-

\[28\] More fine-grained distinctions are, of course, possible; thus, Haider (1993:39–43) proposes to associate more specific constraints on order with major category features \([±N, ±V]\).
tensions of the basic formalism will also be proposed in the next chapter, where the recalcitrant coordination constructions discussed in Chapter 3 will be taken up again.
CHAPTER IX

Conjunct-Internal Subjects Revisited

In Chapter 3, I tried to establish that a close relationship holds between coordination constructions in which the subject occurs to the left of two verb-initial conjuncts (SVPC) and those in which it occurs in a linear position internal to the first of the conjuncts (SGF). In the chapters that followed, various aspects of an approach were explored that treats noncorrespondences between syntactic structure and word order not as an embarrassment, but tries to deal with discontinuities in a principled way. In this chapter, I will attempt an analysis of conjunct-internal subject constructions which builds in crucial ways on the groundwork that has been laid by the linearization-based approach to German clause structure.

The crucial question to address in this chapter, then, is how the model based on topological fields can be extended to include coordination constructions. Here, I will not attempt to answer this question in its full generality. In many instances, coordination will simply result in the formation of a single conjunct domain object. As for instance in the case of two NPs, which usually behave as a single NP domain element in relation to the rest of the clause, cf. the plural agreement in (1):

(1) [Otto und Lisa] sind in den Wald gegangen.
   Otto and Lisa are into the forest gone
   'Otto and Lisa went into the forest.'
What is of more interest to our purposes is the case in which a single argument factor bears simultaneous and independent relations with two or more conjuncts. In the most general case, we have to accommodate the possibility that each of the factor-conjunct combinations is licensed independently in the syntax. This seems to be the heart of the phenomenon of Nonconstituent Coordination (cf. Dowty 1988). Thus, in the famous example in (2), this perspective does not require some conjunct category consisting of some combination of NP and Adj features, but rather, the sentence is grammatical because the combination of the copula *is* with each of the conjuncts a Republican and proud of it is independently well-formed.

(2) Pat is a Republican and proud of it.

In the cases to be considered here, however, such machinery will not be necessary. For the sake of simplicity, I continue to assume that coordinated verbal projections form a conjunct constituent. However, the idea of simultaneous licensing of a factor with each of the conjuncts will find a rather direct application in terms of the linear syntax of the construction. In this respect, the account developed will depart from the standard phrase structure-based view which takes it to be an axiom that coordinated constituents *always* converge in their linear relations with the factor, not just in simple NP examples as in (1). As a result, the linear relations between factors and conjuncts are not guaranteed to always conform to the String Continuation Criterion of Chapter 3.
9.1 Coordination and order domains

To make matters concrete let us consider the following example of a coordination construction in which the factor niemand stands in the relation of linear precedence to both conjunct VPs sie ansprach and ihr den Weg zeigte:

(3) (daß) niemand sie ansprach und ihr den Weg zeigte.
that no one her addressed and her the way showed

In order to be able to represent different factor-conjunct linear relations holding simultaneously, we need to be able to refer to the relevant subdomains constituted by the factor and each conjunct, indicated in (4):

(4) a. niemand sie ansprach
     b. niemand ihr den Weg zeigte.

To this end, let us distinguish between the “domain proper” associated with a sign and the list of conjunctive subdomains that make up that domain. The first is given as the value of the attribute P-DOM, whereas the second is the referenced by the feature C-DOMS. I take both to be appropriate features of objects of sort dom-const, for “domain construction”, whose relevance will become clearer shortly.

(5) \[
\begin{bmatrix}
\text{sign} \\
\text{DOM}
\end{bmatrix}
\begin{bmatrix}
\text{dom-const} \\
\text{P-DOM list(dom-obj)} \\
\text{C-DOMS list(list(dom-obj))}
\end{bmatrix}
\]

Crucially, it is the elements of C-DOMS that topological and clause-level constraints (such as the Marking Constraint, in the case of subordinate contexts) are defined on and where clause-type determination takes place. In case of simplex constituents, the value of C-DOMS will be the singleton list containing the value of P-DOM:
For coordinated constituents that do not share any factor constituent, the value of 
P-DOM will simply be the concatenation of the conjunct subdomains, as in (7): 

\[ \begin{aligned} 
\text{DOM} & \left[ \begin{array}{c} \text{C-DOMS} (1, 2) \\ \text{P-DOM} \end{array} \right] \\
\text{DOM} & \left[ \begin{array}{c} \text{C-DOMS} (\ldots) \\ \text{P-DOM} \end{array} \right] \\
\text{DOM} & \left[ \begin{array}{c} \text{C-DOMS} (\ldots) \\ \text{P-DOM} \end{array} \right] \\
\end{aligned} \]

The fact that at the point where the coordinated elements are combined, the proper 
domain is constrained via the append of the conjunct subdomains is referred to below 
as the Noninterleaving Constraint.

Things become a bit more complicated once a shared constituent is added to the 
conjunction. The first constraint that the resulting proper domain of the mother 
should satisfy is that the position within the proper domain should in general also 
comply with the LP requirements of each of the conjunct subdomains. Since condi­tions on linear order are checked on elements in C-DOMS, the factor will be shuffled 
into each of the conjunct subdomains. We then get the following set of constraints 
for a factor with the domain element [2]:

\[ \begin{aligned} 
\text{DOM} & \left[ \begin{array}{c} \text{SIGN} \\ \text{DOM-const} \\ \text{FACTOR} [0] \\ \text{C-DOMS} (0 \circ 1, \ldots, 0 \circ n) \end{array} \right] \\
\end{aligned} \]

Note also that the subattributes of DOM have been augmented with a third feature, 
FACTOR, which has as its value the list of factor constituents shared among the
conjuncts. Having such an attribute affords a uniform approach to domain formation—regardless of whether the constituent that some element combines with is simplex or the conjunction of constituents.

Moreover, the factor must be linked to the P-DOM of the constituent it combines with. For this, we actually do not need to say anything beyond the assumptions that have been made all along in the previous chapters, viz. that this combination does not involve simply prepending the domain object of the factor to the complex coordinate domain, but rather, the placement possibilities are prima facie less constrained. Thus, the factor will simply be shuffled into the proper domain of the phrase with no constraints on order.¹

\[
(9) \quad \begin{array}{c}
\text{FACTOR} & \left[ (\mathcal{O}) \right] \\
\text{P-DOM} & \left[ (\mathcal{U}) \right]
\end{array}
\]

Finally, the linearizations of the factor with each of the conjunct subdomains must be connected with the constraints on the proper domain. This is done by requiring that the proper domain, in addition to consisting of the factor shuffled into the proper domain of the lower constituent, also satisfies the constraint that it be the merger of all conjunct subdomains expanded by the factor. Let us call this the Distributive Factor Constraint. The result is given informally in (10):

¹I will ignore the complications arising with partial compaction, although an extension of the current system to extraposition constructions should be straightforward.
If "O" is interpreted as regular domain union, these constraints are inconsistent because of two reasons: first, the new condition would have the effect of adding the very same factor to the conjunct domains \( n \) times; yet domain elements must be different at the very least in their head values (cf. Chapter 7). Second, even if multiple occurrences of the same domain element were allowed, the constraint in (9) still requires that the value of P-\( \text{DOM} \) contain the factor only once. What is needed is a variant of the \( \text{shuffle} \) relation that ensures that elements that occur on all of the lists to be merged only contribute a single occurrence to the result list. The definition of this relation, which I call \( u\text{-shuffle} \), for "union-shuffle", is given in (11):\(^2\)

\(^2\)The definition of the auxiliary relations \( \text{not-member} \) and \( \text{member} \) is straightforward:

(i)  
\[ \text{not-member}(\{1,2\}) \equiv \]
\[ \begin{array}{c}
\lor \\
\land \\
\land \\
\end{array} 
\begin{array}{c}
\{1\} : \emptyset \\
\{2\} : \emptyset \\
1 \neq 2 \\
\text{not-member}(\{1,2\}) \\
\end{array} \]

\[ \begin{array}{c}
\lor \\
\land \\
\land \\
\end{array} 
\begin{array}{c}
\{2\} : \{1\} \\
\{2\} : \{1\} \\
\end{array} \]

\[ \begin{array}{c}
\land \\
\land \\
\end{array} 
\begin{array}{c}
\text{member}(\{1\}) \\
\text{member}(\{1\}) \\
\end{array} \]
At this point, we need to properly link up the constraints on domain construction with actual feature descriptions. In particular, I assume that there are (at least) two subsorts of `dom-const`, one for symmetric domain construction and one for the asymmetric case.

\[ (11) \quad \text{u-shuffle}(1, 2, 3) \equiv \\
(1 : () \land 2 : () \land 3 : () ) \\
\lor \\
(1 : [H | L1] \land 2 : [L2] \land 3 : [H | L3]) \\
\lor \\
(1 : L1 \land 2 : [H | L2] \land 3 : [R | L3]) \\
\land \\
\text{not-member}(H, L2) \\
\land \\
\text{u-shuffle}(L1, L2, L3) \\
\lor \\
(1 : [R | L1] \land 2 : [L2] \land 3 : [R | L3]) \\
\land \\
\text{member}(R, L2) \\
\land \\
\text{u-shuffle}(L1, L2, L3) \]

In the discussion so far, we have made the implicit assumption that we are dealing with the case of symmetric domain formation. This restriction can now be made explicit by setting up a sort constraint of the kind given in (13).

\[ (12) \quad \text{symm} \quad \text{asymm} \]
\[ \downarrow \]
\[ \text{dom-const} \]

These constraints linking the values of the various DOM subattributes are taken to hold in the domains of virtually all signs—the only exceptions being SGF coordination (and gapping) constructions, as will be discussed shortly.
Given this set of conditions on how domains are constructed in the symmetric case, the derivation of a simplex clause will come out much as it did previously. Since the C-DOMS list will only contain one element (cf. (6)), the function of the FACTOR list is simply to feed the domain elements into the list in C-DOMS, from which the proper domain follows directly:

(14) \[
\begin{align*}
\text{DOM} & \left[ \text{symm} \right] \\
\text{FACTOR} & \langle \langle \langle \text{Adam} \rangle \rangle \rangle \\
\text{C-DOMS} & \langle \langle \langle \text{sieht} \rangle, \langle \text{Adam} \rangle, \langle \text{die Rose} \rangle \rangle \rangle \\
\text{P-DOM} & \langle \langle \langle \text{sieht} \rangle, \langle \text{Adam} \rangle, \langle \text{die Rose} \rangle \rangle \rangle
\end{align*}
\]

Incidentally, the conditions in (13) also apply when syntactic units are coordinated. Since at that level, there are no shared factors (yet), the value of the FACTOR attribute will be the empty list. Consequently, shuffling the empty list into the various conjunct subdomains will have no effect and hence, this situation is identical to the one encountered before in (7):
While this machinery may seem somewhat daunting, there are now a number of aspects about the combination of factors with conjunct constituents that fall out and no longer have to be stipulated.

First, the fact that the factor has to simultaneously satisfy the linearization conditions on each of the conjuncts derives which conjunct the factor can appear in. Thus, consider the VP conjunct subdomains in (16a,b):

\begin{itemize}
  \item[(16)a.] \begin{align*}
    &\langle \begin{array}{c}
        \langle \text{niemand} \rangle \\
        mf
    \end{array},
    \begin{array}{c}
        \langle \text{sie} \rangle \\
        mf
    \end{array},
    \begin{array}{c}
        \langle \text{ansprach} \rangle \\
        vc
    \end{array} \rangle \\
  \end{align*}
  \\
  \item[(16)b.] \begin{align*}
    &\langle \begin{array}{c}
        \langle \text{niemand} \rangle \\
        mf
    \end{array},
    \begin{array}{c}
        \langle \text{und} \rangle \\
        none
    \end{array},
    \begin{array}{c}
        \langle \text{ihr} \rangle \\
        mf
    \end{array},
    \begin{array}{c}
        \langle \text{den Weg} \rangle \\
        mf
    \end{array},
    \begin{array}{c}
        \langle \text{zeigte} \rangle \\
        vc
    \end{array} \rangle \\
  \end{align*}
  \\
  \item[(16)c.] \begin{align*}
    &\begin{array}{c}
        \langle \text{niem.} \rangle \\
        mf
    \end{array},
    \begin{array}{c}
        \langle \text{sie} \rangle \\
        mf
    \end{array},
    \begin{array}{c}
        \langle \text{ansp.} \rangle \\
        vc
    \end{array},
    \begin{array}{c}
        \langle \text{u} \rangle \\
        none
    \end{array},
    \begin{array}{c}
        \langle \text{ihr} \rangle \\
        mf
    \end{array},
    \begin{array}{c}
        \langle \text{d. W.} \rangle \\
        mf
    \end{array},
    \begin{array}{c}
        \langle \text{z} \rangle \\
        vc
    \end{array} \rangle \\
  \end{align*}
\end{itemize}

The merger of the two subdomains is given in (16c). The important property of the second subdomain is that the factor is positioned initially in it. If the factor were placed anywhere other than the beginning, no consistent merger domain could be formed. Thus, in (17), there is simply no way to form a list in which the linear relations of the factor with each of the subdomain elements is preserved without interleaving the

\footnote{Note that the domain object for \textit{und} does not bear a proper topological assignment with respect to the clause, but instead is taken to have been appended directly to the conjunct domain. A specification such as \texttt{[topo none]} ensures that the conjunction particle is “invisible” to the topological structure of the conjunct subdomains it occurs in.}
conjunct subdomains—which is forbidden by the Noninterleaving Constraint. Hence ungrammatical placements of the factor, as in (17c) are automatically ruled out.

\[(17)\]

a. \[
\begin{align*}
\{ niemand \} & \quad \{ sie \} & \quad \{ ansprach \} \\
\text{mf} & & \text{mf} & & \text{vc}
\end{align*}
\]

b. \[
\begin{align*}
\{ (und) \} & \quad \{ ihr \} & \quad \{ niemand \} & \quad \{ den Weg \} & \quad \{ zeigte \} \\
\text{mf} & & \text{mf} & & \text{mf} & & \text{vc}
\end{align*}
\]

c.*(daß) sie ansprach und ihr niemand den Weg zeigte.

that her addressed and her no one the way showed

Precisely the opposite situation holds in cases of Right Node Raising. If we ignore the issue of the combinatorial licensing of such constructions, the very same set of constraints will derive that if a constituent is missing at the right periphery of any of the conjuncts, it will by necessity be linearized with the rightmost of the conjuncts:

\[(18)\]

a. Lisa bestellte und Otto verschlang eine ganzen Eimer Spaghetti.

Lisa ordered and Otto devoured a whole bucket spaghetti

‘Lisa ordered, and Otto devoured, a whole bucket of spaghetti.’

b. \[
\begin{align*}
\{ Lisa \} & \quad \{ bestellte \} & \quad \{ einen Eimer Spaghetti \} \\
\text{vf} & & \text{cf} & & \text{mf}
\end{align*}
\]

c. \[
\begin{align*}
\{ (und) \} & \quad \{ Otto \} & \quad \{ verschlang \} & \quad \{ einen Eimer Spaghetti \} \\
\text{vf} & & \text{cf} & & \text{mf}
\end{align*}
\]

d. \[
\begin{align*}
\text{P-DOM } \{ (Lisa) \} & \quad \{ bestellte \} & \quad (\langle u \rangle) & \quad \{ Otto \} & \quad \{ verschlang \}
\end{align*}
\]

One interesting consequence of the Noninterleaving and the Distributive Factor Constraints is they allow for some flexibility with regard to the placement of left-peripheral factors. One of the emergent conditions has been that the factor obligatorily precede all of the elements of the second conjunct subdomain. As long as this condition is satisfied, however, the factor does not have to necessarily precede all of the first subdomain’s elements too in order to yield a well-formed linearization. As a result, we get the correct prediction that the subject may also occur
conjunct-internally in such cases without any asymmetry in the categorial status of
the conjuncts or ATB-extraction violations:

(19) a. \[
\left< \begin{array}{c}
\langle \text{sie} \rangle \\ \text{mf}
\end{array}, \begin{array}{c}
\langle \text{niemand} \rangle \\ \text{mf}
\end{array}, \begin{array}{c}
\langle \text{ansprach} \rangle \\ \text{vc}
\end{array}\right>
\]

b. \[
\left< \begin{array}{c}
\langle \text{niemand} \rangle \\ \text{mf}
\end{array}, \begin{array}{c}
\langle \text{und} \rangle, \langle \text{ihr} \rangle \\ \text{mf}, \text{mf}
\end{array}, \begin{array}{c}
\langle \text{den Weg} \rangle \\ \text{mf}
\end{array}, \begin{array}{c}
\langle \text{zeigte} \rangle \\ \text{vc}
\end{array}\right>
\]

c. \[
P-\text{DOM} \left< \begin{array}{c}
\langle \text{sie} \rangle \\ \text{mf}
\end{array}, \begin{array}{c}
\langle \text{niemand} \rangle \\ \text{mf}
\end{array}, \begin{array}{c}
\langle \text{a} \rangle \\ \text{vc}
\end{array}, \begin{array}{c}
\langle \text{und} \rangle, \langle \text{u} \rangle \langle \text{ihr} \rangle \\ \text{mf}, \text{mf}
\end{array}, \begin{array}{c}
\langle \text{d. W.} \rangle \\ \text{mf}
\end{array}, \begin{array}{c}
\langle \text{z} \rangle \\ \text{vc}
\end{array}\right>\]

The placement variability of factors is not restricted to single elements. As was
observed in Chapter 3, if instead of a VP, a smaller V-projection is coordinated, the
shared direct object may be placed noninitially just as much as the subject in (19)
can. The derivation in (20b) shows that it is perfectly legal for the indirect object \text{ihr}
to precede both the shared subject \text{Hans} and the direct object \text{das}:

(20) a. daß ihr das Hans zeigte und später an Otto verkaufen will

that her-DAT that-ACC Hans showed and later to Otto sell wants
‘that Hans showed it to her and wants to later sell it to Otto.’
9.2 Conjunct-internal subjects in V1 clauses

In the discussion of SGF constructions in Chapter 3, it became clear that analyzing examples of this kind as violations of the Like Category Constraint is not only conceptually undesirable, but also ignores the strong evidence in favor of a symmetric analysis involving the conjunction of VPs. While Steedman's approach embodies this intuition, his attempt of deriving SGF as a case of (NP) gapping was shown to be too unconstrained.
In the analysis presented here, I will also propose to treat SGF as involving symmetric conjuncts. However, in contrast to Steedman, I will not revert to some kind of reanalysis rule. Instead, the observed surface asymmetries between the two conjuncts are a consequence of the linear constraints on conjuncts and factors. In the general case, the factor will be added to the conjunct subdomains of all conjuncts it is related to. If this was to hold for SGF constructions as well, we would have an immediate violation of the Topological LP Constraint because the subject in the first conjunct’s *Mittelfeld* would precede the second conjunct’s finite verb in the *cf* field. Therefore, what is special about SGF coordination is that if a subject combines with a coordinated VP, it is not linearized with respect to all subdomains, but only the first. As a consequence, the order constraints on the subject only have to take into account elements belonging to the first domain whereas the second conjunct remains wholly unaffected by the addition of the factor; cf. the derivation in (21):⁴⁵

---

⁴ In Kathol (1993), this effect was derived by assuming that the second conjunct in VP coordination constructions is in effect compacted. However, that approach does not extend easily to the analysis of symmetric coordination where one does want to preserve the intuition that the factor’s linearization is with respect to all conjuncts. The present proposal attempts to minimize the difference between the symmetric and asymmetric cases to whether the factor does or does not belong to all subdomains.

⁵ As Peter Culicover has pointed out to me (p.c.), a similar idea is suggested in (Wexler & Culicover 1980) for the analysis of English Right-node-raising constructions; yet there it is the right-peripheral constituent whose integrity is left undisturbed by the presence of the other conjunct.
As the subject of the conjoined VP, *ging in den Wald und fing einen Hasen, der Jäger* is assigned to $mf$. Note that what license this kind of asymmetric domain construction are the constraints among the various components of DOM that hold for the *asymm* subsort of *dom-const*, as stated in (22) (limiting ourselves to the case of two conjuncts):

(22) 

$$
\begin{align*}
\text{NP} & \quad \text{P-DOM} \left( \left[ (d.) \right], \left[ \{Jäger\} \right] \right) \\
\text{VP} & \quad \text{P-DOM} \left( \left[ (ging) \right], \left[ (i. d. W.) \right], \left[ (u.) \right], \left[ (fing) \right], \left[ (e. H.) \right] \right) \\
\text{asymm} & \quad \text{FACTOR} \left( \begin{bmatrix} 1 \end{bmatrix} \right) \\
\text{C-DOMS} & \quad \left. \begin{array}{c}
\left( (u.) \right),
\left( fing \right),
\left( e. H. \right) \\
\left( d. J. \right),
\left( i. d. W. \right)
\end{array} \right\} \\
\text{P-DOM} & \quad \left. \begin{array}{c}
\left( (ging) \right),
\left( fing \right),
\left( e. H. \right) \\
\left( d. J. \right),
\left( i. d. W. \right)
\end{array} \right\}
\end{align*}
$$

These interdependencies differ from the ones for the symmetric case in a number of ways. First, the factor is only added to the first conjunct. Moreover, when the different conjunct subdomains are u-shuffled into the proper domain, the factor $[3]$ is
required to precede all of the elements in the second conjunct domain. This condition, rather than the rather general \textit{u-shuffle} constraint in (13) has the effect of preventing the factor from being interspersed within the elements of the second domain (if there is no \textit{ve} or \textit{nf} element to demarcate the right edge of the first conjunct). This scenario was previously ruled out by adding the factor to the second conjunct subdomain.

The other part of the mismatch between the composition structure and the linear representation pertains to any \textit{Vorfeld} element in the first conjunct. The second condition specifies that if there is one, it is added to the conjunct subdomain of the second conjunct. The effect of this condition will become clearer in the next section, when V2 SGF constructions are discussed.

While in general, the \textit{dom-const} sort is resolved to \textit{symm}, there are certain environments in which this is not the only choice. In particular, this is the case whenever the factor constituent in a finite clause is a nominative NP:

\begin{equation}
(23) \quad \left[ \text{S[FIN]} \atop \text{DOM[FACTOR (NP[NOM])]} \right] \rightarrow \left[ \text{DOM dom-const} \right]
\end{equation}

If \textit{dom-const} is sort-resolved to \textit{symm}, we obtain symmetric coordination with the result that the factor nominative NP has to precede both conjunct VPs. If instead, we choose to linearize according to the constraints associated with \textit{asymm}, it becomes possible for the subject to occur conjunct-internally, that is, the \textit{Mittelfeld} of the first conjunct.

Among the facts that are directly accounted for by the constraint in (23) is the that OGF constructions (cf. Chapter 3) should never be possible. In those instances, the factor consists of a complement, hence the symmetric construal has to take ef-
fect. Similarly, no asymmetric construal is possible if besides the subject, some other argument is still missing. This then correctly incorporates the generalization from Chapter 3 that the subject “gap” cannot cooccur with any other “gapped” constituent.

Furthermore, if one equates the notions of “subject” with that of NP[nom] in German, as for instance argued in Reis (1982), the constraint in (23) can be paraphrased as stating that true asymmetric domain formation is only possible when the factor is the subject. This drives a clear wedge between the notion of subject and least oblique argument. Consequently, it is predicted that impersonal predicates in German, such as schlecht werden (‘become sick to the stomach’) or the impersonal passive of helfen (‘help’), whose least oblique argument is a dative and hence not a subject, cannot be construed in an SGF fashion. This prediction is in fact borne out:

(24) *War dem Mann schlecht und mußte sofort geholfen werden?
   ‘Was the man sick to the stomach and did he have to be helped immediately?’

These facts can also be taken to support the claim that the conditioning environment for the SGF cases is truly defined in syntactic, as opposed to semantic, terms. If all that SGF coordination cared about is the combinatorial structure, i.e. if the asymmetric construal becomes an option when the highest argument to yield a full sentence has combined, the datives in (24), being highest arguments in this sense, should pattern with clear nominative subjects, contrary to fact.
9.3 Conjunct internal subjects in V2 clauses

So far, I have not said anything about V2 SGF constructions. As was discussed in Chapter 2, occurrence in the Vorfeld is commonly taken to be the consequence of a dislocation process, quite like the one commonly assumed in nontransformational analyses in general. In standard G/HPSG approaches, SLASH elimination is thought to occur clause-peripherally. However, this will present a problem to our approach to SGF because nonsubject topics would have to taken to be extracted from the initial VP resulting in a destruction of the complete symmetry between conjuncts in SGF—in fact this would put us right back to Heycock and Kroch’s extraction asymmetry puzzle. In particular, it would be mysterious how the SLASH value of the entire VP is to be computed from the differing SLASH specifications of the two VP conjuncts and how this is constrained so as to prevent the passing of an extracted element out of the noninitial conjunct (as in English, cf. Chapter 3):
However, recall that in Chapter 6, the view that all instances of Vorfeldbesetzung had to involve syntactic dislocation was abandoned in favor of an approach that takes the placement of arguments and adjuncts in the Vorfeld of a local clause to be a linearization phenomenon. What this means, though, is that given our treatment of placement asymmetries in the V1 case, the possibility of there being preverbal constituents in the first conjunct falls out. Thus, the following derivation is correctly predicted to be well-formed:
On this analysis, the observation that the Vorfeld element can never originate from the second conjunct becomes a nonissue as the initial placement is entirely the result of a linearization effect.

But if elements may occur anywhere within the conjuncts, including the Vorfeld, what then prohibits the possibility of a topicalized phrase in a noninitial conjunct?

(27) *In den Wald ist der Jäger gegangen und einen Hasen hat gefangen.

At this point, it becomes important to take a closer look at the constraint on asymmetric construal in the previous section with respect to the role that the first conjunct’s Vorfeld plays in the noninitial conjunct. As was said then, if there is a Vorfeld element, it is added to the second conjunct subdomain. Thus, even though in terms of composition structure, it is the subject that is shared among both conjuncts. I claim that the preverbal constituent plays the role of a linear factor. In other words,
the C-DOMS list for (26) will contain the sequences *in den Wald ging der Jäger* and *in den Wald fing einen Hasen*. This has a number of desirable consequences. First, it immediately rules out (27) as impossible because there, the second conjunct subdomain is associated with two Vorfeld constituents: *in den Wald* and *einen Hasen*. Note also that by assuming that the second conjunct subdomain in effect has a V2 topological structure, one can now state that coordinated clauses must be matched in their clause type. That is to say, both elements in the C-DOMS list fit the syntactic pattern of a declarative clause—which is indeed the way the sentence is interpreted. The fact that the second subdomain does not contain a subject and has a topic with which it is bears no grammatical relation, is irrelevant for the purposes of determining the clause types involved. If on the other hand, the second subdomain was not construed linearly with the initial Vorfeld, a special provision would have to be made to accomodate the second conjunct’s V1 linear structure with the status of declarative clause.

For the same reason, the case in which there is no initial Vorfeld does not allow a topicalized phrase in the second conjunct either. Here, it is not the presence of another element “competing” for the vf field, but rather, since the second conjunct does not consist of a V1 domain, it cannot be matched in clause-type with the initial root polar question:

(28) *Ist der Jäger in den Wald gegangen und einen Hasen hat gefangen?*  
*is the hunter into the forest gone and a rabbit has caught*

Analogously, if the second conjunct were verb-final, then regardless of whether there is a complementizer, no match with the first conjunct’s clause-type is possible, as root
contexts always require the head verb to occur in cf:

(29) *Ging der Jäger in den Wald und (daß) einen Hasen fing.

went the hunter into the forest and that a rabbit caught

The claim that coordination in general is quite sensitive to the type of clauses involved is independently supported by an observation made by Grewendorf (1988:211). Conditional sentences in German come in two varieties, one consists of a V1 clause, whereas the other is introduced by the complementizer wenn (‘if’). While these have pretty much the same external distribution, a crossed combination generally leads to reduced acceptability:

(30) a. Wenn Peter weniger trinken würde und wenn er fleißiger wäre

if Peter less drink would and if he more.diligent were

hätte er Erfolg.

had he success

‘If Peter drank less and worked harder, he would be successful.’

b. Würde Peter weniger trinken und wäre er fleißiger

would Peter less drink and were he more.diligent

hätte er Erfolg.

had he success

‘If Peter drank less and worked harder, he would be successful.’

c. *Wenn Peter weniger trinken würde und wäre er fleißiger

if Peter less drink would and were he more.diligent

hätte er Erfolg.

had he success

---

*A possible exception may be constructions such as in (i), in which a V2 clause seems to be coordinated with a Vfinal clause:

(i) [Wenn du nach Hause kommst] und [der Gerichtsvollzieher steht vor der Tür], ...

when you home come and the bailiff stands at the door

‘when you come home and the bailiff is standing at the door, ...’

However, as is discussed in Frank (1994:22-24), the status of the V2 clause is not that of a regular conjunct, but rather it contributes an elaboration of the scenario set up in the first conjunct that is “modally subordinate” in the sense of Roberts (1987) to the former. Because of the special status of this construction in this and other respects, it is not clear what significance it bears on the theory of coordination as a whole.
Next, let us turn to cases in which more than the subject is shared. As was seen in Chapter 3, if along with the subject, another argument is shared across conjuncts, ungrammaticality invariably ensues. This is due to the fact that in verb-first domains, the addition of any argument will automatically require the latter to precede both conjuncts. If it didn’t, then the requirements on symmetrically constructed domains would be violated, from which only subjects are exempted. However, a somewhat different situation holds if the shared element is itself what creates the V1 environment. As the following example (modelled after a sentence discussed in Heycock & Kroch 1993) shows, a finite auxiliary may be shared along with the conjunct-internal subject:

(31) In den Wald will der Jäger gehen und einen Hasen fangen.  
into the forest wants the hunter go and a rabbit catch  
‘The hunter wants to go into the forest and catch a rabbit.’

At this point, I will not speculate what licenses the combination of the auxiliary with both conjuncts, which, given the Argument Composition approach to auxiliary verb complementation, has to be taken as an instance of nonconstituent coordination. Whatever the precise mechanism, what is important is that within the of field of the first conjunct, the auxiliary will satisfies the linearization conditions on symmetric domain construction. Once the subject is added to the resulting VP, its placement may again involve an asymmetric construal. If it does, it may legitimately be serialized in the first conjunct’s Mittelfeld:
The value of the C-DOMS attribute also shows that more than one element is shared across conjuncts: the pseudo-factor *in den Wald* as well as the auxiliary *will*—yet, the real factor *der Jäger* is only part of the first conjunct subdomain.

The account of SGF constructions developed here dovetails quite nicely with Reis's (1995) parenthetical analysis of putative extractions from V2 clauses. As the following examples show, it is possible to have an initial topic which seems to have been extracted from a V2 SGF construction:
(33)  a. Gestern meint Karl, sei Lisa nach Hamburg gefahren
    yesterday says Karl is Lisa to Hamburg driven
    und habe sich eine Mikrowelle gekauft.
    and has self a microwave bought
    ‘Karl says that Lisa drove to Hamburg yesterday
    and bought herself a microwave’

    b. Ihrer Tante behauptet Otto, habe Lisa das Familienbuch gezeigt
    her aunt-DAT claims Otto has Lisa the family book shown
    und wolle es jetzt ihrem Onkel geben.
    and wants-to it now her uncle-DAT geben
    ‘Otto claims that Lisa has shown the family book to her aunt
    and now wants to give it to her uncle.’

If the standard account of extraction from V2 in terms of successive cyclic movement
from topic (or [Spec,CP]) were correct, we would be left with a dilemma. Since that
analysis assumes that the extraction crosses one clausal boundary into the matrix
Vorfeld, we would be forced to treat the placement of the Vorfeld element as the
result of a dislocation, rather than linearization process. But then an asymmetry
between the two conjuncts is unavoidable because obviously, the long extraction can
only have proceeded from the first conjunct. This in turn, however, would seriously
undermine the plausibility of the proposed analysis which explicitly seeks to avoid
postulating asymmetric categories in V2 SGF constructions of any sort. On the other
hand, if the relation between the initial Vorfeld element and its putative base position
is not one of genuine extraction to begin with, it follows that the examples in (33)
are not a counterexample to our analysis. Instead, following again Reis (1995), they
simply involve intrusion of a parenthetical.

One additional piece of evidence for the correctness of a nonextraction analysis
of “extractions from V2” can be obtained if we compare them with extractions from
das clauses, where no alternative analysis is available and thus a syntactic linkage is necessary between the initial topic and the extraction site. For speakers that accept extractions from das-clauses in such environments, the initial topic cannot be construed with only one conjunct, as in (34):

(34) *?Ihre Tante; meint Otto, das Lisa t₁ das Familienbuch gezeigt habe
her aunt-DAT says Otto that Lisa the family book-ACC shown has
und es jetzt ihrem Onkel schenken wolle.
and it now her uncle-DAT give wants

By contrast, ATB extractions from das-clauses are invariably better, as shown in (35), with ATB-extracted dative object ihrer Tante:

(35) Ihrer Tante; meint Otto, das Lisa das Familienbuch gezeigt habe.
her aunt-DAT says Otto that Lisa the family book-ACC shown has
und es jetzt schenken wolle.
and it now give wants
‘Otto says that Lisa showed the family book to her aunt
and now wants to give it to her.’

This pattern is exactly reversed in the case of extraction from V2 clauses; as seen in (33) above, it is the “asymmetric” case that is significantly better than the one featuring an ATB-extracted topic, as in (36):

(36) *?Ihre Tante; meint Otto, habe Lisa t₁ das Familienbuch gezeigt.
her aunt-DAT says Otto has Lisa the family book shown
und wolle t₁ es jetzt geben.
and wants-to it now give

9.4 Conclusion

Despite the technicalities introduced in this chapter, it should have become clear that there is a rather simple linguistic intuition behind the analysis pursued here. I have no doubt that, assuming that the basic idea is on the right track, more perspicuous
and more elegant formulations can be found. Some of the complications are the result of a strategy to minimize the differences between the constraints on general, symmetric coordination and those constructions involving conjunct-internal factors. It is therefore hoped that if the current proposal is viewed in the context of a more general theory of coordination, patterns will emerge that simplify the current analysis.

There are many questions that have to remain unanswered for now, though. One of the more puzzling ones pertains to an observation made by Hohle (1983) in connection with the interaction between SGF coordination and question formation. Hohle observes that there is a noticeable difference in acceptability depending on whether an interrogative SGF construction contains an initial wh-phrase that is an argument in the first conjunct vs. an adjunct:

(37) a?Was ließ er fallen und rannte zum Hinterausgang?
what let he drop and ran to the back exit?

b. Wann hat jemand einen Einfall und sagt uns die Lösung?
when has someone an insight and tells us the solution
‘When does anyone have an insight so they can tell us the solution?’

As Hohle suggests, it seems that while adverbs can always be construed semantically with both conjuncts even though they only bear a syntactic relation to the first, the situation is different with arguments. Here no relation with the second conjunct may hold on the syntactic nor the semantic level. Nevertheless, there seems to be a condition—maybe due to parallelism with ATB structures—to construe the wh-phrase with both conjuncts, which cannot be satisfied in cases like (37a). I have nothing to offer to shed light on this rather murky issue.

Let me close this chapter with a somewhat speculative note. The present analysis can be seen to have a somewhat ironic moral. This study has to some extent been
guided with the idea that linear structure has to be taken in its own right, not just as an epiphenomenal afterthought to categorial and constituency properties. This emphasis allowed us to view the phenomenon of SGF coordination in a new light that takes the asymmetry involved to be entirely in the linear structure, but not the level of constituency. The intuition that this strategy embodies is in essence that it is more costly for a grammar to allow for constituent-related asymmetries than for those that are manifested linearly. In other words, the combinatorial/constituency system is less likely to exhibit irregularities than the linear one. But this can also be taken to indicate that in terms of “cognitive significance”, considerations of constituency seem to carry a greater weight and when in competition with linear conditions, will win over the latter. Thus, it is only by taking linearization conditions seriously that the great generality of the combinatorial system and its place in the grammar as a whole can be duly appreciated.
In this chapter, I will attempt to outline how a topology-based approach can be developed for other Germanic languages, specifically the Scandinavian languages and Yiddish. There are at least two reasons why such an undertaking may be of interest. First of all, if a level of linear organization that is to some degree disconnected from constituency and/or categorial status is available for a language like German, we should expect that other languages may also exhibit symptoms of some linear, as opposed to purely phrase structure-based, organization. I.e., if Universal Grammar, the range of possible human languages, includes the option of a language exhibiting linearly defined principles of syntactic arrangement, then it is unlikely that German should be the only such language. Second, because of the close historical relationship with German, Scandinavian and Yiddish are prime candidates for languages with structural properties that to some degree overlap with those operative in German.

10.1 Root and subordinate clauses

One of the striking similarities between the Mainland Scandinavian languages and German/Dutch is the possibility for verb-first/verb-second in root contexts on the one hand and a difference with respect to verb placement in subordinate contexts
on the other. Thus, as the following examples from Swedish show, any verb may be placed clause-initially, regardless of its status as an auxiliary (1), while any phrase may precede such a verb giving rise to a verb-second clause (2):

(1) a. Köpte Erik verkligen boken?
   bought Erik really the.book
   ‘Did Erik really buy the book?’

   b. Hade Erik verkligen köpt boken?
   had Erik really bought the.book
   ‘Had Erik really bought the book?’

(2) a. Erik köpte verkligen boken.
   Erik bought really the.book
   ‘Erik really bought the book.’

   b. Den boken köpte Erik i London.
   that book bought Erik in London
   ‘Erik bought that book in London.’

Moreover, as in German and Dutch, there is evidence that the position of the finite verb is a different one in root vs. standard embedded contexts.¹ This can be seen if we compare (1–2) with the following example with respect to the position taken by the verb relative to sentential adverbs such as verkligen (‘really’), troligen (‘probably’), or inte (‘not’).

(3) a. Jag frågade [om Erik (*hade) verkligen hade skrivit boken].
   I asked if Erik had really had written the.book
   ‘I asked if Erik had really written the book.’

   b. Här är boken [som Erik (*har) troligen har skrivit].
   here is the.book that Erik has probably has written
   ‘Here is the book that Erik has probably written.’

In the embedded question and relative clause in (3), the verb may only follow such adverbials.

¹For a discussion of embedded V2 phenomena, see Section 10.4 below.
The picture that emerges is that we have evidence for the same type of competition for a single position at the left periphery as we saw with German in Chapter 5. Therefore it is not surprising that soon after Koster's and den Besten's analysis of German clause types in terms of verb movement into Comp, it has become standard to assume a very similar type of analysis for the Scandinavian languages:

\[(4) \quad \text{a. } [\text{comp } \text{köpte}_i] \quad \text{Erik verkligen } t_i \text{ boken.} \]

\[\text{bought Erik really the.book} \]

Among the additional evidence that has been adduced in favor of this complementarity of distribution, for instance Platzack (1986b) cites the fact that a sentence adverbial such as *verkligen* may precede the subject regardless of whether the clause has as its first constituent a complementizer or a verb, as in (5).

\[(5) \quad \text{a. Jag undrar } [\text{om verkligen det här beslutet är förnunftigt}]. \]

\[\text{I wonder if really this decision is sensible} \]

\[\text{‘I wonder if his decision is really sensible.’} \]

\[\text{b. Är verkligen det här beslutet förnunftigt?} \]

\[\text{is really this decision sensible} \]

\[\text{‘Is this decision sensible?’} \]

Also, as in German, there are certain environments in which finite verb and complementizers are in complementary distribution, while the meaning is pretty much constant across both constructional variants. The following example from Platzack (1986a:199) shows that either the complementizer *om* or a finite (subjunctive) verb may occur initially in a comparative clause dependent on *som*:

\[(6) \quad \text{a. Det verkar som } [\text{om han inte var sjuk}]. \]

\[\text{it looks as if he not was ill} \]

\[\text{‘It looks as if he was not ill.} \]

\[\text{b. Det verkar som } [\text{vore han inte sjuk}]. \]

\[\text{it looks as was he not ill} \]

\[\text{‘It looks as if he were not sick.’} \]

\[\text{som:} \]
Finally, as in more tolerant dialects of German, a *wh*-expression may precede the complementizer in embedded contexts, as in (7b), in parallel to the root clause in (7a):

(7)  
(a) Vem hade troligen köpt boken?  
    who had probably bought the.book  
    ‘Who had probably bought the book?’  

(b) Han undrar [vem som troligen hade köpt boken].  
    he wonders who that probably had bought the.book  
    ‘He wonders who had probably bought the book.’

While the linear structure of the left periphery in Scandinavian is remarkably similar to that of German and Dutch, there are significant differences with respect to the different placement possibilities of arguments. Unless fronted into initial position in V2 clauses, objects never precede the verb they are dependent on:

(8)  
Erik hade verkligen (*boken) köpt boken.  
    Erik had really the.book bought the.book  
    ‘Erik had really bought the book.’

In this regard, the Scandinavian languages pattern with English, which also shows a strong bifurcation of the placement possibilities of subjects on the one hand and complements on the other.

10.2 Topological approaches

In parallel with the traditional approach to German clause structure in terms of topological fields, a rather similar line of thought was developed in the the work of Diderichsen (1966). However, while topological studies of German tends to focus exclusively on that language, Diderichsen’s field theory has from the beginning taken a cross-linguistic perspective with regard to all the Germanic languages.
10.2.1 Diderichsen

Thus, the basic clausal structure of all languages of that family are assumed to consist of a tripartite structure, with two of the three parts being partitioned into smaller fields. These three "sentence fields" are usually referred to as *fundamental field*, *nexus field*, and *content field*. Each of the latter two is further subdivided into a verbal \((v/V)\), nominal \((n/N)\), and adverbial field \((a/A)\). This gives rise to an analysis of representative Swedish examples along the lines in (9):

\[
\begin{array}{c|c|c|c|c|c|c}
\text{fundamental field} & \text{nexus field} & \text{content field} \\
\hline
F & v & n & a & V & N & A \\
\hline
\text{jag} & \text{har} & \text{inte} & \text{köpt} & \text{boken} \\
\text{boken} & \text{har} & \text{jag} & \text{inte} & \text{köpt} & \text{boken} \\
\text{jag} & \text{köpte} & \text{boken} \\
\end{array}
\]

Platzack (1985:71) notes that no attempt is made to unify the schemes for root and embedded clauses; in fact Diderichsen (1966:382) explicitly assumes that the order of the subparts of the *nexus field* depend on whether a complementizer is present. When it is, Diderichsen takes the complementizer to occupy the *fundamental field* while the order of the subparts in the *nexus field* is permuted to \(n+a+v\). But as soon as we incorporate the insight that complementizers and finite verbs compete for the same position, this mysterious metathesis of subfields is no longer necessary to account for the distribution of verbs in embedded contexts. As Platzack notes, the fields model can be modified straightforwardly to accommodate the single-position idea, as in (10) (cf. also Ahrenberg 1989:19 on this point):
The way that other Germanic languages differ from the basic pattern in (9) according to Diderichsen is in the specific order of elements either in the content field, as in German, or the nexus field, as in English:

There is obviously a certain degree of parallelism between Diderichsen’s partitioning and the way that clausal structures have been analyzed in transformational syntax. Thus, the fundamental field is pretty much equivalent to [Spec,CP], while everything within the content field roughly corresponds to VP, modulo the fact that the negation is commonly assumed to be adjoined to the VP (or in the head of NegP) and hence should not exhibit cross-linguistic variation with respect to its topological status. Finally all the material dominated by C and excluded by VP is part of the nexus field.

However, there are some obvious problems with Diderichsen’s conception of topological structure. Chief is the fact that his subfields v, n, a, etc. do not all have the same status—if they even have any linguistic significance at all. Thus, given the range

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\(\begin{array}{|c|c|c|c|c|c|}
\hline
F & v/\text{Comp} & n & a & V & N & A \\
\hline
\text{vem} & \text{har} & \text{aldrig} & \text{låst} & \text{boken} \\
\text{vem} & \text{som} & \text{aldrig} & \text{har låst} & \text{boken} \\
\text{Erik} & \text{köpte} & \text{inte} & \text{boken} \\
\text{att} & \text{Erik} & \text{inte} & \text{köpte} & \text{boken} \\
\hline
\end{array}\)
of placement possibilities of adverbs in the German *Mittelfeld* and the different legitimate orders among complements, it does not seem that his sequence of \( n+a+N+A \) fields captures any generalizations about linear order. If a clause can be aligned along this schema, as in (12), it is a coincidental fact about that sentence, rather than a deep ordering principle. Along the same lines, Platzack’s examples in (5), where an adverb precedes the subject call into question the status of \( n \) and \( a \) as subfields of the *nexus field*. On the other hand, the placement possibilities of verbal material in either German or Scandinavian is obviously of a rather different nature as they allow none of the linear flexibility shown among nominal and adverbial fields.

### 10.2.2 Ahrenberg

While Diderichsen’s work on Danish predates generative approaches to syntactic description, there do exist various attempts to implement his basic model in a formal framework, most prominently Ahrenberg (1989). Ahrenberg proposes a syntactic framework called “Field-and-Category Grammar” (FCG) in which to LFG’s levels of c-structure and f-structure another layer of linear syntactic organization is added, which he calls “t-structure”. As in our own model—but unlike, for instance, Transformational Grammar—there is a strict distinction between syntactic categories and their positional properties, the latter described in terms of membership in fields. Fields are organized hierarchically in terms of nonmaximal *schemas* and maximal *positions*. Thus, a topological sort such as *inf-args* would correspond to a schema in Ahrenberg’s sense, while *mf* is a position, because it is a maximal sort. The notion of position therefore does not carry any connotations of uniqueness as it does in this
study (cf. Chapter 5). However, there is an important distinction between schemas and nonmaximal TOPO values. The first are taken to partition the set of positions, i.e. no position is crossified in the way that I have assumed cf to be a subsort of both verbal and lperiph. Instead, Ahrenberg imposes a tree-based organization (via “field structure rules”) of topological properties. This is achieved by a set of context-free rewrite rules, adorned with some abbreviatory devices taken from the common vocabulary of regular languages.\footnote{In particular, he uses the Kleene star (“*”) and a superscripted number \( n \) for arbitrarily many or at most \( n \) occurrences of a given category, respectively.} The clausal field structure rules for Swedish are given in (13) (Ahrenberg 1989:24):

\begin{align*}
\text{(13)} & \quad a. \Sigma \rightarrow (k) (F) \text{NexusF ContentF} \\
& \quad b. \text{NexusF} \rightarrow \nu \text{nex*} \\
& \quad c. \text{ContentF} \rightarrow \nu \text{VerbF ObjF adv*} \\
& \quad d. \text{VerbF} \rightarrow (\nu 1) (\nu 2) (\nu 3) (\nu t) \\
& \quad e. \text{ObjF} \rightarrow \nu \text{objp obj*} (xarg)
\end{align*}

T-structures then consist of a hierarchical representation of the linear structure of a sentence, as classified according to fields, more specifically positions—which does not necessarily line up with constituent structure. An example topological analysis is given in (14), from Ahrenberg (1989:7), where assignment to a position, is expressed via set membership:\footnote{Here, \( h \) and \( rel \) are labels for fields within the NP for which Ahrenberg proposes a topological structure that goes beyond the bifurcation assumed in this study:}

\[(i) \quad \Pi \rightarrow (\nu t) \text{mod*} \nu \text{det rel} \]
One important kind of constraint linking up categories with conditions on their topological structure are what Ahrenberg dubs *Category-schema associations*:

(15) \( \text{UnmDeclS} : \Sigma \)

This constraint states any element of category UnmDeclS, i.e. a subtype of finite declarative clauses, has the topological structure of the schema \( \Sigma \) as specified in (13). Similar to the construction hierarchy in Chapter 6, categories are organized into hierarchies in which more specific elements inherit the constraints associated with more general categories. The (partial) hierarchy of verbal projections for Swedish is given in (16):

(16) \( \text{UnmDeclS} \) UnmWhS TopS IntS somS attS
     \( \text{UnmS} \) InvS CompsS
     \( \text{MainS} \) SubS VP

In addition to what topological schema a category is linked up with, there are *category definitions* which supply more specific constraints imposed on a category and all of its subcategories. For instance, in (17a,b), the definitions of main clauses and subor-
ordinate clauses, respectively, are given (additional morphosyntactic feature constraints irrelevant to our discussion are given in parentheses):

\[(17)\]

- a. MainS; S with e∈k, V∈v, (SUBJ, Vform, Lex)
- b. SubS; S with e∈k, (Comp)∈v, V∈v1, (Vform, Lex)

While Ahrenberg's classification of Swedish clause types is remarkably similar in spirit to the construction-based approach to German clausal constructions developed in Chapter 6, some important differences should be noted. Topological constraints may impose quite strong constraints on t-structure. In particular, they may require the instantiation of a position \(P\) by category \(C\) (with certain properties), require \(P\) to be empty\(^5\)—as is the case for the V2-complementizer position \(k\) in (17); cf. also the discussion in Section 10.4 below—require \(P\) to be instantiated by any category, disallow \(P\) from being instantiated by \(C\), or allow optional instantiation of \(P\) by \(C\)—as in (17b). By contrast, reference to topological structure only occurs on a small scale in our linearization-based approach. Only the Clause Constraint and Marking Constraint directly refer to \(c\), regardless of environment. Otherwise, constraints on clauses only involve \textit{leftmost} fields, while no fields following \textit{peripheral} need to be referred to in any constraint on clause types. Moreover, the cardinality constraints are entirely independent of the category that contains the domain, as they are defined very generally in terms of LP statements. Therefore, our model is arguably more restrictive because even though topological properties play an important role, cat-

\(^5\)Since Ahrenberg employs t-constraints that require empty schemas (cf. Section 10.3.3), this has to be generalized to cover not just position, but fields in general.
egorical information and topological structure interact only in rather limited ways.\(^6\)

In the next section, I explore if descriptions of two phenomena can be found which at first sight appear to motivate the more powerful descriptive devices proposed by Ahrenberg.

Let us now turn briefly to how c-structure and t-structure are interconnected in FCG. Instead of phrase structure rules, Ahrenberg describes the c-structure of a syntactic expression in terms of sets of configurations, which are triplets consisting of a mother category, some category immediately dominated by the former, and a topological position for the latter. Configuration rules associate configurations with additional functional and topological constraints. The set below in (18) is a representative sample describing the placement possibilities of subjects and finite heads in main clauses, together with general clause-level conditions on subjects occurring in the nexus field as well as verbs and objects in the content field. Configuration rules also contain functional constraints similar to that commonly associated with comparable LFG c-structure rules.\(^7\)

\[(18)\]
\[
\begin{align*}
\text{a. } & ((\text{MainS, NP, F}); \uparrow\text{SUBJ}=\downarrow, \downarrow\text{CASE}=\text{NOM}) \\
\text{b. } & ((\text{MainS, V[fin], v}); \uparrow=\downarrow) \\
\text{c. } & ((\text{S, NP, nex}); \uparrow\text{SUBJ}=\downarrow, \downarrow\text{CASE}=\text{NOM}) \\
\text{d. } & ((\text{S, V[fin] } \lor \text{ V[inf], v1}); \uparrow=\downarrow)
\end{align*}
\]

\(^6\)This should be taken as a statement about substantive linguistic constraints. The formalism of HPSG (especially by use of relational constraints) can of course express the predicates employed by Ahrenberg.

\(^7\)As an alternative, one could take more conventional LFG c-structure rules and amend them with topological information for each of the daughters simultaneously. Ahrenberg’s formulation has the advantage that it allows one to state placement conditions on c-structure sister nodes independently of each other; cf. also Ahrenberg (1990:5) on this point.
Information projected from lexical entries and general LFG constraints such as coherence and consistency will ensure, for instance, that grammatical functions such as SUBJ will not be instantiated multiply. Note also that the interaction between the configuration rules and the topological constraints derives the competition for a single slot between verbs and complementizers at the left periphery without appeal to movement. Similarly, various rules similar to (18a) for instantiating the F field. i.e. the Vorfeld, yield an analysis of intraclausal V2 that does not involve dislocation (Ahrenberg does not consider long extractions).

Finally, Ahrenberg (1990:6) proposes to supplant field structure rules such as in (13e) by LP statements so as to be able to have ordering restrictions on complement NPs, PP, and VPs apply independently of the category in which they occur. However, this means that we now have two rather different mechanisms to express order. On the one hand, there is the order implicit in field structure rules. On the other, we have LP statements ordering positions that belong to the same schema. In the linearization-based model the difference between genuine topological constraints and other ordering conditions is only whether or not an LP statement makes reference to the \textsc{topo} value. But there is absolutely no formal distinction between the two, resulting in a more uniform and parsimonious representation scheme.
10.3 Potential challenges to a linearization-based model

10.3.1 Scandinavian topology and order domains

The kind of topological organization that I would like to suggest for Scandinavian differs from Diderichsen’s model in that, as in German, fields are defined primarily with respect to possible placements for the verbal clausal head. Thus, whereas in German, finite verbs may occur either in *cf* or in *vc*, the fields in languages like Swedish are similarly grouped around this positional skeleton. Differences with respect to German arise first, because of a difference in the placement conditions among arguments and second, because of the absence of genuine verbal complexes. In particular, I tentatively propose the following version of the Topological LP Statement for Scandinavian:

\[
\text{[TOPO } rc] < \text{[TOPO } vf] < \text{[TOPO } cf] < \text{[TOPO } mf] < \text{[TOPO } uc] < \text{[TOPO } of] \]

This is pretty much identical to the one proposed for German in Chapter 5, except for a slight terminological change to the effect that the field following the second verbal field is now termed *object field* as opposed to *Nachfeld* in order to avoid the impression that object placement in Scandinavian is the result of extraposition. I also propose a field before *vf*, labelled *rc*, whose relevance will be discussed in Section 10.4.

---

8 Of course, this does not mean that in a given sentence, *cf* and *vc* are *only* instantiated by elements with head status. In the same fashion the notion of “A-position” in transformational grammar is generally not taken to imply that only thematically marked elements may occupy such a position. Rather, if a position can be the base position for an argument at all, it counts as an A-position, regardless of the status of its actual occupant.

9 One may in addition have to assume a *Nachfeld* in Scandinavian for the placement of genuinely extraposed constituents, but I will leave this issue unresolved here.
As in German, finite verbs are lexically underspecified with respect to their assignment to cf/vc, while nonfinite verbs can only occur in vc. Unlike German, there seems to be an asymmetry between the placement of subjects vs. nonpronominal objects. While the former may instantiate (vf or) mf (i.e. the verb-less nexus field), the latter occur in (vf or) of (i.e. the verb-less content field)—at least in the Mainland Scandinavian languages. Moreover, as was already hinted at, I assume that there is no argument composition, which means for instance that all auxiliaries take VP complements. Complements in general get compacted and—if nonpronominal—get assigned to the of field. This has the effect that if there is a sequence of verbal forms in embedded contexts, only one will occupy vc, whereas all others are contained in of. However, vc is not restricted to a single element; in fact, verb+particle combinations behave in pretty much the same way (modulo order) as German separable prefix constructions, i.e. they behave as a single, syntactically distributed verb and hence display the particle in vc.

In (20), I present the domain values of the topmost nodes in the examples in (1) above. Specifically, these examples show the difference in placement between finite and nonfinite verbs:

(20) a. 
\[
\text{DOM} \left[ \begin{array}{c} \langle kópte \rangle \\ \langle Erik \rangle \\ \langle verkligen \rangle \\ \langle boken \rangle \end{array} \right], \left[ \begin{array}{c} \text{NP} \\ \text{ADV} \\ \text{NP} \\ \text{of} \end{array} \right], \left[ \begin{array}{c} \text{vc} \\ \text{mf} \end{array} \right]
\]

b. 
\[
\text{DOM} \left[ \begin{array}{c} \langle hade \rangle \\ \langle Erik \rangle \\ \langle verkligen \rangle \\ \langle kópt boken \rangle \end{array} \right], \left[ \begin{array}{c} \text{NP} \\ \text{ADV} \\ \text{VP} \end{array} \right], \left[ \begin{array}{c} \text{vc} \\ \text{mf} \end{array} \right]
\]

The structure in (21) displays the position of the finite verb in vc, as forced by the initial complementizer om ("if"). In (22), the structure for examples such as (3a)
above is given featuring a tense auxiliary that governs a nonfinite VP.

(21)
\[
\begin{array}{c}
\text{DOM} \left< [\langle \text{om} \rangle, \langle \text{COMPL} \rangle, \langle \text{Erik} \rangle, \langle \text{verkligen} \rangle, \langle \text{köpte} \rangle, \langle \text{boken} \rangle] \right>
\end{array}
\]

(22)
\[
\begin{array}{c}
\text{DOM} \left< [\langle \text{hade} \rangle, \langle \text{Erik} \rangle, \langle \text{köpt boken} \rangle] \right>
\end{array}
\]

As a corollary, if the embedded complement is an intransitive verb such as \textit{komma} ('come'), the latter will not be assigned to \textit{vc}, but instead occupy \textit{of}, as complements in general:

(23)
\[
\begin{array}{c}
\text{DOM} \left< [\langle \text{om} \rangle, \langle \text{COMPL} \rangle, \langle \text{Erik} \rangle, \langle \text{verkligen} \rangle, \langle \text{ska} \rangle, \langle \text{komma} \rangle] \right>
\end{array}
\]

10.3.2 Complementizer-less embedded clauses

Having outlined how German and the Scandinavian show a great deal of overlap in their topological organization, I now turn to places where there are differences. Aside
from the issue of object shift, to be dealt with in the next section, it is the presence/absence and placement of complementizers which sets Scandinavian languages apart from German and to some extent from one another.

First, note that in order for finite verbs to occur in the content field, i.e. to show the typical subordinate placement behavior, it is not necessary that there actually be a complementizer overtly present. Thus, in the complement clause in (24a), the complementizer is optional, yet in either case, the finite verb *kommer* will follow the sentential adverb (Holmberg 1986). Similarly, (24b) shows that as in English, relativized clauses with a missing nonsubject do not require the complementizer/relative pronoun *som*:

(24) a. Jag vet [(att) han inte kommer].
   I know that he not comes
   'I know that he does not come.'
   
   b. mannen (som) Maria talar med
      the.man that Maria talks with
      'the man Maria is talking to'

At first glance then, we may take this as an indication that contrary to the proposal made in Chapter 5, we must allow for the possibility of elements in the domain that are inaudible, yet which manifest their syntactic presence topologically by instantiating a field, in particular cf. A slight variant of this idea is presented in Ahrenberg (1989:20) who assumes that each sentence possesses a *v* field that is instantiated either by the finite head or an *optional* complementizer. So, presumably this means that in the latter case, the position is part of the t-structure, but there is no lexeme that instantiates it.10

10Note, however, that it is not clear in which sense the position “has” a filler, as Ahrenberg (1989:9)
Neither the adoption of an empty complementizer nor the possibility of a field "existing" without an audible element instantiating it is an option in our approach. However, it is also important to note that if we were to adopt either of these possibilities, we are faced with the problem of overgeneration. Contrary to expectations, there are environments in which the presence of a complementizer matters. For instance, if a complement clause is preposed it is required to occur with a complementizer, as shown in (25) (Holmberg 1986):

(25) ["'(Att) han var död] var en överaskning.
    that he was dead was a surprise
    'That he was dead was a surprise.'

What this seems to suggest is that unlike in German, where subordinate marking is one option out of a binary choice, a more fine-grained distinction is called for in Swedish. Thus, the proposal I would like to advance distinguishes between strong and weak subordinate marking and at the same time stays true to the WYSIWYG spirit of the approach taken here. Strong marking is holds if and only if the cf field is instantiated by a complementizer or wh/d-phrase, similar to the situation in German:

(26) \[
\begin{align*}
&\left[\text{sign}\right]
\downarrow \\
&\left[\text{MARKING s-marked}\right]
\left[\begin{array}{c}
\text{DOM}\left(\left[\begin{array}{c}
\text{\ldots|HEAD marker\ldots}
\begin{array}{c}
\text{V}
\begin{array}{c}
\text{\ldots[WH-FTRS m-trigger\ldots}
\begin{array}{c}
\text{TOPO cf}
\end{array}
\end{array}
\end{array}
\end{array}\right) \circ \ell\right]
\end{array}\right]
\end{align*}
\]

specifically requires of "identifier" (i.e. hosts for categories that count as selectors in HPSG) positions such as v (\(=\) cf).
On the other hand, if anything but a complementizer—that is, a verb or an adverb, see Section 10.5 below—is in the cf field, the MARKING value will be unmarked.

\[
\begin{align*}
\text{sign} \\
\text{DOM} \langle \left[ \text{TOPO cf} \right. \\
\left. \ldots \text{HEAD verb } \vee \text{adv} \right] \circ \ell \\
\downarrow \left[ \ldots \text{MARKING unmarked} \right]
\end{align*}
\]

Furthermore, let us assume that the different values form a sortal hierarchy of the following kind:

\[
\begin{array}{c}
s\text{-marked} \quad w\text{-marked} \\
\text{marked} \quad \text{unmarked} \\
\text{marking}
\end{array}
\]

This has the effect that in the absence of any material instantiating the cf field, the phrase may take on either the value unmarked or w-marked. If it were s-marked then the biimplication in (27) would force there to be a complementizer, contrary to our assumption. As in the analysis of German, for each verbal projection, the value of MARKING is determined entirely in terms of the topological structure of the corresponding order domain. Therefore, a complementizer-less clause will qualify correctly as a legitimate candidate for a subordinate clause in terms of its MARKING value being a subsort of marked, as required, for instance, by a verb taking a sentential complement. As soon as a verb occurs in cf, however, this option is no longer available because of (27), hence no verb is allowed to occur in cf in subordinate clauses. Once the distinction between s-marked and w-marked is made, the badness of an initial
complementizer-less clause as in (25) can be accounted for by barring \textit{w-marked} constituents from occurring in \textit{vf}. As a corollary, the Swedish equivalent of the Clause Constraint cannot hold for \textit{all} environments, but is restricted to those clauses that exhibit \textit{unmarked} (or \textit{s-marked} for that matter) values, i.e. root contexts.\footnote{If a clause may count as subordinate even if there is nothing overtly present at the left periphery, it is necessary to require of embedded questions and relative clauses (with initial \textit{d}-phrase \textit{dt som}) that they are specified as \textit{s-marked}. Otherwise, we would have a situation in which there are \textit{vf} elements without \textit{cf} being visibly instantiated. But since \textit{wh/d}-phrases in complementizer-less clauses pattern with complementizers just as they do in German, this would clearly not be desirable.}

This section has shown that the claim that topological structure is only determined by elements that are actually present (and phonologically manifest) can indeed be upheld. Of course, this does not yet prove that each possible candidate counterexample to WYSISYG-topology has an alternative analysis that is in accordance with that premise—only further study can determine whether the claim made here is too restrictive. We will revisit the left periphery of Scandinavian languages again in Section 10.4 below when the problem of complementizer-initial V2 complement clauses is discussed.

10.3.3 Object shift

The placement of pronominal objects in the Scandinavian languages depends on the topological structure of the clause they occur in, specifically the position of the verb they are arguments of. Unless topicalization occurs, an object must always follow its verbal head, hence the following Swedish data are as expected:
Simplifying somewhat, if the verb does not occur in the *content field/vc*, but instead exhibits frontal placement, a pronominal object will generally “follow suit” and occupy a position closer to the left periphery of the clause. Consider for instance (30a). Since sentence adverbs such as *inte* (‘not’) are generally taken to precede material in the *content field*—or VP, for that matter—we have a strong indication that here the object pronoun *den* is part of the *nexus field/mf*. Examples like (30b) illustrate that in the in the Mainland Scandinavian languages, the alternative order is limited to pronominal objects:

(30) a. Anna såg den kanske inte.
    Anna saw it maybe not
    ‘Maybe Anna did not see it.’

    b. Anna såg boken kanske inte.
    *Anna saw the.book maybe not

This phenomenon has generally been referred to since Holmberg (1986) as *object shift*. This name conveys the implication that the different placement in contexts such as (30) is due to a transformational relationship between a pronoun’s underlying VP-internal position and its occurrence outside of the VP. In Holmberg (1986:170)
for instance, the pronoun is assumed to adjoin to I, as an instance of A-movement.\textsuperscript{12} Yet, object shift displays certain properties that—pace Holmberg and other advocates of a movement-based account—set it apart from other constructions involving leftward displacement. Thus, even though preposition stranding is generally allowed in Swedish, pronominal objects in PPs never undergo the shift (Holmberg 1986:165).\textsuperscript{13}

\begin{align*}
(31) & \\
 & a. \text{Jag tror inte på det.} \\
 & \quad \text{I believe not in it} \\
 & \quad \text{‘I don’t believe in it.’} \\
 & b. \text{Jag tror det inte på.} \\
 & \quad \text{I believe it not in} \\
\end{align*}

This behavior is predicted if one regards object shift not as a genuine dislocation phenomenon, but rather in terms of the placement possibilities of verbal arguments. Since the object is contained inside the PP, it cannot be ordered independently of the preposition. The only environment in which the former can precede the latter is in an extraction construction—but there the only legitimate “landing site” is in vf. An analysis of object shift in linear terms is indeed pursued in Ahrenberg (1989). He assumes the following configuration rule which specifies that an accusative object is a legitimate daughter of S placed into the nex field only if, among other things, the VerbF field is empty.

\begin{align*}
(32) & \\
 & (S, \text{AccProN, nex}; \uparrow OBj_i = 1; e \in \text{VerbF}; i = 1, 2)
\end{align*}

\textsuperscript{12} Alternatively Vikner (1994:488) takes shifted objects to adjoin to VP as an instance of A-movement.

\textsuperscript{13} The explanation given in Holmberg (1986:199) is that object shift requires the trace of the pronoun to be Case-less; yet while verbal traces assign Case only optionally—hence allowing for a displaced pronoun—Case marking is taken to be obligatory for overt prepositions, rendering (31b) ungrammatical.
As he notes, this correctly accounts for the legitimate placement options not only when the VerbF/vc field is occupied by a finite or nonfinite verb, but also extends to verb-particle constructions (Holmberg 1986:200). As is shown in (33), particles such as in seem to form a natural class with verbs with respect to blocking pronominal objects from shifting.

(33)  

a. Han lämnade inte in den i tid.  
he handed not in it on time  
‘He didn’t hand it in on time.’

b. *Han lämnade den inte in i tid.  
he handed not it in on time

This is true only for Swedish, though. In the other Mainland Scandinavian languages, the particle does not affect the possibility for shifted placement; cf. the following contrast between Swedish (34a) and Danish (34b) (Holmberg 1986:166):

(34)  

I write it actually up it  
‘I’m actually writing it up.’

b. Jeg skrev det faktisk op (*det).  
I write it actually up it  
‘I’m actually writing it up.’

To account for this phenomenon, I suggest that first, the placement of objects in Scandinavian is sensitive to their pronominal status. Ignoring fronting into vf, nonpronominals are always assigned to of. Unstressed, weak object pronouns on the other hand can be assigned to either mf or of. In addition, all Scandinavian languages have the following LP constraint, which bars pronominal objects from ever preceding their heads.

(35)
Swedish differs from Danish in that it is slightly less specific in the first description of the constraint. Not just verbs, but any element in \( vc \) blocks occurrence in \( mf \):

\[
(36) \quad [\text{TOPO} \, \text{vc}] \prec \left[ \text{TOPO} \rightarrow \text{vf} \right] \quad \begin{array}{c}
\text{HEAD} \, \text{noun} \\
\text{MORSYN} \, \text{CASE} \rightarrow \text{nom} \\
\text{CONTENT} \, \text{ppro}
\end{array}
\]

As a result, we have captured the distribution of pronominal objects in a way that is similar to Ahrenberg's formulation in (32), albeit without having to impose a noninstantiation constraint. This shows again that a WYSIWYG-based approach to topological constraints is indeed viable, i.e. linear conditions only have to refer to elements that are actually present in the order domain.

Two more comments are in order about the analysis of object shift presented here. First, the set of constraints proposed has remained silent as to whether in object shift environments, the pronoun may also occur VP-internally, i.e. "stay behind". As Holmberg (1986:228–229) notes, there is great variation among different languages and their dialects as to the optionality of object shift. For instance, for some speakers of Swedish, a sentence such as in (37) is fully grammatical.

\[
(37) \quad \text{Jag såg inte dej.} \\
\quad \text{I saw not you} \\
\quad \text{‘I didn’t see you.’}
\]

As Holmberg further observes, focus and/or prosodic prominence also tend to shift speakers toward dispreferring object shift and hence treat such pronominals as on a par with regular NPs. Other Scandinavian languages such as Danish appear to favor shifted weak pronominals more strongly, as can be seen by the ungrammatical status of final placement in the Danish example in (34b) above. I will not attempt to
resolve here to what extent conditions on object shift in some language/dialect are a matter of stylistic as opposed to grammaticalized constraints and whether and to what degree constraints on phonological phrasing may be play a role as well.

The second remark pertains to the situation in Icelandic. In addition to shifted pronominal objects, alternative placement possibilities are also shown by full NPs. As the following data from Holmberg (1986:217) show, a regular NP object may follow or precede a sentence adverb, just as in pronominal object shift.

(38)  
\begin{align*}
(a) & \text{ Jón keypti ekki bókina.} \\
& \text{ Jón bought not the.book} \\
& \text{ 'Jon didn't by the book.'} \\
(b) & \text{ Jón keypti bókina ekki.} \\
& \text{ Jón bought the.book not}
\end{align*}

(39)  
\begin{align*}
(a) & \text{ það var gott [að hann keypti ekki bókina].} \\
& \text{ it was good that he bought not the.book} \\
& \text{ 'It was good that he did not buy the book.'} \\
(b) & \text{ það var gott [að hann keypti bókina ekki].} \\
& \text{ it was good that he bought the.book not}
\end{align*}

While in Icelandic, there is no competition between complementizer and finite verb for a single position (see Section 10.4 below), there is nevertheless a difference in where finite and nonfinite verbs can occur which parallels the \textit{cf}/\textit{vc} distinction of Mainland Scandinavian (and West Germanic). An object NP dependent on a nonfinite head in \textit{vc} exhibits precisely the same prohibition against preceding its head as in the Swedish pronominal case discussed above:

(40)  
\begin{align*}
(a) & \text{ að Jón hefur ekki keypt bókina.} \\
& \text{ that Jón has not bought the.book} \\
& \text{ 'that Jon has not bought the book.'} \\
(b) & \text{ *að Jón hefur ekki bókina keypt.} \\
& \text{ that Jón has not the.book bought}
\end{align*}
This array of facts receives a rather straightforward account if regular NP objects in Icelandic are assimilated to pronominal ones in their ordering properties. This entails that they may be assigned to either \( mf \) or \( of \). In addition, the data in (40) are captured directly if the LP constraint in (36) is modified slightly so as to apply to objects regardless of their pronominal status:\(^{14}\)

\[
(41) \quad \begin{bmatrix} \text{TOPO } \text{vc} \\ \ldots | \text{HEAD } \text{verb} \end{bmatrix} \prec \begin{bmatrix} \text{TOPO } \neg \text{vf} \\ \ldots | \text{HEAD} \begin{bmatrix} \text{noun} \\ \text{MORSYN} | \text{CASE } \neg \text{nom} \end{bmatrix} \end{bmatrix}
\]

The picture that emerges then is that the basic structure of object shift are rather similar across the Scandinavian languages. Variability comes in terms of whether a distinction between pronouns and full NPs is made and what syntactic categories in the \( \text{vc} \) field the linearization of objects is sensitive to.

10.4 Embedded V2

To a varying degree, the Scandinavian languages allow for complement clauses with root clause word order. Thus, in the Mainland Scandinavian languages such as Swedish, it is possible to embed a V2 clause under a certain class of verbs. In the example in (42a), the position of the finite verb \( \text{hade} \) with respect to the clausal adverb \( \text{troligen} \) clearly indicates root clause placement. The regular embedded order, shown in (42b) is available as well:

\(^{14}\)This LP constraint groups Icelandic with Danish and Norwegian in terms of whether or not a particle blocks object shift. This is consistent with the claim in Holmberg (1986:200) that Swedish is the only Scandinavian language in which particles behave that way. However, I have not been able to ascertain the veracity of this statement with actual examples. Also note that, as Bob Kasper (p.c.) has pointed out to me, this treatment ignores the complications that would arise in connection with quirky case.
(42) a. Han sa [att Lisa hade troligen rest till Rom].
   he said that Lisa had probably gone to Rome
   'He said that Lisa had probably gone to Rome.'

   b. Han sa [att Lisa troligen hade rest till Rom].
   he said that Lisa probably had gone to Rome
   'He said that Lisa had probably gone to Rome.'

The most wide-spread analysis of constructions like (42a) in the transformational literature has involved the assumption of a recursive CP structure along the lines shown below.

(43) \[
\begin{array}{c}
\text{CP}_1 \\
\text{CP}' \\
\text{C} \\
\text{CP}_2 \\
\text{C} \\
\text{Spec} \\
\text{att} \\
\text{IP} \\
\text{C} \\
\text{V} \\
\ldots
\end{array}
\]

The approach pursued here will be similar in the sense that it also takes the left-peripheral complementizer in examples like (42a) to be situated outside of the core topological structure of finite clauses. In particular, recall from (19) above, that there is a field preceding \( v_f \), labelled \( rc \) (for "root complementizer-initial").

This additional positional class is present in all Scandinavian languages; however, its principles of instantiation are rather distinct in Mainland Scandinavian vs. Icelandic. In the former class of languages, I propose to treat complementizer-initial V2 clauses on a par with V2 complement clauses in German, as was discussed in
Chapter 6. In particular, this means that a special combinatorial schema is employed to license the combination of an eligible verb with a root clause. Since subordinate marking can only be effected by the element occupying the $cf$ field, a complementizer-initial V2 clause in Mainland Scandinavian bears the specification [MARKING un-marked]. Hence, as in German, whether the combination is licensed as a regular head-complement structure or rather as a special construction type is regulated by the value of the MARKING attribute on the complement clause. This approach is arguably justified as complementizer-initial V2 clauses in Mainland Scandinavian have a severely limited distribution. To begin with, they only occur as complements of "asserted verbs of saying and thinking" (Holmberg 1986:109), which also, to a large extent, characterizes the class of possible matrix verbs with V2 complements in German. Moreover, the only complementizer that appears to be allowed in the $rc$ field is $att$, hence constructions such as the following with the complementizer $om$ are ruled out:

(44) *Jag undrar [om Maria läste inte boken].
    I wonder whether Maria read not the.book
This is accounted for if only $att$, as the most "semantically neutral" complementizer, is allowed to occur in either of the positions $rc$ vs. $cf$. Thus, beyond requiring that $rc$ be instantiated, no further assumptions about how this field is filled needs to be made.

(45) $att$
\[
\begin{array}{c}
\text{SYNSEM} \left[\begin{array}{c}
\text{DEP} \left[\begin{array}{c}
\text{PHON} \left[\begin{array}{c}
\text{marker} \\
\text{spec} \ \text{S} \left[\text{REL} \emptyset \right] \\
\text{TOPO} \ \text{cf} \lor \text{rc}
\end{array}\right]
\end{array}\right]
\end{array}\right]
\end{array}
\]
Finally, it is a well-known fact that extractions from V2 complement clauses in Swedish are generally ungrammatical, in constrast to the behavior of regular complement clauses. Thus, we have the following contrast between extraction from a regular complement clause in (46a) and the V2 complement clause in (46b) (Holmberg 1986:111):

(46) a. Vilken fest sa hon [att vi inte skulle köpa roliga hattar till]? which party said she that we not should buy funny hats for ‘Which party did she say we shouldn’t buy funny hats for?’

b.*Vilken fest sa hon [att vi skulle inte köpa roliga hattar till]? which party said she that we should not buy funny hats for

While V2 order in an embedded context is somewhat exceptional in Mainland Scandinavian, the opposite situation presents itself in Icelandic. In that language, there is no competition at all between complementizers and finite verbs for the cf position. Since the latter is always instantiated by the finite verb, the only option for complementizers is to precede vf. Within the transformational literature on this topic, it has generally been assumed that there is a fundamental distiction among the Germanic languages in terms of the structure of complementizer-initial V2 clauses. Whereas V2 in Mainland Scandinavian is standardly assumed to involve V-to-C movement, the lack of competition for the same position between verbs and complementizers in Icelandic has been interpreted that this language only exhibits V-to-I movement:
On the approach suggested here, there is no comparable difference between the Icelandic structure in (47) and that of Mainland Scandinavian in (43). Instead, let us assume that Icelandic essentially has the same topological structure as the Mainland Scandinavian languages, except that it allows finite verbs only to occur in cf, not in vc, while complementizers (and fronted $wh/d$-expressions) are assigned to rc. Consequently, there is no positional overlap between verbs and complementizers. The embedded clause in example (48a) will accordingly be assigned the domain given in (48b):

(48)  

a. Jón segir [að þessum hring hafl Ólafur lofad Mariú].  
Jon says that this ring-ACC has Ólaf-NOM promised María-DAT  
"Jon says that Olaf has promised Maria this ring."

b. $\text{DOM} \left( \begin{array}{c}  
\langle að \rangle \\
\langle þessum hring \rangle \\
\langle hafl \rangle \\
\langle Ólafur \rangle \\
\langle lofad Mariú \rangle 
\end{array} \right)$

The positional properties of the complementizer $að$ are reflected in the following entry.

Likewise, no such distinction is assumed in earlier works on comparative Germanic syntax, such as Platzack (1986a).
This lexical description, together with the variant of the Marking Constraint operative in Icelandic, cf. (50), will ensure that subordinated contexts required to be marked will have an instantiated rc field.

Another important difference between embedded clauses with root order in Mainland Scandinavian and Icelandic is that in the latter, such clauses do not necessarily have to exhibit V2 order. The following sentence from Thráinsson (1986:173) exemplifies the situation where the embedded clause has V1 order, which is also legitimate in narrative root contexts:

The following example from Santorini (1992:625) involving an impersonal passive construction illustrates the case of a noninstantiated $vf$ field in an embedded question:
Moreover, constituent questions also universally instantiate V2 order in Icelandic. However, while root questions are uniformly V2, regardless of what is fronted, there is a difference in the structure of embedded questions. As in English, if the initial element is a subject, the embedded clause will simply display V2 order, as in (53) (Platzack (1986a):205):

(53) a. Hver keypti bókina?
    who bought the book
    ‘Who bought the book?’

b. Hún spurði [hver hefði keypt bókina].
    she asked who had bought the book
    ‘She asked who had bought the book.’

Nonsubjects, on the other hand, are fronted before if:

(54) a. Hvað keypti hann ígær?
    what bought he yesterday?
    ‘What did he buy yesterday?’

b. Hún spurði [hvað hann hefði keypt].
    she asked what he had bought
    ‘She asked what he had bought.’

As in all the other Germanic languages, fronted wh-expressions are positionally on a par with complementizers, as in (55):^®

(55) Hún spurði [hvort að hann hefði farði].
    she asked whether that he had gone
    ‘She asked whether he had gone.’

^®As Thráinsson (1986:184) notes, the combination of að with initial wh- phrases in general is ungrammatical which leads him to the plausible conclusion that hvort að is in fact a complex complementizer, yet behaves positionally as a single word. Other examples of compound complementizers are þegar að (‘when’), ef að (‘if’). A similar phenomenon can be observed in German with combinations such as bis daß (‘until that’) even in those dialects that otherwise do not allow wh-Comp sequences.
While the order in (54b) is parallel to English, Icelandic is different in that wh-fronting and topicalization can interact. Thus, in (56a), the fronted locative wh-phrase hvar precedes the topicalized dative NP henni, while the subject flestir addaendu occurs nontopicalized in mf. Similarly, in (56b), the subject relative pronoun sem cooccurs with the topicalized object slíkan þvætting (Thráinsson 1986:186):

(56) a. Ég spurði [hvar henni hefðu flestir addaendur gefið blóm].
   I asked where her-DAT had most fans given flowers
   ‘I asked where most fans had given flowers to her.’

   b. Kennari [sem slíkan þvætting ber á borð fyrir nemendur] ...
      a teacher who such nonsense lays on the table before students
      ‘a teacher who tells his students such nonsense’

This suggests that as in the other Germanic languages, licensing of wh-quantifier retrieval is tied to a syntactic environment in which a wh-expression occurs at the left periphery of the clause. In German, because of the Clause Constraint this entails that the wh-expression obligatorily occurs in cf—at least in the standard variety. We may then assume a parallel constraint for Icelandic to the effect that subordinate clauses are required to have an instantiated rc field, while WH-feature inheritance proceeds from the left-peripheral domain element, as in German. ¹⁷ This will correctly allow for the examples in (56), as there is no requirement that vf be instantiated by a subject.

¹⁷ So far, there is no requirement that the vf field has to be instantiated in embedded questions, which correctly allows cases such as (53b). Yet, it appears that this is not the case if a wh-nonsubject occurs in fronted into rc. I.e. the subject or some other phrase (as in (56a)) has to occupy vf. Thus, what is needed is a constraint to the effect that vf is instantiated in case a nonsubject wh/d-expression is found in rc. I will not provide a solution to this problem here, but it seems promising to adopt more fine-grained distinctions between embedded clauses containing initial subjects vs. nonsubjects along the lines made for relative clauses in English by Sag (1995).
10.5 Special field instantiations

In one respect in which the constraints on possible topological assignments in Scandinavian differ rather significantly from German pertains to the placement of certain elements that (in the Mainland languages) also compete with complementizers and finite verbs for the cf position. One instance is the question particle männe in Swedish, which Holmberg (1986:98) refers to as a “main clause complementizer”. Thus, in (57a), we have a root polar question, even though the finite verb displays subordinate order. If the verb does occur in frontal position, the result is in fact ungrammatical, as (57b) illustrates.

(57) a. Männe han faktist kan tala tretton språk?
   Q-PART he actually can speak thirteen languages
   ‘(I wonder) whether he can actually speak thirteen languages?’

b. *Männe kan han faktist tala tretton språk?
   Q-PART can he actually speak thirteen languages

This element overlaps in its distribution with finite verbs even in constituent questions. As Holmberg (1986:99) observes, the structure in (58a), albeit less frequent than that in (58b), is a near-synonym of the latter.

(58) a. Vilka språk månne Christer tala flytande?
   which languages Q-PART Christer speak fluently
   ‘(I wonder) which languages Christer speaks fluently?’

b. Vilka språk kan Christer tala flytande?
   which languages can Christer speak fluently
   ‘Which languages can Christer speak fluently?’

Another element with a similar distribution is the adverb kanske (‘maybe’), which can also occupy cf with or without an element in vf preceding:

(59) a. Näraste vecka kanske Sara inte kommer.
   next week maybe Sara not comes
   ‘Next week, Sara maybe won’t come.’
b. Kanske Sara inte kommer.
   maybe Sara not comes
   ‘Maybe Sara doesn’t come.’

If the placement options for *månte* and *kanske* exceptionally include of these constructions find a rather straightforward fit into the topological model developed so far without having to attribute invisible tense or agreement features on the adverbs to allow for their occurrence in Comp or assimilate them to complementizers and/or verbs categorially by other means. One aspect that this sketch leaves unaddressed is how these special of elements interact with clause type determination, which I leave for further study.

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18 Both may additionally occur in mf, as is illustrated in (i). However, only *kanske*, but not *månte* (cf. (57b)), can instantiate of. cf. (ii):

(i) a. Kan Christer månte tala tretton språk?
   can Christer PART speak thirteen languages
   ‘Can Christer speak thirteen languages?’

   b. I morgon ska Sara kanske åka till Lund.
   tomorrow will Sara maybe go to Lund
   ‘Maybe Sara will go to Lund tomorrow.’

(ii) Kanske borde Sara inte komma.
   maybe should Sara not come
   ‘Maybe Sara shouldn’t come.’

19 The idea of capturing the parallelism in terms of a single position (Comp) goes back until at least Platzack (1986b:33). Also—not too surprising given what was said in the previous section—the corresponding form in Icelandic, *kannski* is only in the same positional class as complementizers in rc, but does not overlap positionally with finite verbs, which only occur in of (Thráinsson 1986:187)

(i) Kannski ég komi á morgun.
   maybe I come-SUBJ tomorrow
   ‘Maybe I (should) come tomorrow.’
10.6 Yiddish

Even though historically, Yiddish is related much more closely to German than to any of the Scandinavian languages, it exhibits some remarkable parallelisms in its syntactic features with Icelandic.\(^{20}\) Besides the fact that objects canonically follow their heads,\(^{21}\) probably the most salient similarity consists in the V2 order of embedded clauses. Thus, as in Icelandic, a complement clause can, in fact, must exhibit the V2 pattern if embedded under a complementizer. As in German V2 root clauses, the preverbal position may host either a subject, an object, or some other phrasal element including the positional expletive es. Embedded questions and relative clauses are also formed in the same way as in Icelandic, i.e., the re field is occupied by a fronted wh/d-phrase, while what follows is a V2 clause with essentially the same instantiation possibilities for the vf field as in the root case.\(^{22}\) The examples in (60) illustrate a relative construction with topicalization of a subject and a temporal adverbial, respectively, while (61) features an embedded question with a topicalized locative phrase:

(60) a. der yid [vos Khayim vet zen shabes bay nakht]
      the man that Khayim will see Saturday at night
      'the man who Chaim wants to see Saturday night.'

\(^{20}\)See Sadock (1992) for a templatic approach to Yiddish, which is in some respects similar in spirit to the one sketched here.

\(^{21}\)For discussion of some vestiges of OV order, particularly with verb-particle constructions, see den Besten & van Walraven (1986).

\(^{22}\)den Besten & van Walraven (1986:129) dispute that topicalization in embedded questions and relative clauses may place nonsubjects into vf, however, this claim is refuted in Diesing (1990:62–67).
b. der yid [vos shabes bay nakht vet Khayim zen]
   the man that Saturday at night will Khayim see

(61) Ikh veys nit [far vos in tsimer shteyt di ku].
    'I don't know why the cow is in the room.'

Yiddish is different from Icelandic, however, in that the instantiation of vf is obligatory whenever something occupies the rc field. Hence, the following contrast from Santorini (1992:604) shows that examples which fail to have an element intervening between the complementizer and the finite verb are ungrammatical:

(62) a.*oyb iz varem in shtub.
    whether is warm in room
b. oyb in shtub iz varem.
    'whether it is warm in the room.'

This situation also holds when the rc position is instantiated by a phrase as in relative clauses or embedded questions. If positional es is present in vf, however, the sentence does become grammatical, as the following contrast from Diesing (1990:68) illustrates:

(63) a.*Ikh freg zikh [vos hot emitser gekoyft].
    I ask SELF what-ACC has someone bought
b. Ikh freg zikh [vos es hot emitser gekoyft].
    I ask SELF what-ACC EXPL has someone bought
    'I wonder what someone bought.'

Finally, the prohibition against empty vf also explains the badness of the example in (64a), in which a subject is questioned. Since subordinate clauses are required to have an instantiated rc field, the subject ver cannot at the same time satisfy this constraint and occupy the preverbal topic position. As expected, insertion of a positional expletive will rescue such constructions (Diesing 1990:68):
(64) a. *Ikh veys nit [ver iz gekumen].
  I know not who-NOM is come
b. Ikh veys nit [ver es iz gekumen].
  I know not who-NOM EXPL is come
  ‘I don’t know who came.’

The contrast between the topological structure of root vs. embedded questions is illustrated in (65).

(65) a. *[[DOM \{[\langle ver \rangle, [\langle iz \rangle, [\langle gekumen \rangle] \}]\}]

b. [[DOM \{[\langle ver \rangle, [\langle es \rangle, [\langle iz \rangle, [\langle gekumen \rangle] \}]\}]

Finally, Yiddish seems to have an element which in some respect is similar to the Swedish main clause complementizer mânte. Thus, embedded polar questions are commonly introduced by the complementizer tsi (den Besten & van Walraven 1986:116):

(66) Ikh freg [tsi du geyst].
  I ask if you go
  ‘I wonder whether you’re going.’

Interestingly, this word can also occur in root polar questions, in alternation with V1 clauses (67a). Note, however, that in such contexts, tsi does not instantiate rc as in the subordinate case, but occurs in vcf, as the contrast between (67b) and (67c) demonstrates clearly (Diesing 1990:56):

(67) a. Hot er gezen Maxn?
  has he seen Max
  ‘Did he see Max?’

b. Tsi hot er gezen Maxn?
  PART has he seen Max
  ‘Did he see Max?’
Finally, let me close this section with some remarks of a rather speculative nature. As was pointed out as early as Chapter 2, in a language like German, there is a partial overlap in the set of well-formed strings associated with root V2 and subordinate clauses. Thus, only the presence or absence of a complementizer can unambiguously determine whether a string consisting of only a subject and finite verb, such as er *kommt*, is an instance of a root V2 clause or the suffix string of a verb-final clause. However, this situation is rather the exception than the rule because very often the presence of other complements, adjuncts, or nonfinite verbs immediately determines which topological pattern is uniquely consistent with the string.

However, if in some topology-based language the difference between root and subordinate linear order gets blurred as the result of some other syntactic change, we have a scenario in which to plausibly expect that one of the patterns may get assimilated to the other. I want to claim that this is essentially what happened in the emergence of embedded V2 order in Yiddish. As is documented in Santorini (1992:597). Medieval Yiddish originally displayed the same difference between subordinate and root clause order as the varieties of German it is derived from, cf. for instance the following example of a verb-final subordinate clause from a 16th century source (Santorini 1992:597):

(68) ven der vatr nurt doytsch leyan kan.
if the father only German read can
‘provided only that the father can read German.’

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23 Sometimes, we do not even have that difference to go by, as is the case for subject questions: wer *kommt*. 
As Santorini notes, in addition to such unambiguous head-final patterns, early Yiddish also made ample use of constructions in which arguments or governed verbs follow, rather than precede the clausal head in subordinate contexts. As examples of structures with this property consider the following sentences from early Yiddish involving extraposition and and verb raising (Aux Flip) (Santorini 1992:606-607):

(69)  
   a. d[a]z ikh reyn verde [fun der ashin].  
        that I clean become from the ash  
        'that I may become clean of the ash.'
   b. dr veyl es gimeyniklikh iz giv[o]rdn  
        because it common is become  
        'because it has become common.'

These phenomena are also found in other West Germanic languages, as Santorini points out, but suppose that for some reason, orders of this kind were perceived as less marked than in the other West Germanic languages. Then as a result though the overlap in the sets of strings that can get either a root V2 or a subordinate analysis increases dramatically. Consider for instance a sentence with a dependent transitive predicate. While in German root and subordinate orders are quite distinct, as shown in (70), the corresponding sentences in a language like Yiddish would yield the same string, despite the different topological assignments, cf. (71a,b):^24

(70)  
   a. [DOM [SUBJ [v广大] , [v[FIN]] , [OBJ [v[INF]]] ]]  
   b. [DOM [COMPL [cf] , [SUBJ [cf] , [OBJ [v[INF]]] , [v[FIN]] ]] ]

(71)  
   a. [DOM [SUBJ [v广大] , [v[FIN]] , [v[INF]] , [OBJ ]] ]

^24For ease of comparison I will ignore here the complication of V[inf] and Obj constituting a single domain element, as I have assumed for Scandinavian and implicitly in (65).
The grammar is simplified rather significantly if of the two string-identical patterns in (71a) and (71b), the topology of the subordinate clause is assimilated to that of the root clause by taking complementizers and finite verbs to no longer exhibit positional overlap. Consequently, the complementizer precedes \( vf \), giving rise to the structure in (71c). Parallelism with the root pattern entails that \( vf \) should also be available for nonsubjects, which is indeed attested since the second quarter of the 17th century (Santorini 1992:623).

As Santorini argues quite convincingly, during a transitional period of about 100 years (1650 to 1750), both the original subordinate pattern (Santorini’s “INFL-final structures”) as well as the reanalyzed embedded root order (her “INFL-medial structures”) coexisted, to some extent for the same speakers, before the latter became the dominant syntactic paradigm.\(^{25}\) Moreover, as a result of a further assimilation of the subordinate structures to that of root clauses, the instantiation of \( vf \) in the former—which had been optional in early East Yiddish—became obligatory (Santorini 1992:621–623). If something along these lines proves correct, it demonstrates that reasoning in terms of topological properties may be able to shed some light on how syntactic change can be the result of a tendency to minimize structural asym-

\(^{25}\)This entails that for speakers during that period, complementizers possessed a double positional status, similar to the current situation with Swedish \textit{att}. 
metries across syntactic domains that share linear properties.\textsuperscript{26}

10.7 Conclusion

It goes without saying that this chapter could touch on only the most salient properties of Scandinavian and Yiddish as far as their basic organization in topological terms is concerned. Many subtleties had to be ignored and only the rudiments of a formalization of these ideas was given. Nevertheless, the hope is that the discussion has made a plausible case that some of the concepts of topological structure seen with German can be found again in other languages. What German shares with all the other Germanic languages surveyed is the basic structure of V2, which on the present model receives a uniform analysis in terms of the two fields $vf$ and $cf$. Moreover, we saw that the idea of competition for a single position at the left periphery is also a basic theme in the organization of the Mainland Scandinavian languages. Icelandic and Yiddish seem to make a good case for variants of instantiation requirements on a par with the Clause Constraint in German—yet affecting different fields and operating on only a subset of clause types: $rc$ in subordinate clauses in Icelandic and additionally $vf$ in Yiddish subordinate clauses. At the same time, if the ideas pursued here are on the right track, they argue for a model of topological structure that is defined entirely in terms of visibly instantiated fields, which is arguably a more restrictive theory than Ahrenberg’s model which makes recourse to constraints on negative instantiation.

\textsuperscript{26}Of course, nothing said here explains why the Mainland Scandinavian languages retain the structural dichotomy between root and subordinate contexts, even though VO order should lead to similar linear convergences as in Yiddish. Future study will have to reveal if additional factors are involved, and if so which ones.
However, a final word of caution may be in order. Even if some variant of a linearization-based, topological model proves insightful for all the languages discussed here, there is no underlying assumption that a topological structure similar to the one postulated for Germanic is an an organizational principle that is part of UG and hence should be detectable to the same extent in every language. Rather, a somewhat weaker claim is made here, namely that the option of a syntactic system that has as one of its components a linearly-defined level of organization that is in part independent of the combinatoric structure is well within the boundaries of what a possible human language can be. Let us refer to such kinds of languages as strongly topological. On the other hand, a language may define linear order primarily in categorial terms, leaving relatively little room for positional convergences of heterogeneous syntactic categories. In such cases, the linear component would essentially be isomorphic to the order arising from constituent structure. In a broader sense of the word, one would still be dealing with a topological model here, albeit one that is somewhat trivial, hence we may refer to such languages as weakly topological. Moreover, this also allows for a scalar ordering among different languages in terms of their symptoms of strong vs. weak topological organization. For instance, English seems in general to show a greater fit with the class of weakly topological languages—which may account for the heavy bias in current syntactic theory toward phrase structure-based models—yet it possesses certain constructions, such as Subject-Auxiliary Inversion, that exhibit properties more in line with the Germanic strongly topological type.27

27This also leaves open the possibility that unlike in the standard Germanic languages, where...
However, as interesting as it would be to explore to what extent syntactic constructions in English can be sorted along this typology of linear organization, this is not the place to engage in such an investigation.

One topological pattern is shared by all clause types, a language may distinguish among several topological models for different constructions which only partially overlap. Thus, Main Verb Inversion and Auxiliary Inversion constructions in English may be based on partly incomparable topological organizations.
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