Danish in Head-Driven Phrase Structure Grammar

Draft

comments welcome!

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For Friederike
Preface

The aim of this book is twofold: First we want to provide a precise description of a large fragment of the Danish language that is useful for readers regardless of the linguistic framework they work in. This fragment comprises not only core phenomena such as constituent order and passivizing, but to a large extent also a number of less-studied phenomena which we believe to be of interest, not only for the description of Danish (and other mainland Scandinavian languages), but also for comparative work in general. It has been an important goal for us to base our analyses on comprehensive, empirically sound descriptions of the studied phenomena. For that reason we mainly use real data extracted from a corpus or from web-pages. The second aim of the book is to provide a fully formalized linguistic theory of the described fragment that is provably internally consistent and furthermore compatible with psycholinguistic theories and with insights about human language from language acquisition research. The linguistic theory will be worked out in the framework of Head-Driven Phrase Structure Grammar (Pollard and Sag, 1987, 1994), but readers who do not care about formal linguistics or this particular branch of formal linguistics do not have to worry: the book is organized in a way that makes it possible to read the descriptive parts of the respective chapters without reading the analysis parts. However, we think that dealing with the analyses will result in a better understanding of the language facts, so it may be worthwhile to read the analysis sections even for those who are new to HPSG.

In what follows we describe the project and the guiding linguistic assumptions in more detail and then make some brief remarks about Danish and the data we have used.

Danish

Danish is a North-Germanic language and belongs to the continental Scandinavian languages. Its closest siblings are Norwegian (Bokmål) and Swedish. It is the official language of Denmark and also of the Faroe Islands (besides Faroese). It used to be an official language in Iceland, Greenland and the Virgin Islands. In Greenland Danish is still widely used in the administration. Danish is spoken by approximately 5 million people in Denmark, but it is also spoken by members of the Danish minority in the region of Southern Schleswig and by groups in Greenland, Norway and Sweden. Of course, there are also Danish-speaking immigrant groups all over the world.

Danish is an SVO-language like English, but it differs from English in being a V2-language just like German – with a different linearization of the finite verb in root clauses and non-root clauses. It has little inflection. Finite verbs inflect for tense and passive and nouns inflect for genitive/non-genitive and for definiteness (only personal pronouns have an accusative form). Adjectives inflect for number and gender and also for definiteness in attributive use. The constituent order is fairly rigid: the complements within the VP obey a strict ordering IO > DO > OTHER COMPLEMENTS, while the subject precedes the VP. Adjuncts can either immediately precede or follow the VP. Danish only allows few clause-internal permutations: non-focal unstressed pronominal non-subjects are linearized between the subject and the VP (and not in complement position within the VP), and inherently negated NPs are linearized in the position of sentential negation. However, extractions into the prefield also from embedded clauses are very common.

The present book has grown out of a common interest of the authors in German and in the typological differences between the Germanic languages. Point of departure for the project was a big implemented grammar of German and the wish to see in what way this grammar had to be amended to accommodate an SVO language such as Danish. The reader will therefore find many references to and comparisons with German in the book even though only few of the analyses are actually contrastive due to lack of space. In this sense the present analyses invite further comparative work.

In the book we cover the following phenomena:

- Danish constituent order in the topological model
- Danish constituent order in HPSG
- Object-shift and negation-shift
- Extraposition of clauses
- Passivization
- Raising passives
- Subject extraction and case marking
- Subject extraction and positional expletives
• do-support
• Preposed negation

Despite the diversity of these topics, they are all related to a few core phenomena of Danish that we believe can be traced back to Danish being an SVO language: the presence of a VP, the primacy of the subject in the Danish clause and permutations of constituents given the basic NP-VP structure of the clause.

In the chapters on Topology and Constituent order we illustrate the NP-VP structure of Danish while providing an account of the core constituent order. The chapter on Danish in the topological model provides the basics by giving an account of Danish constituent order in a revised version of the topological model and comparing it with German. At the same time all the phenomena discussed in the book are introduced and related to the topological model. The chapter on constituent order gives an elaborated account of the constituent order within the chosen linguistic framework, HPSG. All other phenomena discussed in the book can be seen as elaborations on the chapters on constituent order and many of the phenomena are topics that appear to have been less studied or have almost gone unnoticed in the literature, such as raising passives, (non-finite) do-support, and preposed negation.

As noted above, we want to illustrate three properties of Danish that seem to be related to its status as an SVO language: (i) the subject has a prominent status; (ii) The order of the complements is fixed within the VP and (iii) Danish has a VP. We want to illustrate these properties as follows: In Danish the subject is a prominent grammatical function. We examine raising passives in Danish and show how raising in passives can be seen as a way of providing a subject for the matrix verb. In a similar vein we examine embedded wh-clauses and show that the use of positional expletives in such clauses allows the subject position to be filled and the clause to be marked as a non-V2-clause.

Danish has a relatively fixed word order but there are ways to deviate from the canonical order. We discuss several deviations from the canonical order: Extraction of subjects and the particular case marking of extracted subjects, Object Shift, Negation-Shift, Negation preposing and extrapolation of clauses.

Danish clauses have a VP and we show how finite do-support serves to project a VP in the absence of a finite verb. In a similar vein we examine non-finite do-support and we show how non-finite do-support serves to project a VP and to ensure a canonical mapping between internal complements and valency requirements.

The Data
The data that we use to explain details of Danish grammar are primarily taken from the KorpusDK, an annotated corpus of 56 million words documenting contemporary Danish (Asmussen, 2001; Andersen, Asmussen and Asmussen, 2000). The corpus is provided by Det Danske Sprog og Litteraturselskab in Copenhagen and it is accessible over the internet under the URL http://ordnet.dk/korpusdk. Sometimes additional examples from the World Wide Web are used. Our experience is that intuitions of linguists (including our own intuitions) are not very reliable. Several cases have been documented where the majority of linguists believed that certain structures are impossible. And indeed if one thinks about possible examples one tends to agree. But if data from newspapers or other sources is examined more carefully examples are found that contradict current wisdom. Of course it could be the case that the grammar of a journalist differs from the grammar of the linguists that made the claims, but our experience is that linguists accept the data as falsifying their claims as soon as they see them in their naturally occurring form. The reason is that many phenomena interact with information structural constraints and sometimes it is difficult to imagine the contexts that would be appropriate for a certain constituent order. Cases of such a type have been studied in Müller 2007d and in Meurers and Müller 2009. The case studies include Subjacency (extraposition from NP across several maximal projections), fronting of particles in particle verb constructions, and multiple frontings. All these phenomena played a major role in theory formation (Subjacency and island conditions) and/or foundational definitions (the notion of particle verb and Satzglied), nevertheless they relied on introspection-based judgements of researchers. Another case in point in Danish is the possibility of fronting a non-finite verb while the object is left in the “shifted” position preceding sentential adjuncts. Such examples have been discussed in the literature and their grammaticality has often been questioned. Given the right information structural environments such examples are possible and can be found in naturally occurring text as shown in Chapter 5. Therefore, we try to avoid mistakes by looking at corpora. Of course we also start with intuitive judgements, without intuition one would not know what to look for. Also when we talk about ungrammatical examples the statement is foremost based on the absence of respective examples in corpora and on Bjarne Ørsnes’s judgments. However, in most cases also other informants were consulted, but not in any systematic way given the vast number of covered phenomena and analyses. The absence of examples alone does not prove anything (although it is an indication), so judgements by native speakers or other experiments are needed.

We took the liberty to use parts of sentences to enhance readability. When discussing word sequences that are impossible we mark them with “*”. Very marked sentences that we do not want to count as well-formed are marked by “?*”. “??” is used to indicate that a sentence is marked but possible. Sometimes the examples are long and difficult to read for non-native speakers. In such cases we used square brackets to highlight the important parts of the examples. In some chapters the main focus is on linearization variants of a sentence. If sentences do not differ in translation we do not provide full translations for all variants but translate the first occurrence only and provide glosses for the other ones.

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1. A Brief Introduction to Head-Driven Phrase Structure Grammar

Head-Driven Phrase Structure Grammar (HPSG) was developed by Ivan Sag and Carl Pollard in the mid 80s. The main publications are Pollard and Sag 1987, 1994. International conferences have been held since 1994 and there is a rich collection of publications regarding analyses of linguistic phenomena (in the area of phonology, morphology, syntax, semantics, and information structure), formal foundations of the framework, and computational issues like efficient parsing and generation. See http://hpsg.fu-berlin.de/HPSG-Bib/ for bibliographic data.

Since HPSG analyses are usually sufficiently formalized they can and have been implemented as computer processable grammars. This makes it possible to check the interactions of analyses with other phenomena and to use the linguistic knowledge in practical applications. See Bender et al. In Preparation for further details.

1.1. Formal Foundations

HPSG assumes feature structures as models of linguistic objects. Feature structures consist of feature value pairs. The values can be atomic or feature structures. Every feature structure is of a certain type. Types are ordered in hierarchies with the most general type at the top of the hierarchy and the most specific types at the bottom. Figure 1.1 shows an example hierarchy for the type case and its subtypes. Types in a model of a linguistic object are maximally specific,

![Subtypes of case in a grammar of German](image)

that is, a noun or an attributive adjective in a model of an actual utterance has a case value that is nom, gen, dat, or acc. The linguist develops theories that describe possible feature structures. In contrast to feature structures, feature descriptions can be partial. For instance it is not necessary to specify a case value for the German word Frauen (‘woman’) since Frauen can be used in NPs of all four cases. (1) shows a simplified description of the nominal agreement information for the German noun Frauen (‘woman’) (see Kathol 1999 for details and Wechsler and Zlatić 2003 for a comprehensive overview of agreement in HPSG). Frauen has feminine gender, is compatible with all four cases, and is singular. The AVM has the type nom-agr. Types are written in italics. nom-agr is a complex type which introduces the features GEN, CASE, and NUM. fem, case, sg are also types, but they are atomic. fem and sg are maximally specific, since they do not have subtypes, but case does have subtypes.
One very important part of the formalism is structure sharing. It is used to express that information in feature structures is identical. Structure sharing is indicated by boxed numbers in feature descriptions. An identical number at several places in an AVM expresses the fact that the respective values are identical.

To give an example of structure sharing, the agreement information of a noun in German has to be compatible with the agreement information of the adjective and the determiner. This compatibility is established by identifying a part of the structure that represents a noun with parts of the structure for the adjective and the determiner in an NP. In an analysis of (2), the definite article has to be compatible with the description in (1).

(2) die Frau
the woman
die is ambiguous between feminine singular nominative/accusative and plural nominative/accusative.

(3)
\[
\begin{array}{ll}
\text{GEN fem} & \text{GEN fem} \\
\text{CASE case} & \text{CASE case} \\
\text{NUM sg} & \text{NUM pl} \\
\text{nom-agr} & \text{nom-agr}
\end{array}
\]
\[\lor \]
\[
\begin{array}{ll}
\text{CASE nom} & \text{CASE nom} \\
\text{\lor acc} & \text{\lor acc} \\
\text{NUM sg} & \text{NUM pl} \\
\text{nom-agr} & \text{nom-agr}
\end{array}
\]

Since Frau is singular, only feminine singular nominative/accusative is compatible with this noun. The result of identifying the feature bundles of die and Frau therefore is (4):

(4)
\[
\begin{array}{ll}
\text{GEN fem} & \text{GEN fem} \\
\text{CASE nom} & \text{CASE nom} \\
\text{\lor acc} & \text{\lor acc} \\
\text{NUM sg} & \text{NUM sg} \\
\text{nom-agr} & \text{nom-agr}
\end{array}
\]

While structure sharing is the most important expressive means in HPSG there is one extension of the basic formalism that plays a crucial role in most HPSG analyses: relational constraints. Relational constraints are used to relate several values in a feature structure to each other. The relational constraint that is used most often in HPSG is append (‘\(\oplus\)’). append is used to concatenate two lists. Schema 1, which will be discussed in Section 1.2.2, is an example for an application of such a constraint.

This brief sketch basically described all the formal tools that are used in HPSG. Of course a lot could be and has been said about the properties of the formalisms, but this introductory section is not the place to discuss these issues in detail. However, it cannot be emphasized enough that it is important that the formal details are worked out and the interested reader is referred to the work of Shieber (1986), Pollard and Sag (1987, Chapter 2), Johnson (1988), Carpenter (1992), King (1994, 1999), Pollard (1999) and Richter (2004). The work of King, Pollard, and Richter reflects current assumptions, that is, the model theoretic view on grammar that is assumed nowadays.

Before I start to discuss several phenomena and their analyses in HPSG in the following sections I want to give an overview of the general feature geometry as it was developed in Pollard and Sag 1994. (5) shows parts of the lexical item for Frau (‘woman’).
1.2. Valence and Constituent Order

1.2.1. Valence

Descriptions of lexical elements contain a list with descriptions of the syntactic and semantic properties of their arguments. This list is called Argument Structure (ARG-ST). (6) gives some prototypical examples for ARG-ST values.

\begin{align*}
\text{sleeps} & \quad \{\text{NP}[\text{nom}]\} \\
\text{likes} & \quad \{\text{NP}[\text{nom}], \text{NP}[\text{acc}]\} \\
\text{talks} & \quad \{\text{NP}[\text{nom}], \text{PP}[\text{about}]\} \\
\text{gives} & \quad \{\text{NP}[\text{nom}], \text{NP}[\text{acc}], \text{NP}[\text{acc}]\}
\end{align*}

In (6) items like NP[nom] are abbreviations that stand for feature descriptions. The elements in the ARG-ST list are ordered according to the obliqueness hierarchy suggested by Keenan and Comrie (1977) and Pullum (1977).

\begin{align*}
\text{SUBJECT} \Rightarrow \text{DIRECT} \Rightarrow \text{INDIRECT} \Rightarrow \text{OBLIQUES} \Rightarrow \text{GENITIVES} \Rightarrow \text{OBJECTS OF COMPARISON}
\end{align*}

In grammars of configurational languages like English, the ARG-ST list is mapped onto two valence features: SPR and COMPS. Examples for the respective values are also given in (6). We assume that Danish is a configurational language as well and hence the arguments will be mapped to SPR and COMPS as in the examples given above. The evidence for such a treatment is discussed in Chapter 4 and a more detailed analysis is provided.

The HPSG representation of valence is reminiscent of Categorial Grammar (Ajdukiewicz, 1935; Steedman, 2000) where each head comes with a description of its arguments. Figure 1.2 shows the saturation of the specifier valence: A head that requires a specifier can be combined with a subject that matches the description in the SPR list. The square indicates that the properties of the subject NP and its description in the SPR list are identified. Therefore accusative NPs like him are excluded as a subject of sleeps. The elements in valence lists are canceled off once the combination with an appropriate item has taken place, that is the SPR list of Peter sleeps is empty since the SPR element of sleeps is realized as a sister of sleeps. Figure 1.3 shows a more complex example with a transitive verb. likes and Sandy form a VP (a verbal projection with an empty COMPS list) and this VP is combined with its subject to form a fully saturated verbal projection, that is, a clause.

1.2.2. Constituent Structure

As was explained in Section 1.1, HPSG exclusively uses feature structures with structure sharing and relational constraints for modeling linguistic objects. As a consequence of this the theory does not use phrase structure rules. Instead the dominance relation between linguistic objects is modeled with feature structures. Trees are used for visualization purposes only. The attribute value matrix that represents the dominance relations in the tree in Figure 1.4 is shown in (7).

\begin{align*}
\text{Peter} & \quad \text{sleeps} \\
\text{Kim} & \quad \text{likes} \quad \text{Sandy}
\end{align*}

Figure 1.2.: Analysis for Peter sleeps

Figure 1.3.: Analysis for Kim likes Sandy.

Figure 1.4.: the man

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For explanatory purposes (7) shows the phonological information only. Part of speech information and valence information that is contained in the tree in Figure 1.4 is omitted. The value of PHON gives a list of phonological contributions of the daughter signs. The feature HEAD-DTR is appropriate for headed structures. Its value is the sign that contains the head of a complex expression (the verb in a VP, the VP in a clause). The value of NON-HEAD-DTRs is a list of all other daughters of a sign.

The following implication shows the constraints that hold for structures of type head-complement-phrase:

**Schema 1 (Head-Complement-Schema (fixed order))**

\[
\text{head-complement-phrase} \Rightarrow \langle \text{SYNSEM}\|\text{LOC}\|\text{CAT}\|\text{COMPS} [\text{HEAD-DTR}\|\text{SYNSEM}\|\text{LOC}\|\text{CAT}\|\text{COMPS} [\langle \text{SYNSEM} [\text{HEAD-DTR}\] \rangle \rangle] \rangle
\]

This constraint splits the COMPS list of the head daughter into two parts: a list that contains exactly one element (\([\text{HEAD-DTR}\]) and a remaining list (\([\text{SYNSEM} [\text{LOC}\|\text{CAT}\|\text{COMPS} [\langle \text{HEAD-DTR}\]]\]). The first element of the COMPS list is identified with the SYNSEM value of the non-head daughter. It is therefore ensured that the description of the properties of the complement of a transitive verb like *likes* in Figure 1.3 is identified with the feature value bundle that corresponds to the properties of the object that is combined with the head (*Sandy* in the case of Figure 1.3). Since Schema 1 licenses structures with exactly one head daughter and exactly one non-head daughter, structures will be binary. This is not only the only option for defining head complement structures. The constraints can be specified in a way that allows for the realization of any number of complements in one go. See for instance Pollard and Sag 1994 for an analysis of English with a flat VP and Bouma and van Noord (1998) for an absolutely flat analysis of Dutch, including a flat verbal complex.

The Schema 1 licences the VP in Figure 1.3. The combination of the VP and its specifier is licenced by the HeadSpecifier-Schema.\(^1\)

**Schema 2 (Specifier-Head-Schema)**

\[
\text{head-specifier-phrase} \Rightarrow \langle \text{SYNSEM}\|\text{LOC}\|\text{CAT}\|\text{SPR} [\text{HEAD-DTR}\|\text{SYNSEM}\|\text{LOC}\|\text{CAT}\|\text{SPR} [\langle \text{SYNSEM} [\text{HEAD-DTR}\] \rangle \rangle] \rangle
\]

This schema also licences the combination of nominal projections with a determiner.

---

\(^1\)Note that the non-head daughter is taken from the end of the SPR list, while the non-head daughter in head-complement phrases is taken from the beginning. For heads that have exactly one specifier this difference is irrelevant, but in the analysis of object shift and negation shift that will be provided in Chapter 5, we will have multiple specifiers and the difference in order of combination will be relevant.

**1.2. Valence and Constituent Order**

**1.2.3. Constituent Order**

In the simple NP example above the order of the elements is fixed: the head follows the non-head. However this is not always the case. For instance there are mixed languages like Persian that allow some heads to the left of their arguments and some heads to the right (Prepositional phrases are head initial and verb phrases are head final in Persian). For such reasons HPSG assumes a separation between immediate dominance (ID) constraints and linear precedence (LP) constraints as was common in GPSG (Gazdar et al., 1985). For instance, Schema 1 does not impose any order on the head and the non-head. This is taken care of by a set of separate constraints.

Heads that precede their complements can be marked as \(\text{INITIAL}^+\) and those which follow their complements as \(\text{INITIAL}−\). The following LP constraints ensure the right ordering of heads with respect to their complements:

\[
\begin{align*}
\text{(8a)} \quad & \text{HEAD} \quad \text{INITIAL}^+ \quad \text{<} \quad \text{COMPLEMENT} \\
\text{(8b)} \quad & \text{COMPLEMENT} \quad \text{<} \quad \text{HEAD} \quad \text{INITIAL}−
\end{align*}
\]

**1.2.4. Free Constituent Order Languages**

Schema 1 allows for the combination of a head with its complements in a fixed order (similar to what is known from Categorial Grammar). Taken together with the linearization constraint in (8a), this results in a fixed constituent order in which the verb precedes its complements and the complements are serialized according to their obliqueness. However there are languages with much freer constituent order than English. If one does not want to assume a base order from which other orders are derived by movement or equivalents to movement one has to find ways to relax the constraint on head complement structures. One way of doing this is to allow the non-head daughter to be an arbitrary element from the COMPS list of the head daughter. The respective modification of the schema is given as Schema 3:

**Schema 3 (Head-Complement-Schema (free constituent order))**

\[
\text{head-complement-phrase} \Rightarrow \langle \text{SYNSEM}\|\text{LOC}\|\text{CAT}\|\text{COMPS} [\text{HEAD-DTR}\|\text{SYNSEM}\|\text{LOC}\|\text{CAT}\|\text{COMPS} [\langle \text{SYNSEM} [\text{HEAD-DTR}\] \rangle \rangle] \rangle
\]

The COMPS list of the head daughter is split into three parts: a list of arbitrary length (\([\text{SYNSEM} [\text{HEAD-DTR}\])], a list containing one element (\([\text{HEAD-DTR}\]) and another list of arbitrary length (\([\text{SYNSEM} [\text{HEAD-DTR}\]). \(\text{HEAD}\) and \(\text{COMPS}\) can be the empty list or contain one or more arguments.

For non-configurational languages it is assumed that the subject of finite verbs is treated like the other arguments, that is, it is mapped to COMPS instead of being mapped to SPR as in English. Having explained the difference in the HPSG analysis of configurational and non-configurational languages we can now give an example of an analysis of a language with rather free constituent order: Figures 1.5 and 1.6 show the analysis of the German sentences in (9):
1.3. Semantics

The first publications on HPSG assumed Situation Semantics (Barwise and Perry, 1983) as the underlying semantic framework (Pollard and Sag, 1987, 1994). While there are also more recent publications in this tradition (Ginzburg and Sag, 2000), many current analyses use semantic formalisms that allow for the underspecification of scope constraints such as for instance Minimal Recursion Semantics (MRS, Copestake, Flickinger, Pollard and Sag 2005b) and Lexical Resource Semantics (LRS, Richter and Sailer 2004).

(9) a. [weil] jeder das Buch kennt
because everybody the book knows
‘because everybody knows the book’

b. [weil] das Buch jeder kennt
because the book everybody knows

Figure 1.5.: Analysis of *jeder das Buch kennt* (everybody the book knows)

Figure 1.6.: Analysis of *das Buch jeder kennt* (the book everybody knows)

In Figure 1.5 the object is combined with the verb first and the subject is represented in the COMPS list of the mother and in Figure 1.6 the subject is combined with the verb first and the object is represented in the COMPS list of the mother. As far as constituent ordering is concerned, this analysis is equivalent to proposals that assume a set for the representation of valence information. Any element from the set can be combined with its head. Such analyses were suggested very early in the history of HPSG by Gunji (1986) for Japanese. See also Hinrichs and Nakazawa (1989), Pollard (1996a), and Engelkamp, Erbach and Uszkoreit (1992) for set-based approaches to constituent order in German. A crucial difference between a set-based analysis and the list-based analysis advocated here is that the elements of the lists are ordered in order of obliqueness. This order is used in various subparts of the theory for instance for assignment of structural case and for expressing constraints on pronoun binding. So the obliqueness ordering has to be represented elsewhere in set-based approaches.

For authors who assume binary branching structures the difference between languages with fixed constituent order and languages with free constituent order lies in the value of $1$ and $3$ in Schema 3. If either $\underline{1}$ or $\underline{3}$ is the empty list one gets a fixed constituent order, with head complement combination either in order of obliqueness or in the reverse order of obliqueness.

To sum up, there are three approaches to free constituent order: Flat structures, linearization domains with discontinuous constituents, and the non-cancellation of syntactic and semantic properties of arguments.

1.2.5. Heads and Projection of Head Features

Section 1.1 introduced head features and Figure 1.3 shows that the information about part of speech of the head is present at every projection, but until now nothing has been said about head feature propagation. The identity of the head features of a head and of a mother node is taken care of by the following principle:

**Principle 1 (Head Feature Principle)** In a headed phrase, the HEAD value of the mother and the HEAD value of the head daughter are identical.

This can be formalized by the following implicational constraint:

\[(10) \text{headed-phrase} \Rightarrow \left[ \text{SYNSEM} | \text{LOCAL} | \text{CAT} | \text{HEAD} \underline{1} \right] \]

The head daughter is the daughter that contains the syntactic head, that is, in the phrase *likes Sandy* in Figure 1.3 it is the lexical item *likes* and in the phrase *Kim likes Sandy* it is the constituent *likes Sandy*. The constraint is a constraint on structures of type headed-phrase. Types like head-complement-phrase and head-specifier-phrase are subtypes of headed-phrase and hence the constraint in (10) applies to them too.

1.3. Semantics

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1.3. Minimal Recursion Semantics

(11) shows the examples for the semantic contribution of a noun and a verb in Minimal Recursion Semantics (MRS):

(11) a. *dog chases a cat.*

An MRS consists of an index, a list of relations, and a set of handle constraints, which will be introduced below. The index can be a referential index of a noun (11a) or an event variable (11b). In the examples above the lexical items contribute the *dog* relation and the *chase* relation. The relations can be modeled with feature structures by turning the semantic roles into features. The semantic index of nouns is basically a variable, but it comes with an annotation of person, number, and gender since this information is important for establishing correct pronoun bindings.

The arguments of each semantic relation (e.g. agent, patient) are linked to their syntactic realization (e.g. NP[nom], NP[acc]) in the lexicon. (12) shows an example. NP[nom] stands for a description of an NP with the semantic index identified with $\mathbf{[}$ . The semantic indices of the arguments are structure shared with the arguments of the semantic relation chase$^\prime$.

(12) chase:

Generalizations over linking patterns can be captured elegantly in inheritance hierarchies (see Section 1.5 on inheritance hierarchies and Davis 1996; Wechsler 1991; Davis and Koenig 2000 for further details on linking in HPSG).

Before turning to the compositional analysis of (13a), I want to introduce some additional machinery that is needed for the underspecified representation of the two readings in (13b,c).

(13) a. *Every dog chased some cat.*

Minimal Recursion Semantics assumes that every elementary predication comes with a label. Quantifiers are represented as three place relations that relate a variable and two so-called handles. The handles point to the restriction and the body of the quantifier, that is, to two labels of other relations. (14) shows a (simplified) MRS representation for (13a).

(14) $\langle h_0, \{ h_1: \text{every}(x, h_2, h_3), h_2: \text{dog}(x), h_4: \text{chase}(e, x, y), h_5: \text{some}(y, h_6, h_7), h_6: \text{cat}(y) \} \rangle$

The tree-place representation is a syntactic convention. Formulae like those in (13) are equivalent to the results of the scope resolution process that is described below.

The MRS in (14) can best be depicted as in Figure 1.8. $h_0$ stands for the top element. This is a handle that dominates all other handles in a dominance graph. The restriction of every points to *dog* and the restriction of *some* points to *cat*. The interesting thing is that the body of every and some is not fixed in (14). This is indicated by the dashed lines in Figure 1.8 in contrast to the straight lines connecting the restrictions of the quantifiers with elementary predications for *dog* and *cat*, respectively. There are two ways to plug an elementary predication into the open slots of the quantifiers:

(15) a. Solution one: $h_0 = h_1$ and $h_3 = h_5$ and $h_7 = h_4$.
   (every dog has wide scope)

b. Solution two: $h_0 = h_5$ and $h_7 = h_1$ and $h_3 = h_4$.
   (some cat has wide scope)

The solutions are depicted as Figure 1.9 and Figure 1.10.
1.3. Semantics

(16) a. Every nephew of some famous politician runs.
   b. every(x, some(y, famous(y) ∧ politician(y), nephew(x, y)), run(x))
   c. some(y, famous(y) ∧ politician(y), every(x, nephew(x, y), run(x)))

In the analysis of example (13a), the handle of \textit{dog} was identified with the restriction of the quantifier. This would not work for (16a) since either \textit{some} or \textit{nephew} can be the restriction of \textit{every}. Instead of direct specification so-called handle constraints are used (\textit{qeq} or \textit{eq}). A qeq constraint relates an argument handle and a label: \( h =_q l \) means that the handle is filled by the label directly or one or more quantifiers are inserted between \( h \) and \( l \). Taking this into account, we can now return to our original example. The correct MRS representation of (13a) is given in (17).

(17) \( \langle h_0, \{ h_1:every(x, h_2, h_3), h_4:dog(x), h_5:chase(e, x, y), h_6:some(y, h_7, h_8), h_9:cat(y) \}, \{ h_2 \approx_q h_4, h_7 \approx_q h_9 \} \rangle \)

The handle constraints are associated with the lexical entries for the respective quantifiers. Figure 1.11 shows the analysis. For compositional cases as in Figure 1.11, the \textit{RELS} value of a sign is simply the concatenation of the \textit{RELS} values of the daughters. Similarly the \textit{HCONS} value is a concatenation of the \textit{HCONS} values of the daughters.

1.3.2. The Analysis of Non-Compositional Constructions

Copestake, Flickinger, Pollard and Sag 2005b extended the basic analysis that concatenates \textit{RELS} and \textit{HCONS} to cases in which the meaning of an expression is more than the meaning
that is contributed by the daughters in a certain structure. They use the feature C-CONT for the representation of constructional content. While usually the semantic functor (the head in head argument combinations and the adjunct in head adjunct structures) determines the main semantic contribution of a phrase, the C-CONT feature can be used to specify a new main semantic contribution. In addition relations and scope constraints may be introduced via C-CONT. The feature geometry for C-CONT is given in (18):

$$\begin{align*}
\text{HOOK} & : \text{INDEX event-or-index} \\
& \quad \text{LTOP handle} \\
\text{RELS} & : \text{list of relations} \\
\text{HCONS} & : \text{list of handle constraints}
\end{align*}$$

The HOOK provides the local top for the complete structure and a semantic index, that is a nominal index or an event variable. In compositional structures the HOOK value is structure shared with the semantic contribution of the semantic functor and the RELS list and the HCONS list is the empty list. As an example for a non-compositional combination Copestake et al. 2005b discuss determinerless plural NPs in English. For the analysis of tired squirrels they assume an analysis using a unary branching schema. Their analysis corresponds to the one given in (19):$^2$

The semantic content of the determiner is introduced constructionally in C-CONT. It consist of the relation udef-rel, which is a placeholder for the quantifier that corresponds to some or every

Principle 2 (Semantics Principle) The main semantic contribution of a phrase is identical to the value of C-CONTHook. The RELS value is the concatenation of the RELS value in C-CONT and the concatenation of the RELS values of the daughters. The HCONS value is the concatenation of the HCONS value in C-CONT and the concatenation of the HCONS values of the daughters.

For compositional schemata both the RELS value and the HCONS value under C-CONT is the empty list. The HOOK value is identical with the HOOK value of one of the daughter, namely with the HOOK value of the daughter that is the semantic functor.

### 1.3. Decomposition in Syntax vs. Underspecification

An interesting application of the underspecification of scope constraints is the treatment of the ambiguity of (20a).

(20) a. dass Max alle Fenster aufmachte
    that Max all windows opened
    'that Max opened all windows'

    b. $\forall x (\text{window}(x) \rightarrow \text{CAUSE}(\text{max}, \text{open}(x)))$

    c. $\text{CAUSE}(\text{max}, \forall x (\text{window}(x) \rightarrow \text{open}(x)))$

The first reading corresponds to a situation in which all windows were closed and Max opens each window and the second reading corresponds to a situation in which some windows were open already and Max opened the remaining windows which results in a situation in which all windows are open.

Egg (1999) suggests specifying the meaning of öffnen (‘to open’) in an underspecified way.

(21) gives an MRS version of his analysis:

$$\langle \{ \langle 0, \{ 1: \text{CAUSE}(x, h2), h3: \text{open}(y) \} \}, \{ h2 \overset{\text{eq}}{=} h3 \} \rangle \rangle$$

The CAUSE operator embeds the open' relation, but the embedding is not direct. It is stated as a dominance constraint h2 $\overset{\text{eq}}{=} h3$. This allows for quantifiers to scope between the CAUSE operator and the embedded predicate and therefore admits the readings in (20b,c). The analysis also extends to the readings that can be observed for sentences with adverbials like wieder (‘again’). The sentence in (22) has three readings that originate from different scoping of CAUSE, $\forall$, and wieder (‘again’):

(22) a. dass Max alle Fenster wieder aufmachte
    that Max all windows again opened

    b. $\text{CAUSE} > \forall > \text{again} > \text{open}'$

    c. $\forall > \text{CAUSE} > \text{again} > \text{open}'$

    d. $\forall > \text{again'} > \text{CAUSE} > \text{open}'$
The first two readings are so-called repetitive readings and the third one is a restitutive reading. See Dowty 1979, Section 5.6 on this phenomenon. Since only the relative scope of CAUSE and open' is fixed, other scope-taking elements can intervene.

With such a semantic representation the syntax-semantics interface can be set up as follows: the adverbial combines with aufmachen and the resulting phrase is combined with the object alle Fenster and the subject Max. The scoping of the universal quantifier and the adverbial wieder depends on the ordering of the elements, that is in (22a) only readings in which 'ü outscopes again' are available. See Kiss 2001 for more information of the treatment of quantifier scope in German in the framework of HPSG.

Egg (1999) suggests the underspecification analysis as an alternative to von Stechow’s analysis in the Minimalist Program (1996). Von Stechow assumes a decomposition in syntax and on several empty heads and movement operations that are necessary to derive readings. As was pointed out by Jäger and Blutner (2003) the analysis does not get all attested readings. Apart from such empirical problems, the underspecification analysis has to be preferred for reasons of simplicity: the syntactic structures directly correspond to observable facts.

1.4. Lexical Rules

Since HPSG is a lexicalist theory, the lexicon plays an important role. The lexicon is not just a prison for the lawless as suggested by Di Sciullo and Williams (1987, p. 3), but is structured and lexical items are related to each other. One means of capturing generalizations is lexical rules. A lexical rule says if there is a lexical item with certain properties then there is also another lexical item with certain other properties. For instance it was argued by Höhle (1997) that complementizers and finite verbs form a natural class in German. The HPSG lexicon (of inflecting languages) consists of roots that are related to stems or fully inflected words. The derivational or inflectional rules may influence part of speech (adjectival derivation) and/or valence (able adjectives and passive).

(23) is an example for a lexical rule. It was suggested by Kiss (1992) to account for the personal passive in German.4 The rule takes as input a verbal stem that governs both a nominative and an accusative. The nominative argument is not represented in the COMP list of the output. The case of the object is changed from acc to nom. The remaining arguments (if there are any) are taken over from the input (\(D\)).

(23) Lexical rule for the personal passive following Kiss (1992):

\[
\begin{align*}
\text{PHON} & [\[] \\
\text{SVNSEM} & [\text{LOC}] [\text{CAT}: \text{HEAD} \text{verb} \text{SUBCAT} \langle \text{NP[nom]}, \text{NP[acc]} \rangle \oplus [\[]] \\
\text{stem} & \rightarrow
\end{align*}
\]

4For a more general passive rule that unifies the analyses of personal and impersonal passives see Müller 2002, Chapter 3. This more general rule for the passive uses the distinction between structural and lexical case.

1.4. Lexical Rules

The stem is mapped to a word and the phonology of the input (\(D\)) is mapped to the passive form by a function \(f\).

During the past decades there has been some discussion concerning the status of lexical rules. One way to formalize them is to fully integrate them into the formalism of typed feature structures. According to this view the input of the lexical rule is a daughter of the output (Krieger and Nerbonne, 1993, Chapter 7.4.1; Copestake and Briscoe, 1992; Meurers, 1995, 2001; Riehemann, 1998). This is basically equivalent to a unary branching immediate dominance rule. (24) shows the lexical rule in (23) in a format that directly reflects this approach.

(24) Lexical rule for the personal passive (fully integrated into the formalism):

\[
\begin{align*}
\text{PHON} & [\[] \\
\text{SVNSEM} & [\text{LOC}] [\text{CAT}: \text{HEAD} \text{verb} \text{SUBCAT} \langle \text{NP[nom]}, \text{NP[acc]} \rangle \oplus [\[]] \\
\text{stem} & \rightarrow
\end{align*}
\]

A further advantage of this notation is that lexical rules are constraints on typed feature structures and as such it is possible to integrate them into an inheritance hierarchy and to capture generalizations over various linguistic objects.

For instance it was argued by Höhle (1997) that complementizers and finite verbs form a natural class in German.

(25) a. dass Karl das Buch liest
    that Karl the book reads
    'that Karl reads the book'
    b. Liest Karl das Buch?
    reads Karl the book
    'Does Karl read the book?'

In head-movement-inspired approaches (see Borsley (1989) for a head-movement approach for English, Chapter 4 for a head-movement approach for Danish, and Kiss and Wesche 1991; Kiss 1995; Meurers 2000; Müller 2008b for head-movement approaches for German) the verb in
(25b) is related to a lexical item for the verb as it occurs in (25a) by a lexical rule. The complementizer and the lexical rule are subtypes of a more general type capturing the commonalities of *dass* in (25a) and *liest* in (25b).

1.5. Generalizations

HPSG is a theory that places a lot of information in the lexicon. For instance lexical entries of verbs contain detailed descriptions of their arguments, they contain information on how arguments are linked to the semantic contribution of the verb, information about semantic roles and so on. A good way to capture generalizations with respect to this lexical knowledge is to use type hierarchies with multiple inheritance (Pollard and Sag, 1987, Chapter 8.1). Sag (1997) argued for several different immediate-dominance schemata for variants of English relative clauses and modified the feature geometry of HPSG in a way that made it possible to capture the generalizations over the various schemata in an inheritance hierarchy. Figure 1.12 gives an example of how (parts of) an inheritance hierarchy that includes both lexical and phrasal types may look.

In Section 1.2.5 we discussed constraints on phrases of type *headed-phrase*. Since structures

![Diagram](image-url)

Figure 1.12.: Part of an inheritance hierarchy that contains lexical entries and immediate dominance schemata

of the type *head-complement-phrase* are a subtype of *headed-phrase*, they inherit all the constraints from their supertype. Hence, head features at the mother node of a head complement phrase are identified with the head features of the head daughter. Similarly the constraint that there is an nominative and an accusative object is represented at the type *transitive-verb*. The type *strict-transitive-verb* adds the information that there is no further argument and the type *ditransitive-verb* adds the information about an additional dative argument.
3. A topological model of the Danish clause

The purpose of this chapter is to provide a general background for the description of constituent order in Danish within a frame-work widely used to describe constituent order in Danish: the topological model. Contrary to many other topological descriptions of Danish constituent order, the present proposal is an attempt to develop a unified topological model for the description of constituent order in Danish and German. In this way it serves as a point of reference for the description of Danish constituent order within HPSG to be presented in Chapter 4. Subsequent chapters will occasionally refer to the topological model developed in this chapter.

3.1. The topological model

The order of constituents can be described within a so-called topological model of the clause (Drach, 1939; Diderichsen, 1957; Reis, 1980; Höhle, 1986; Wöllstein, 2010; Hansen and Heltoft, 2011, among many others). Topological models are not restricted to clausal structures: any kind of phrase can be described in a topological model, but here we will concentrate exclusively on clauses, i.e. phrases headed by verbs (finite and non-finite verbal phrases). As indicated by the name, the topological model makes available a number of slots (topological fields) that can be filled in a clause. The model defines the order of the topological fields as well as the number and kind of the possible fillers of the individual topological fields. Some fields only allow one constituent at a time, while others allow more. Some fields are unrestricted in that they allow (practically) any kind of constituents, while others are restricted to constituents of certain syntactic categories or certain syntactic functions. The topological model is maximal in the sense that it provides the maximal number of fields for a given clause. However, not all fields need be filled in an actual instantiation. Usually only a subset of the fields will be filled in a given clause.

As a very simple illustration of a topological model, a clause can be defined as consisting of a subject, a verb, adjuncts, and an object as shown for the examples in (1) in the following figure.

(1) Den lille dreng læser sikket altid tegneserier

The field V is defined in terms of syntactic category, the other ones in terms of syntactic function. The order is determined so that the subject always precedes the V and the object always follows the V. Adjuncts occur between the verb and the object. As shown in the figure the ADJUNCTS field can contain more constituents, while the other fields only contain one constituent.

When developing a topological model for the constituent order of a language, the number, the order and the syntactic content of the fields must be determined.

The topological model has proven to be a very useful descriptive tool for describing the constituent order in Danish and German. As pointed out in Ørsnes 2009a, however, the formulation of topological models is not subject to theoretical constraints. For that reason proposed topological models tend to differ considerably in the number of fields, the definition of the individual fields and the amount of structure embodied in the models. Some models assume a completely flat structure (as in the figure above for (1)), while others assume a more elaborate structure. Further structure can be imposed on the model by combining fields to bigger fields as in the following figure where the V and the NP are combined into a VP.

```
<table>
<thead>
<tr>
<th></th>
<th>Subj</th>
<th>V</th>
<th>ADJUNCTS</th>
<th>OBJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>(at)</td>
<td>den lille dreng</td>
<td>læser</td>
<td>sikket altid</td>
<td>tegneserier</td>
</tr>
<tr>
<td>('that')</td>
<td>('the little boy')</td>
<td>('reads')</td>
<td>('presumably always')</td>
<td>('comics')</td>
</tr>
</tbody>
</table>
```

Thus, not only do topological models for individual languages differ, they also differ considerably for different languages, e.g. for Danish and German. Since Danish and German are generally described by means of different topological models, cross-linguistic generalizations in the realm of constituent order are hard to come by in the topological model.

Here we will present a topological model that allows for a straightforward comparison of the basic constituent structure in German and Danish. We will deal primarily with “higher-level” generalizations. This means that we will discuss the placement of verbs, complementizers and topicalized constituents. We will only hint at the internal ordering of complements and adjuncts in the so-called “Sentence Field” (the “kernefelt” (kernel field) of Hansen and Heltoft 2011, p. 1592). Especially in the Danish tradition (e.g. in Clausen 1995 and Colliander 2002), it is common to assume a hierarchical ordering of the model so that e.g. the Sentence Field is further subdivided into separate fields for individual syntactic functions such as the indirect object and the direct object. As a consequence the ordering of indirect objects before direct objects is “hard-wired” into the model. For Danish, individual fields for specific syntactic functions make sense, since the order of constituents in Danish is more rigid as compared to German. For German, it makes little sense to make a particular ordering of complements part of the model, since the constituent order in German is relatively free (German allows scrambling, while Danish does not). For that reason we do not assume a further division of the model into fields for individual syntactic functions. The present model is intended to capture the basic similarities and differences between the two languages, leaving further language particular properties of the constituent order to be accounted for in language-particular extensions to the topological model.

There is an important feature about natural language that the topological model has to account for: Clauses can contain other clauses or other verbal phrases. This means that the topological model must allow for recursion in the sense that the individual fields can contain structures which are themselves instantiations of the topological model. Examples of such embedded...
3.2. \( V_{bas} \)-clauses and \( V_{front} \)-clauses

Topological structures are embedded clauses and embedded non-finite constructions as shown below. Example (2) contains a clause embedded within the clause, namely a clausal subject.

\begin{itemize}
    \item (2) Om andre bisper har lignende planer, vides ikke.\(^1\)

        'It is not known whether other bishops have similar plans.'
\end{itemize}

The clausal subject in example (2) om andre bisper har lignende planer ('whether other bishops have similar plans') is in itself an instantiation of a complete topological model. The following figure shows how the example in (2) can be represented in a topological model. In the first row of the figure the whole (main) clause is shown with the clausal subject appearing in one field, namely the Prefield. In the subsequent row the internal structure of the clausal subject is represented in a separate topological model.

<table>
<thead>
<tr>
<th>Prefield</th>
<th>T/C</th>
<th>Sentence Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Om andre bisper ... ('whether other bishops')</td>
<td>vides ('know.PRES.PASS')</td>
<td>ikke ('not')</td>
</tr>
<tr>
<td>om ('whether')</td>
<td>andre bisper ('other bishops')</td>
<td>har ('have') lignende planer ('similar plans')</td>
</tr>
</tbody>
</table>

The novelty of the topological model as also described in Ørsnes 2009a is the introduction of a verbal field which is linearized differently in Danish and German as in the figure above. In Danish the verbal field is linearized within the Sentence Field accounting for the fact that Danish is an SVO-language (O being an abbreviation for objects and other non-subjects). In German the verbal field is placed at the end of the Sentence Field accounting for the fact that German is an SOV-language.\(^7\) Before presenting the topological model we will present the basic clause types in Danish to be accounted for by the model.

### 3.2. \( V_{bas} \)-clauses and \( V_{front} \)-clauses

As in German, three basic clause types can be distinguished in Danish. The three clause types are defined according to the placement of the finite verb and the status of the first position (the Prefield) as either filled or unfilled. The clause types roughly correspond to an embedded clause (Type I), an unembedded declarative clause (Type II) and a polar question (Type III), but these are only approximations. All clause types occur embedded and unembedded and with different illocutionary forces as also shown in the examples below (cf. also Hansen and Heltoft 2011, p. 1569).

- **Type I**: \( V_{bas} \)-clause (the “embedded” clause): The finite verb is in the verbal field following sentential adverbs such as the negation. The a.-example is embedded, the b.-example is unembedded.

\[ (3) \begin{align*}
    a. & \text{ fordi beviserne [ikk] [hang] sammen}^{4} \\
    & \text{because evidence.DEF not hang together} \\
    b. & \text{ Bare Antonio [ikk] [misforstår] det.}^{5} \\
    & \text{If only Antonio not misunderstands it}.
\end{align*} \]

- **Type II**: \( V_{front} \)-clause with a filled Prefield (an unembedded declarative clause): The finite verb is outside the Verbal Field in a fronted position preceding sentential adverbs such as the negation, and the Prefield is filled (V2). Note that the finite verb precedes the negation, while it follows the negation in Type I-clauses (example (3a) and (3b)). The a.-example is an unembedded Type-II-clause, the b.-example is an embedded Type-II-clause

\[ (4) \begin{align*}
    a. & \text{ [Danmark] [er] [ikke] representeret ved finalen i Wien.}^{6} \\
    & \text{Denmark is not represented at final.DEF in Vienna} \\
    b. & \text{ fortalte en ældre mand, at [tidligere] [kunne] han [ikke] lide udlændinge,}^{7} \\
    & \text{told an elderly man that previously could he not like foreigners,} \\
    & \text{an elderly man told that he used not to like foreigners,'}
\end{align*} \]

- **Type III**: \( V_{front} \)-clause with an unfilled Prefield (a polar question): the verb (finite or imperative) is in a fronted position preceding sentential adverbs and the Prefield is unfilled (V1). The a.-example is unembedded, the b.-example is embedded (a conditional V1-clause).\(^8\)

\[ (5) \begin{align*}
    a. & \text{ [Danmark] [kommer] [ikke] til dom}^{9} \\
    & \text{Denmark [comes] not to court} \\
    b. & \text{ [Bournonville] [kommer] til dem}^{10} \\
    & \text{Bournonville [comes] to them}.
\end{align*} \]

---

\(^1\)KorpusDK.
\(^2\)We follow Bierwisch 1963, Thiersch 1978, Müller 2008b and Haider 2009 and several others in assuming that German is an SOV language. Arguments for claiming that Danish is SVO are given in Section 3.2.1.

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3.2. $V_{\text{base}}$-clauses and $V_{\text{front}}$-clauses

The basic constituent order is the one commonly found in embedded sentences. Embedded sentences are assumed to show less constituent order variation than main sentences since their illocutionary force is generally restricted by the embedding verb and since the information structure of embedded clauses is less dependent on the surrounding discourse. The basic constituent order is also found in independent clauses with no truth-value (and no hearer orientation, see footnote 12) such as exclamative clauses as in (8) and optative clauses as in (9).

(8) Hvor dregen [dog] [er] underlighe\textsuperscript{15} how boys DOG are strange
‘How strange boys are!’

(9) Hvem der [ikke] [skulle] på arbejde imorgen\textsuperscript{16} who there not should on work tomorrow
‘Wish I did not have to go to work tomorrow!’

We will refer to the position of the finite verb in the basic order as the $V_{\text{base}}$-position and clauses with the basic constituent order as $V_{\text{base}}$-clauses, i.e. clauses where a finite verb has not been fronted.

The basic constituent order is also found in non-finite root sentences such as the so-called Mad Magazine sentences as in (10) and $wh$-infinitivals as in (11) (Akmajian, 1984).

(10) Mig gøre rent?\textsuperscript{17} me do.INF cleaning
‘Me and cleaning?’

(11) Men hvorfor [ahid] [gå] i det samme?\textsuperscript{18} but why always walk.INF in the same
‘Why always wear the same?’

As the examples in (8) and (9) show the Prefield in a $V_{\text{base}}$-clause can be filled by a $wh$-constituent. Hansen and Heltoft (2011) assume that the $wh$-constituent is in the position of the complementizer, since it lexicalizes a complementizer element (p. 1633). We assume that $wh$-constituents are always in the Prefield. Otherwise we would have to assume that $wh$-constituents are in different positions in $V_{\text{base}}$-clauses and in $V_{\text{front}}$-clauses where the $wh$-constituents are unambiguously in the Prefield.

3.2.2. $V_{\text{front}}$-clauses: V1 and V2-clauses

In V1- and V2-clauses the finite verb is not in the base position within the verbal field. It is in the position occupied by the complementizer in a $V_{\text{base}}$-clause. We will refer to clauses with the verb in this fronted position as $V_{\text{front}}$-clauses. Thus $V_{\text{front}}$-clauses comprise V1- and V2 clauses, the difference being whether the Prefield is filled or not. In a V2-clause the verb is in second position because the Prefield is filled by a constituent.

\[\text{Draft of Friday 12th October, 2012, 11:39}\]
3.3. A topological model

In \(V_{\text{front}}\)-clauses, the finite or imperative verb precedes sentential adverbs and modal particles – a clear indication that the verb is no longer in its base-position within the verbal field. Cf.

(12)  Peter [er] [ikke] urolig
  Peter is not anxious
  ‘Peter is not anxious.’

(13)  [vær] [ikke] urolig
  be not anxious
  ‘Don’t be anxious.’

Assuming that the position of sentential adjuncts is fixed (immediately preceding the Verbal Field), the finite or imperative verb thus appears to be displaced out of its base position, which is to the right of sentential adjuncts in \(V_{\text{base}}\)-clauses.

The distinction between the three types of clauses from Section 3.2 is summarized in Figure 3.1. The three clause types are distinguished on the basis of the finite verb as either in \(V_{\text{base}}\) or \(V_{\text{front}}\) and whether the Prefield is filled or not.

3.3. A topological model

We will use the following topological model of the Danish clause based on the model presented in Ørnes 2009a. The examples illustrate the \(V_{\text{base}}\)-order and the two \(V_{\text{front}}\)-orders: V1- and V2-clauses.

<table>
<thead>
<tr>
<th>Prefield</th>
<th>T/C</th>
<th>Sentence Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drengen ('the boy')</td>
<td>har (‘has’), ikke (‘not’), set (‘seen’)</td>
<td>firemen ('the movie')</td>
</tr>
<tr>
<td>'the boy not', 'has seen', 'the movie'</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| V1

\(V_{\text{base}}\)

\(V_{\text{front}}\): V2

\(V_{\text{front}}\): V1

At the topmost level the model consists of the following three fields:

- The Prefield

Figure 3.1.: Clause Types in Danish

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the right of the verbal field contains the internal complements and adjuncts. This model clearly reflects the fact that the subject is external to the VP (it does not occur to the right of non-finite verbs or after the finite verb in Vbase-clauses).

3.3.1. Vbase-clauses in the topological model

The following table shows how different kinds of Vbase-clauses are represented in the proposed model. The table contains examples of finite clauses as well as of non-finite root-clauses.

<table>
<thead>
<tr>
<th>Prefield</th>
<th>T/C</th>
<th>Sentence Field</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Verbal Field</td>
</tr>
<tr>
<td>1)</td>
<td>at (‘that’)</td>
<td>drengen ikke</td>
</tr>
<tr>
<td></td>
<td></td>
<td>har set (‘has seen’)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>filmen (‘the movie’)</td>
</tr>
<tr>
<td>2)</td>
<td>Mig (‘me’)</td>
<td>gøre rent? (‘doing cleaning’)</td>
</tr>
<tr>
<td>3)</td>
<td>Hvem (‘who’)</td>
<td>der bare (‘there only’)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>havde (‘had’)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ferie lige nu! (‘vacation right now’)</td>
</tr>
<tr>
<td>4)</td>
<td>Hvoran (‘how’)</td>
<td>analysere (‘analyze’)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>et digt? (‘a poem’)</td>
</tr>
</tbody>
</table>

Example 1) in the table shows the canonical embedded clause with the complementizer in T/C and the finite verb in the Verbal Field. Note that the finite verb follows the negation since the Verbal Field splits the Sentence Field into two parts. In Example 2) (illustrating a Mad Magazine Sentence) the non-finite verb is in the Verbal Field. We assume that the initial accusative NP (mig (‘me’)) is in the Prefield.21 This is possibly too simplistic since Mad Magazine sentences often contain a coordinating coordination og (‘and’) and thus (presumably) should be treated as coordinated structures (cf. the discussion of coordination in Section 3.4).

(14) Mig og gøre rent?
    me and do cleaning
    ‘Me and cleaning?’

Example 5) in the table illustrates an optative clause, i.e. an unembedded Vbase-clause. The non-finite verb is in the Verbal Field and the wh-element. Example 4), finally, shows a wh-infinite clause: the non-finite verb is in the Verbal Field and the wh-constituent is in the Prefield.

3.3.2. Vfront-clauses in the topological model

The following table shows how different kinds of Vfront-clauses are represented in the proposed topological model.

<table>
<thead>
<tr>
<th>Prefield</th>
<th>T/C</th>
<th>Sentence Field</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Verbal Field</td>
</tr>
<tr>
<td>1)</td>
<td>Drengen (‘the boy’)</td>
<td>har (‘has’)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ikke (‘not’)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>set (‘seen’)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>filmen (‘the movie’)</td>
</tr>
<tr>
<td>2)</td>
<td>Filmen (‘the movie’)</td>
<td>har (‘has the boy’)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ikke (‘not’)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>set (‘seen’)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>filmen? (‘the movie’)</td>
</tr>
<tr>
<td>3)</td>
<td>Hvem (‘who’)</td>
<td>har (‘has’)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ikke (‘not’)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>set (‘seen’)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>filmen (‘the movie’)</td>
</tr>
<tr>
<td>4)</td>
<td></td>
<td>har (‘has’)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ikke (‘not’)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>set (‘seen’)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>filmen (‘the movie’)</td>
</tr>
<tr>
<td>5)</td>
<td>Se (‘see’)</td>
<td>ikke (‘not’)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>set (‘seen’)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>den film! (‘that movie’)</td>
</tr>
</tbody>
</table>

As the table shows, the crucial difference between the Vbase-order and the Vfront-order is the position of the finite verb. The finite verb is no longer in the Verbal Field but in the T/C-field. The Verbal Field in turn only contains non-finite verbs. Therefore the finite verb precedes sentential adverbs in Vfront-clauses. In declarative clauses and constituent questions, the Prefield is filled by a constituent. Note that almost any constituent can be in the Prefield, even though constituents other than subjects and pronouns are marked. In polar questions, imperatives and V1-conditionals, the Prefield is empty (in imperatives a resumptive pronoun can, however, appear in the Prefield as shown in (6) above).

3.3.3. More on the individual positions

In the following we will briefly discuss the individual positions of the proposed topological model.

3.3.3.1. The T/C-field

The T/C-field generally contains a finite verb (Tense), an imperative verb or a complementizer. The position of the finite verb in the T/C-field in Vfront-structures gives the effect of Verb Second.

In the Vbase-structure T/C-field canonically contains a complementizer. For German it is sometimes claimed that the complementizer and the finite verb compete for the same position: if a complementizer is present, the verb has to stay in final position. Without a complementizer the verb is fronted. In Danish, the finite verb is in the Verbal Field, even if a complementizer is not present:

---

21Hansen and Heltoft (2011, p.1623–1625) provide a topological analysis of so-called sætningsemner (‘sentence fragments’) defined to be root clauses without a finite verb (p. 1623). However, they only give examples with root clauses with no verbs at all, and noone with non-finite verbs.
3.3. A topological model

3.3.1. A topological model of the Danish clause

In (16), the embedded clause at tidligere kunne han ikke lide udlændinge (‘that before he did not like foreigners’) contains the finite verb kunne (‘could’) in the second position after the adverb tidligere (‘before’) and the complementizer at (‘that’) is obligatory. Embedded V2-structures with an overt complementizer cannot be fitted into the model as it stands. This is further discussed in Section 3.4 below.

Also embedded wh-clauses (e.g. embedded interrogatives) show that there is no connection between the filling of the T/C-field and the position of the finite verb in the verbal Field. In embedded wh-clauses the T/C-field is empty and still the finite verb is in the base position with the wh-constituent in the Prefield. In colloquial Danish, the T/C-field, however, can contain the complementizer at (‘that’).

(17) a. Jeg ved ikke [hvem I prøver at narre] I know not who you try to fool.
   I don’t know who you are trying to fool.’

b. Jeg ved ikke [hvem] [at i prøver at narre, […]]
   I know not who that you try to fool.
   ’I don’t know who you are trying to fool, […]’

There is a third class of items that can occur in the T/C-field. Certain modal complementizers such as mon (‘I wonder’), gid (‘wish’) and art (‘if’) (Vikner 1995, p. 45 and Hansen and Heltoft 2011, p. 1568) occupy the T/C-field of a V_{base}-clause. They mark deliberative questions, exclamatives or optatives. Some of these modal complementizers such as bare (‘I wish’), måske (‘perhaps’) and gudskelov (‘luckily’) also occur as adverbs.

(18) a. [Mon] [han alligevel kommer]? I wonder he anyway comes
   ‘I wonder if he is coming anyway?’

b. [Gid] [det ikke var sådan], they wished it was not so
   ’I wish it wasn’t like that’

c. [Gudskelev] [det ikke var koe], […] said kalelvingen, da kinds mand
   luckily it not was cow. DEF said woman. DEF when her husband
   died
   ‘I am glad it wasn’t the cow, the woman said, when her husband died.’

The complementizer mon (‘I wonder’) even allows a wh-constituent to be extracted into the prefied.


KorpusDK.

Erectschik-Shir (2010) claims that mon (‘I wonder’) is an adverb on the grounds that clauses with mon (‘I wonder’) do not allow extraction into the Prefield. She considers the example in (1) ungrammatical. As shown, these examples are perfectly grammatical (Cf. also the examples and the discussion in Hansen and Heltoft 2011, p. 1568).

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(19) [Hvilke værdier] [mon] der er blevet fokuseret på, […]
which values I wonder there have been focussed on
'I wonder what values have been focused on, […]'

The following figure shows how the examples in (18a) and in (19) are represented in the proposed topological model.

<table>
<thead>
<tr>
<th>Prefield</th>
<th>T/C</th>
<th>Sentence Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hvilke værdier</td>
<td>non</td>
<td>(‘which values’)</td>
</tr>
<tr>
<td>(‘I wonder’)</td>
<td>der</td>
<td>er blevet fokuseret</td>
</tr>
<tr>
<td>(‘the anyway’)</td>
<td>kommender</td>
<td>(‘comes’)</td>
</tr>
</tbody>
</table>

While the T/C-field can be empty in V-base-clauses, it must be filled in V-front-clauses. If a lexical verb is missing, the dummy verb gøre is used to fill the T/C-field. In (20) the finite verb sveder (‘sweat’) is in the Prefield, and the dummy verb gør (‘do’) fills the T/C-field. This kind of VP-topicalization will be discussed in Chapter 14.

(20) Pulsen er på vej op, men [sveder] [gør] jeg ikke.  
'The pulse is increasing, but I am not sweating.'

The Prefield canonically only contains one lexical category (C0 or V0). However, some adverbs can adjoin to lexical V and are linearized in the T/C-field giving rise to apparent V3-structures (Nilsen (2002) and Nimb (2009)). The class of adverbs that can adjoin to lexical elements, is very restricted, though. Cf.

(21) De nærmest boltrer sig i det.  
'The pupils almost indulge in it.'

3.3.3.2. The Prefield

The Prefield appears to be associated with a particular discourse prominence. In the default case, it is occupied by the subject or anaphoric pronouns. Subjects are closely associated with topichood (Lambrecht, 2000, p. 131) and so are anaphoric pronouns, since they refer to salient entities in the discourse. Interestingly constituents in the Prefield can be morpho-syntactically marked in a way that is unexpected from their syntactic dependency to the rest of the clause.

If the constituent in the Prefield is associated with a topic-binding adverb we even find (apparent) V4-structures.

(22) [Eleverne] [for eksempel] [nærmest] [boltrer] sig i det.  
'The pupils for example almost indulge REFL in it'

The following table shows how the examples in (23) and (24) are represented in the proposed topological model.

<table>
<thead>
<tr>
<th>Prefield</th>
<th>T/C</th>
<th>Sentence Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>De nærmest boltrer</td>
<td>sig i det</td>
<td>(‘they’)</td>
</tr>
</tbody>
</table>

The Prefield appears to be associated with a particular discourse prominence. In the default case, it is occupied by the subject or anaphoric pronouns. Subjects are closely associated with topichood (Lambrecht, 2000, p. 131) and so are anaphoric pronouns, since they refer to salient entities in the discourse. Interestingly constituents in the Prefield can be morpho-syntactically marked in a way that is unexpected from their syntactic dependency to the rest of the clause.

29KorpusDK.
30KorpusDK.
31KorpusDK.

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The constituent in the Prefield in example (25a) is the subject of the embedded clause *vil vise sig hos os* (‘will show up at our place’), but nevertheless it is marked with the accusative case and not the nominative case. In example (25b) the constituent in the Prefield is a bare infinitive, even though it is syntactically dependent on the verb *lære* (‘to learn’) which requires a full infinitive with *at* (‘to’).

(25) a. [Dem,] håber vi, vil vise sig hos os [...]44
    ‘We hope that they will show up with us.’
    b. [Synges,] [lærte] han [...]35
    ‘As for singing, he learned to do so.’

This phenomenon will be discussed in Chapter 12 and Chapter 14 respectively.

Some constituents such as sentential negation are extremely marked in the Preferential Field (26a).

(26) a. [Ikke] vil jeg bo noget andet sted.36
    ‘Not will I live any other place.’
    b. * [Jo] vil jeg bo et andet sted.
    ‘As you know, I would like to live in any other place.’

A constituent in the Prefield can co-occur with an adverb giving rise to apparent V3-structures, as also observed with some adverbials attached to lexical V (as illustrated in (30)). These are so-called topic-binding adverbials, such as *derimod* (‘instead’) (27a) or *for eksempel* (‘for example’) (see Breindl (2008) on German). But also adverbs such as *allerede* (‘already’) can occur with another constituent in the Prefield as in (27b).

(27) a. [Israelerne derimod] er fortrusningsfulde.37
    ‘The israelis instead are confident.’
    b. [Allerede i gymnasiet] havde jeg forkastet Nietzsche.38
    ‘Already in high school had I rejected Nietzsche.’

The adverb *derimod* (‘on the other hand’) does not seem to form a constituent with the preceding NP. As shown for German in Jacobs 1986 the NP and the adverb cannot occur together as the complement of a preposition:

34 http://www.dr.dk/Sporten/Fodbold/Superliga/20100980/221736.htm, [15/2 2011].
35 Example from (Hansen, 1967, p. 70)
36 http://www.visdal.dk/maelkeboetter.html, [14/4 2011].
37 KorpusDK.
38 KorpusDK.

3.3.3. The Verbal Field

The Verbal Field contains all verbs (finite and non-finite) in Vfinite-clauses and all the non-finite verbs (if present) in Vfront-clauses. Canonically the verbs in the Verbal Field form a verb cluster that cannot be interrupted by other linguistic material. Exceptions are some unmarked reflexives as in example (29) (see also Lodrup 1996, p. 84) and adverbs modifying lexical V as in example (30) below.

(29) men Gerda havde aldrig fået [sig] taget sammen til det39
    but Gerda had never got herself pulled together to it
    ‘but Gerda had never managed to pull herself together to do it’

(30) fordi de har [nærmest] boltret sig i det
    because they almost have indulged in it
    ‘because they almost have indulged in it’

It appears that the Verbal Field also can contain manner adverbials as in example (31) where the verb *positivt* (‘positively’) intervenes between the two non-finite verbs.

(31) Forslagene er blevet [positivt] modtaget, og idéen er grundlæggende god.40
    ‘The proposals have been positively received and the idea is basically good’
    ‘The proposals have been positively received and the idea is basically good.’

We will, however, analyse the past participle *modtaget* (‘received’) as an adjectival participle and not as part of a verb cluster (a periphrastic verb form). ‘Intruding’ manner adverbs as in (31) are only observed with the verb *blive* (‘to become’) which is a copula verb (in addition to being an auxiliary). Note further that also non-valency bound *Accusative Iudicantis*-NPs can intervene between *blive* and a manner adverb modifying an adjectival participle. This suggests that the past participle *modtaget* (‘received’) is not in the Verbal Field.

(32) Forslagene er blevet [regeringen] lidt for positivt modtaget, […]
    ‘The government.DEF have been government.DEF little too positively received
    ‘To the government the proposals have been a little too well received’ […]

The order of the verbs in the Verbal Field is strictly left-to-right since the Danish VP is head-initial. The example in (33) illustrates the hypotactic chain following Bech (1955).

39 KorpusDK.
40 KorpusDK.
3.3. A topological model

(33) Jeg ved at han ikke ville have kunnet gøre det.
    I know that he not would have could do it
    ‘I know that he wouldn’t have been able to do it.’

3.3.3.4. The Sentence Field

The Sentence Field hosts the Verbal Field and is divided into two areas by the Verbal Field. The left-hand side contains the subject and zero or more adjuncts. Almost all adjuncts can occur to the left of the verbal field, but sentence adverbs and modal particles obligatorily do so.

(34) a. Fordi Peter (heldigvis) har hentet avisen (*heldigvis),
    because Peter fortunately has collected newspaper.DEF fortunately
    ‘Because Peter fortunately has collected the newspaper.’

b. Fordi Peter (i dag) har hentet avisen (i dag),
    because Peter today has collected newspaper.DEF today
    ‘Because Peter has collected the newspaper today.’

The fact that sentence adverbs obligatorily precede the verbal field follows from their scopal properties. Sentence adverbs have scope over the whole clause and so tend to precede the finite verb (see Pittner 2004 for German).

Also unstressed bare pronouns are found to the left of the Verbal Field under special circumstances. When the Verbal Field is empty, object pronouns and the locative pronouns her (‘here’) and der (‘there’) linearize to the left of the Verbal Field (preceding sentential adjuncts) as shown in (35a). When the Verbal Field contains a verb (either finite or non-finite), these pronouns are linearized to the right of the Verbal Field as in (35b). This is referred to as Object-Shift (Vikner, 2006, among many others). Object shift is discussed in Chapter 5.

(35) a. I droftede [den] slet ikke
    you discussed it at.all not
    ‘You didn’t discuss it at all.’

b. I har slet ikke droftet [den],
    you have at.all not discussed it
    ‘You haven’t discussed it at all.’

Finally, inherently negated objects are linearized in the position of the sentential negation, i.e. to the left of the Verbal Field. In V\_base-structures, inherently negated objects occur to the left of the finite verb (see the discussion in Chapter 4, Section 5.1.2).

(36) […] så sig, at du [ingenenting] har set,
    then say that you nothing have seen
    ‘[…] then say that you haven’t seen anything.’

The right-hand side of the Verbal Field is the field for internal complements and adjuncts. The order of the internal complements of the verb is determined by their syntactic function in accordance with the hierarchy of grammatical functions shown below. The hierarchy will be further discussed and motivated in Chapter 4. Note that manner adverbs are treated as complements following the suggestion in McConnell-Ginet 1982.

(37) IO >> DO >> Manner Adverbs/PART >> OBL

Adjectives occur to the right of the internal complements. But some adjectives can occur interspersed with oblique complements. The exact conditions for this are not clear. For instance in (38) the temporal adjunct i to timer (‘for two hours’) is linearized before the prepositional object på bussen (‘for the bus’).

(38) fordi jeg måtte vente [i to timer] på bussen
    because I had to wait for two hours for bus.DEF
    ‘because I had to wait two hours for the bus’

3.3.4. Extensions to the model

The topological model as presented cannot accommodate coordinating conjunctions as in (39a), or dislocated constituents as in (39b). It has to be augmented with corresponding “external” positions.

(39) a. [Og her fremgik det klart], at vi gør en masse på turismområdet, […]43
    and here appears it clearly that we do a lot in tourism.area.DEF
    ‘And here we can see that we do a lot for the tourism but that we don’t do enough at all […]’

b. Om det bliver i min levetid, [det ved jeg ikke].44
    if it is in my life.time that know I not
    ‘If it is going to be in my life time, I do not know.’

In (39a) the bracketed portion is a V\_front-clause with a topicalized adverbial her (‘here’). The coordinating conjunction og (‘and’) is in a separate field preceding the clause (see also Hohle 1986, p. 329–330 for German). Also in (39b) the bracketed portion is a V\_front-clause with a topicalized pronominal object det (‘it’). The left-dislocated clause om det bliver i min levetid (‘if it will be in my lifetime’) is in a field for (left-)dislocated constituents (see also Hohle 1986, p. 330 for German). For ease of exposition we will ignore these additional fields.

Example (39a) repeated below as (40) also illustrates that the topological model needs a field for extraposed constituents.

(40) Og her fremgik [det] klart, [at vi gør en masse på turismområdet],
    and here appears it clearly that we do a lot in tourism.area.DEF
    ‘And here we can see that we do a lot for the tourism.’

The pronominal subject det (‘it’) in (40) is a quasi-argument representing the extraposed clause at vi gør en masse på turismområdet (‘that we are doing a lot for tourism’). Subject clauses are highly degraded in the canonical subject-position within the Sentence Field.45 Instead they are

42KorpusDK.
43KorpusDK.
44KorpusDK.
45It appears that only Free Relative clauses as subjects can appear in the canonical subject position, but authentic examples are rare.
either in the Prefield or extraposed. Contrary to the German clause, the Danish clause does not have a bracket structure (Satzklammer) where the Verbal Field uniquely determines the end of the Sentence Field and the beginning of the extraposition (the Nachfeld). In Danish, extraposition must be determined relative to the ordering of adjuncts and more oblique complements of the verb. This is illustrated in example (41) and (42). In (41), the nominal object holdninger (‘stances’) is to the left of the verbal particle ud (‘out’). In (42) the clausal object follows the particle ud (‘out’). Such minimal pairs show that NP-objects and clausal objects linearize differently, i.e. that subcategorized clauses are extraposed.

(41) […] så må partiet melde [holdninger] [ud], […]

then must party.DEF make stances clear

‘[…] then the party must make its stances clear, […]’

(42) Den danske regering bor snart melde [ud], [at den stotter de amerikanske plans].

‘The Danish government must soon make clear that it supports the American plans.’

The examples in (43a) and (43b) illustrate the linearization of NP-subjects and clausal subjects.

(43) a. […] at [resultate] er utilfredsstillende, […]

that result.DEF is unsatisfactory

‘[…] that the result is unsatisfactory, […]’

b. […] at [det] er utilfredsstillende, [at vi ikke har været i stand til det],

that it is unsatisfactory that we not have been able to that

‘[…] that it is unsatisfactory that we have not been able to do that.’

---

In (43a) the subject resultatet (‘the result’) is in the canonical subject position preceding the finite verb of a V_{can}. In (43b) the clausal subject is extraposed and the pronoun det (‘it’) is in the subject position preceding the finite verb (We will return to the problem of delimiting extraposition in Chapter 7). The topological analysis of (43a) and (43b) is given in the figure below:

<table>
<thead>
<tr>
<th>Prefield</th>
<th>T/C</th>
<th>Sentence Field</th>
<th>Extraposition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Verbal Field</td>
<td></td>
</tr>
<tr>
<td>at</td>
<td>‘that’</td>
<td>er</td>
<td>utilfredsstillende</td>
</tr>
<tr>
<td></td>
<td>‘(that)’</td>
<td>‘(it)’</td>
<td>‘(unsatisfactory)’</td>
</tr>
<tr>
<td>at ikke</td>
<td>‘that we have not …’</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

3.4. Inadequacies of the topological model

For certain constructions the topological model does not provide an adequate framework for their description. One such construction is embedded V2 mentioned in Section 3.3.3.1. Other constructions are VP-topicalization, coordination and Right-Node Raising.

Embedded V2 in Danish (usually) requires the presence of a complementizer. An example is (44), parts of which were already provided as example (4b):

(44) Efter den sidste fest fortalte en ældre mand, [at tidligere kunne han ikke lide after the last party told an elderly man that previously did he not like udlandinge], […]

foreigners

‘After the latest party an elderly man told me that he used not to like foreigners.’

This structure is very difficult to accommodate in the topological model: If the complementizer is in T/C, the rest of the clause has to go into a single field. The only possibility is to put it in the Extraposition field. But it is not obvious why an embedded V_{can}, clause preceded by a complementizer should be regarded as extraposed while an embedded V_{can}, clause preceded by a complementizer is not, as illustrated in the second row in the table below.

<table>
<thead>
<tr>
<th>Pref.</th>
<th>T/C</th>
<th>Sentence Field</th>
<th>Extraposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>at</td>
<td>‘that’</td>
<td>han tidligere ikke</td>
<td>tidligere kunne han …</td>
</tr>
<tr>
<td></td>
<td>‘(that)’</td>
<td>‘(he previously not)’</td>
<td>‘(previously could he …)’</td>
</tr>
<tr>
<td>at</td>
<td>‘that’</td>
<td>kunne lide</td>
<td>udlandinge</td>
</tr>
<tr>
<td></td>
<td>‘(that)’</td>
<td>‘(could like)’</td>
<td>‘(foreigners)’</td>
</tr>
</tbody>
</table>

An alternative analysis could be to say that the matrix construction en mand fortalte at … (a man told that …) is attributed secondary status. The main assertion is actually the embedded

\[\text{KorpusDK.}\]

\[\text{KorpusDK.}\]

\[\text{KorpusDK.}\]

\[\text{KorpusDK.}\]
3.4. Inadequacies of the topological model

clause since it exhibits V2 (this is in line with the analysis of embedded V2 in German in Freywald 2008, p. 259). If the embedded clause is the primary clause, the matrix construction would have to be in a slot for left-dislocated constituents, as shown in the figure below.

<table>
<thead>
<tr>
<th>Left-disloc.</th>
<th>Prefield</th>
<th>T/C</th>
<th>Sentence Field</th>
</tr>
</thead>
</table>
| en mand fortalte at ('a man told that') | tidligere ('previously') | kunne ('could') | han ikke ('he not') | lide ('like') |...

The problem is that *en mand fortalte at* ('a man told that') does not form a constituent (it is not even saturated since the clause that is supposed to follow the complementizer is missing). In addition, the pragmatic function of the left-dislocated constituents is often claimed to be introduction of a new topic (e.g. Lambrecht 2000 and Wöllstein 2010, p. 55). This is not the case in (44). On the contrary, the matrix construction is generally claimed to be secondary information (Freywald 2008, p. 259) for German.

As a third possibility the complementizer *at* ('that') can be treated as the German subordinator *denn* ('because') which introduces a V2-clause. Höhle (1986) and Wöllstein (2010) suggest that *denn* ('because') is of the category PARORD, that is, syntactically it is a coordinator. This is illustrated below.

<table>
<thead>
<tr>
<th>Pf</th>
<th>T/C</th>
<th>S-field</th>
<th>PARORD</th>
<th>Pf</th>
<th>T/C</th>
<th>S-field</th>
</tr>
</thead>
<tbody>
<tr>
<td>manden ('the man')</td>
<td>fortalte ('told')</td>
<td>at ('that')</td>
<td>tidligere ('previously')</td>
<td>kunne ('could')</td>
<td>han ikke ...</td>
<td></td>
</tr>
</tbody>
</table>

The problem is that the first part of the topological model is incomplete since the clausal object of *fortalte* ('told') is missing. We would need a theory of when a model can be incomplete and when it cannot. Also this analysis means that we do not have one model for the sentence, but rather one model that can be iterated without introducing a root symbol. Hansen and Heltoft (2011, p. 1589) account for embedded V2 by assuming two T/C-fields (Modal fields in their terminology), but this analysis raises some additional questions. For example it has to be stated when the second T/C-field can be filled and when it cannot. The complementizer *gid* ('wish') does not allow embedded V2, i.e. the second T/C-field cannot be filled as shown in (45):

(45) * [T/C Gid] det [T/C var] ikke sådan!
  wish it was not so
  'I wish it was not like that!'  

A further problem with the topological model is that it has very rudimentary notion of constituency and certain constructions are sensitive to a constituency structure not embodied in the model. VP-topicalization is a case in point. Consider the example in (46).

  'Brooding on their gold, they also

'sit on their gold to protect it, they also do.'

In (46) a whole VP consisting of the verb *ruger* ('to broode') and its locative complement has been topicalized, leaving the T/C-field to be filled by the dummy-verb *gor* ('to do'). However, the topIALIZED VP is not constituent from the point of view of the topological model: a verb and its locative complement do not occupy one slot in the model. In this sense the model does not allow for a straightforward account of VP-topicalization. In order to account for such examples we would need more internal structure in the model. It is not immediately obvious how this should be done.

Coordinations of clauses and coordinations of VPs are also difficult to represent in the topological model. Cf. the following example.

(47) [Peter har vasket] op og [jeg har støvsuget].
  Peter has washed up and I have vacuum cleaned
  'Peter has done the dishes and I have vacuum cleaned.'

If the example in (47) is represented in the topological model with the second conjunct is in the extraposition of the first clause we are faced with two problems (the sign # indicates that we do not adopt or recommend this solution).

<table>
<thead>
<tr>
<th>#</th>
<th>Prefield</th>
<th>T/C</th>
<th>Sentence Field</th>
<th>Extraposition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Verbal Field</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peter</td>
<td>har</td>
<td>vasket</td>
<td>op</td>
<td>og jeg har støvsuget</td>
</tr>
<tr>
<td>Peter</td>
<td>('has')</td>
<td>('washed')</td>
<td>('up')</td>
<td>('and I have vacuum cleaned')</td>
</tr>
</tbody>
</table>

The first problem is that this analysis seems to suggest that the second conjunct is somehow subordinate to the first conjunct. This is not the case. The two clauses are co-ordinated and the second conjunct is not syntactically dependent on the first conjunct. The second problem is that there are no indications that the second conjunct is indeed extraposed (Cf. the discussion in Section 3.3.4 above). The same objections apply to the example in (48) where the second conjunct is not a full clause as in (47), but a participial VP. There are no indications that the second conjunct should be in the extraposition (again # indicates that we do not adopt this solution).

(48) Peter har [vasket op] og [støvsuget].
  Peter has washed up and vacuum cleaned
  'Peter has done the dishes and the vacuum cleaning.'

<table>
<thead>
<tr>
<th>#</th>
<th>Prefield</th>
<th>T/C</th>
<th>Sentence Field</th>
<th>Extraposition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Verbal Field</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peter</td>
<td>har</td>
<td>vasket</td>
<td>op</td>
<td>og jeg har støvsuget</td>
</tr>
<tr>
<td>Peter</td>
<td>('has')</td>
<td>('washed')</td>
<td>('up')</td>
<td>('and I have vacuum cleaned')</td>
</tr>
</tbody>
</table>

http://www.fyldepennen.dk/tekster/2193/das-danerne-blev-kristne, [7/7 2011].
Wöllstein (2010) suggests that the topological model can allow more instances of the model to be coordinated, just like the “paratactic subordinators” mentioned above can “tie” topological models together. This would look like this:

```
# Pf T/C S-field COORD Pf T/C S-field
```

Again, this means that we do not have one model for the clause, but rather one model that can be iterated without introducing a root symbol.

The example in (49), finally, illustrates Right-Node-Raising, i.e. the NP `gulvtæppet` (‘the carpet’) is understood as the object of both the verb `støvsuget` (‘vacuum cleaned’) and `vasket` (‘washed’). For this example we have to assume that the verbal field contains the whole coordinated structure. Otherwise the first conjunct would be missing an object.

(49) Peter har støvsuget og vasket `[gulvtæppet]`

‘Peter has vacuum cleaned and washed the carpet.’

Thus this topological framework captures the basic difference between the constituent order in Danish and German, i.e. the verbal field follows the subject and complements of the verb.

3.6. Conclusion

In this chapter we have presented the basic constituent order of Danish and proposed a topological model to serve as a point of reference for discussion of constituent order phenomena in later chapters. The model allows for a straight-forward comparison of Danish and German constituent order, since it posits the same fields for both languages, but with different ordering. Most of the basic phenomena to be discussed in this book have also been introduced: negated quantifier phrases, object-shift, extraposition, *do*-support, preposed negation and subject extraction. Only passive has no particular bearing on the topological model.
5. Object Shift and Negation Shift

In Chapter 4 we saw that Danish has a basic NP-VP structure. We further saw that the VP is head-initial and that complements of the verb occur inside the VP in a fixed order. In this chapter we will discuss cases in which complements of the verb are not linearized to the right of the verb: the so-called object shift and the so-called negation shift. Object shift refers to the phenomenon that an unstressed pronoun in a clause with the main verb in initial or second position precedes sentential adverbs rather than follow them. As mentioned this phenomenon is generally referred to as object shift, but actually this terminology is somewhat misleading. Not only object-pronouns shift. Also pronouns as predicative complements and (subcategorized) locative adverbial pronouns shift. The phenomenon might more appropriately be called non-subject shift. We will, however, stick to the established terminology and refer to the phenomenon as object shift. Object shift has attracted a lot of attention, especially in generative linguistics, while analyses of this phenomenon within HPSG appear to be scarce. In this chapter we will develop an analysis of object shift which crucially relies on the approach to verb-fronting presented in Chapter 4.

The second phenomenon that we look at in this chapter is negation shift: inherently negated indefinite objects are linearized to the left of the VP in accordance with their sentential negative force.

5.1. The Phenomenon

5.1.1. Object Shift: The Order of Weak Pronouns

Object shift refers to the phenomenon that personal, reflexive, or locative pronouns in a non-subject function do not occur in the canonical position inside the VP (to the right of sentential adjuncts), but rather outside the VP to the left of sentential adjuncts (including inherently negated quantifier phrases). The examples in (1) show that a full NP mensene (‘the men’) must occur inside the VP to the right of sentential negation. The examples in (2) show that the un-stressed pronoun dem (‘them’) occurs outside the VP linearly preceding the sentential adverb ikke (‘not’).

   she takes not [men.DEF] seriously
   ‘She doesn’t take the men seriously.’

   she takes men.DEF not seriously

(2) a. Hun tager [mændene] ikke alvorligt.

1The negation in (2a) is ambiguous between sentential negation and constituent negation of the adverb alvorligt (‘seriously’). The preferred reading of the negation in (2a) is sentential negation, though. The negation in (2a) is stressed, while constituent negation is unstressed. Also constituent negation would call for the continuation, but rather ….
5. Object Shift and Negation Shift

5.1. The Phenomenon

(5) a. Hun tager [ikke DEM alvorligt] she takes not them seriously
   ‘She doesn’t take them seriously.’
   b. Hun tager [ikke dem [ikke] alvorligt] she takes them not seriously
   ‘She doesn’t take them seriously.’

Apart from stress, the syntactic complexity of the pronominal constituents plays a role. Only pronominal constituents without any kind of pre- or post-modification shift. Personal pronouns allow pre-modification by focus adverbials as in (6) and post-modification by PPs as in (7) or clauses (relative or appositional). As shown in the examples (6) and (7) such modified pronouns are barred from shifting.

(6) a. Vi frygter dog ikke [kun ham], men hele det danske landshold, we fear however not only him but entire the Danish team
   ‘We are not just afraid of him, but of the entire Danish team,’
   b. * Vi frygter [kun ham] dog ikke, men hele det danske landshold, we fear only him however not but entire the Danish team
   (7) a. Vi hader ikke [dem fra Jugoslavien], vi taler bare ikke med dem7 we hate not those from Yugoslavia we speak just not with them
   ‘We don’t hate the ones from Yugoslavia, we just do not speak with them.’
   b. * Vi hader [dem fra Jugoslavien] ikke, we hate those from Yugoslavia not

Reflexive pronouns also allow post-modification with the intensifier -self (‘self’) and first and second person pronouns allow premodification by adjectives. In those cases the pronouns do not shift either as the examples in (8b) and (9b) show:

(8) a. og han satte aldrig [sig selv] i første række6 he put never him self in first place
   ‘and he never put himself in the first place’
   b. * og han satte [sig selv] aldrig i første række he put him self never in first place
(9) a. De hjælper ikke [ lille mig], they help not little me
   ‘They do not help little me.’
   b. * De hjælper [ lille mig] ikke, they help little me not

Possibly these complexity constraints can be made to follow from the requirement that shifted pronouns are unstressed. Modified pronouns and coordinated pronouns tend to be stressed.

KorpusDK.

We will briefly return to this problem in Section 5.2.1.
5. Object Shift and Negation Shift

5.1. The Phenomenon

   I know REFL that starter.DEF cared he not about

Object shift not only applies to thematic objects. As noted in Vikner (2006, p. 415) object shift also applies to raised objects, that is, thematic objects of the matrix verb. In (13) the perception-verb høre (‘to hear’) selects a non-thematic object dem (‘them’) which is interpreted as the subject of the bare infinitive tale (‘to speak’). The pronoun occurs to the left of the negation aldrig (‘never’).

(13) og jeg hørte [dem] ellers aldrig tale om Gud\textsuperscript{12} and I heard them otherwise never speak of God 
   ‘and otherwise I never heard them speak of God’

Also pronouns which are not subcategorized by the verb at all, shift. In the examples in (14) the pronoun mig (‘me’) is an object iudicantis, expressing a judgement on the part of the speaker. As shown in (14b) the pronoun occurs to the left of the sentential adverb faktisk (‘actually’).

(14) a. og frikadellerne var [mig] lidt for bastante – og for kolde\textsuperscript{13} and meat.balls were me little too heavy and too cold 
   ‘and the meat balls were a little too heavy and too cold for my taste’
   b. og frikadellerne var [mig] faktisk lidt for bastante – og for kolde and meat.balls were me actually bit too heavy and too cold 
   ‘and the meat balls were actually a bit too heavy and too cold for my taste’

We assume that mig (‘me’) is subcategorized by the degree adverb for (‘too’) as suggested for German in Wegener 1985a, p. 119 and Müller 2009b, Section 2.2. Thus, example (14) illustrates that not only verbal complements are subject to object shift.

5.1.1. Shift of Locative Pronouns

As mentioned, the term object shift is somewhat misleading since also locative pronouns shift. Shifted pronouns are generally objects, since pronouns can onically have nominal syntactic functions (subject or object). But unstressed locative pronouns functioning as (usually) valency-bound adjuncts shift as well (Haider et al., 1995, p. 20; Vikner, 2006; Josefsson, 1994, p. 117). In example (15) the locative pronoun her (‘here’) is linearized in the “shifted” position to the left of sentential negation.

(15) Obersten er [her] ikke i sjællskabet, sagde en ung soldat i forkontoret\textsuperscript{14} colonel.DEF is here not at moment.DEF said a young soldier in front.office.DEF 
   ‘The colonel is not here at the moment said a young soldier in the front office.’


\textsuperscript{12}KorpusDK.

\textsuperscript{13}KorpusDK.

\textsuperscript{14}KorpusDK.
As Engels and Vikner (2012, p. 18) note, this shows that pronoun shift cannot be connected to the presence of morphological case. Hence case-based explanations of the differences in the Scandinavian languages are empirically not correct. If the locative is not an unstressed pronoun, but a PP or an adverb, it is linearized within the VP.

(16) a. Obersten er (*på tjeneste) ikke (på tjeneste) i øjeblikket.
   colonel.DEF is on duty not on duty at moment.DEF.
   ‘The colonel is not on duty at the moment.’

   b. Obersten er (*tilstede) ikke (tilstede) i øjeblikket.
   colonel.DEF is present not present at moment.DEF.
   ‘The colonel is not present at the moment.’

In (15) the pronoun is a complement of the copular være (‘to be’). In other cases the complement status of the adjunct is less clear, but still there are arguments in favour of treating shifting locative pronouns as valency-bound. One such argument is that verbs differ as to whether they allow shifted locative pronouns. The verbs sove (‘to sleep’) and læse (‘to read’) both allow locative adjuncts, but while sove (‘to sleep’) readily occurs with a shifted locative pronoun as in (17), the verb læse (‘to read’) is marginal with a shifted locative pronoun as shown in (18).

(17) Jeg sover [her] ikke i dag.
   I sleep here not PREP day
   ‘I don’t sleep here today.’

(18) a. Jeg læser ikke [på biblioteket] i dag
   I read not in library.DEF PREP day
   ‘I don’t read in the library today.’

   b. * Jeg læser [her] ikke i dag
   I read here not PREP day
   ‘I don’t read here today.’

Recall that the pronoun in (14) was also shown to be subcategorized, albeit not by the verb, but by the degree adverb for (‘too’). Verbs occurring with shifted locative pronouns are arbejde (‘to work’) – in the sense: ‘to be employed’, blive (‘to remain’), bo (‘to live’), and være (‘to be’). All of them can be argued to select an obligatory adverbial. Actually the verb læse (‘to read’) does allow a shifting locative pronoun, but on the specific reading of being enrolled at an educational institution.

(19) a. Han sover (her) ikke (*her).
   he sleeps here not here
   ‘He doesn’t sleep here.’

   b. Han har (i Århus) ikke noget sted at bo (i Århus)
   he has in Århus not any place to live in Århus
   ‘He has nowhere to live in Århus.’

A second difference between object shift and left-adjunction is that object shift is possible in contexts where left-adjunction is impossible. Left-adjunction of a locative is only possible if the VP contains other (focussed) material. If the VP is “empty”, left-adjunction is impossible. In example (20a) the locative i restauranten (‘in the restaurant’) can left-adjoint to the VP, which contains a focal object. Left-adjunction is not possible in (20b) since the VP contains no focal material (see also the discussion in Section 4.1.3).

(20) a. Han havde [i restauranten] spist to store portioner pommes-friter.
   he had in restaurant.DEF eaten two huge portions French.fries
   ‘He had eaten two huge portions of French fries in the restaurant

   b. * Han havde [i restauranten] spist.
   he had in restaurant.DEF eaten
   ‘He had eaten in the restaurant

An unstressed locative pronoun is required to shift, also in the environment of an “empty” VP as the example in (21) shows.

(21) Han bor (her) ikke (*her).
   he lives here not here
   ‘He doesn’t live here.’

Since left-adjunction of a locative is subject to different constraints than object shift, we have indication that we are dealing with two different linearization processes with object shift applying to complements and left-adjunction to adjuncts. The locative pronouns under discussion clearly shift, rather than left-adjoint and so they must be treated as complements.

Only locatives such as her (‘here’) and der (‘there’) are subject to object shift. Temporal adjuncts such as the adverb da (‘then’) are barred from shifting. The example in (22b) is only possible on a reading of da (‘then’) as modal particle, not as a temporal adjunct.
(22) a. Han sov i hvert fald ikke [klokken 8]
  he slept in any case not clock.DEF 8
  ‘He didn’t sleep at 8 o’clock in any case.’
b. Han sov [da] i hvert fald ikke
  he slept then in any case not
  ‘He didn’t sleep then in any case.’

This observation suggests that locative adjuncts are more likely to be valency-bound than temporal adjuncts. Zifonun, Hoffmann and Strecker (1997, p. 1536) argue that locatives tend to belong to the foregrounded information and Pittner (1999, p. 77) notes that verbs subcategorizing locatives are far more frequent than verbs subcategorizing temporals. This may serve as indication that locatives are more closely tied to the verb than temporals and thus that some locatives can be treated as complements. We will consider valency-bound locatives oblique complements.

5.1. The Phenomenon

5.1.1. Multiple Shifted Pronouns

Finally, several pronouns can shift simultaneously. In the ditransitive construction in (25a) two unshifted pronouns, *dem* (‘them’) and *det* (‘it’) have shifted to the left of the sentential negation. In (25b) both a pronominal object and a pronominal adverb have shifted.

   he told them it not
   ‘He didn’t tell it to them.’

b. Jeg lagde [den] [der] ikke selv.
   I put it there not myself
   ‘I didn’t put it there myself.’

In principle even three pronouns can shift in one clause. In (26a) two objects of the ditransitive verb *fortælle* (‘to tell’) and a locative pronoun have shifted. (25b) shows a variant of this sentence without shifted objects and with a locative PP.

(26) a. ?? Han fortalte *hende* [det] [der] ikke.
   he told her it there not
   ‘He didn’t tell it to her there.’

b. Vi ventedig ikke selv sandheden ved familiefesten.
   we not told his mother truth.DEF at family.party.DEF
   ‘He did not tell his mother the truth at the family party.’

However, examples with three shifted pronouns seem marginal. Presumably there is a phonological reason for the marginality of clauses such as (26a). The clause has four unstressed syllables in a row as indicated in the example, thus we have a prosodic unit with four unstressed syllables.

Note that the sequence of three shifted pronouns obeys the complement ordering IO > DO > Oblique as detailed in Chapter 4. This is also noted for Swedish in Sells 2001.
(27) a. Han [fortalte] [dem] ikke sandheden.  
   he told them not truth.DEF  
   'He didn’t tell them the truth.'

   he told not them truth.DEF

Similarly, the examples in (28) contain a fronted, imperative verb and the pronoun must shift (28b):

(28) a.  [Fortæl] [dem] ikke sandheden!  
   tell.IMP them not truth.DEF  
   'Don’t tell them the truth.'

   b. * [Fortæl] ikke [dem] sandheden!  
   tell.IMP not them truth.DEF

The pronoun can never shift in a clause with the finite verb in its base position within the VP. Thus object shift hardly ever occurs in an embedded clause (as noted above it is only possible in embedded V2). The example (29) illustrates.

(29) a. at han ikke [fortalte] [dem] sandheden  
   that he not told them truth.DEF  
   'that he didn’t tell them the truth'

   b. * at han [dem] ikke [fortalte] sandheden  
   that he them not told truth.DEF  
   'that he didn’t tell them the truth'

5.1.1.4.2. Complex Tenses, Passive, Acl, Object Shift, and Partial VP-Fronting

In complex tenses the VP-initial embedded verb blocks object shift. For example, in (30) the participle fortalt (‘told’) is initial in the VP and therefore the object cannot be serialized to the left of the negation as (30b) demonstrates:

(30) a. Han har ikke [fortalt] [dem] sandheden.  
   he has not told them truth.DEF  
   ‘He hasn’t told them the truth.’

   he has them not told truth.DEF

Object shift can only occur in a clause with a complex tense, if the non-finite verb is topicalized. Again the pronoun would be initial in the VP. Note that this is an example of partial VP-topicalization which was claimed not to be possible in Danish in Section 4.1.1.2. Thus, the correct generalization appears to be that partial VP-topicalization is only possible if there is no overt material in the VP as in the example in (31a) from Vikner (2006, p. 407) and in the corpus example in (31b).

   kissed have I her not only held her hand  
   'I have not kissed her. I only held her hand.'

   b. men helt [udelukke] kan man [det] da ikke eller hvad14  
   but wholly exclude can you it then not or what  
   'but you cannot wholly exclude it, can you?'

In addition to the examples with past participles that are discussed in the literature sentences with passive participles are marginally possible:

   Jens is not recommended book.DEF  
   'The book is not recommended to Bjarne.'

   b. ?? Anbefalet bliver Jens den ikke.  
   recommended is Jens it not  
   'It is not recommended to Jens.'

As discussed in Holmberg 1999a, Section 3, partial VP topicalization is highly restricted. According to him (p. 12) it is only possible for a participle with an NP object which is a semantic argument of the verb. However, our attested example in (31b) shows that infinitives that depend on AcI verbs (33a) and ungrammatical when the non-finite verb itself selects a VP that is not fronted together with the non-finite verb as shown for the perception verb set (‘to see’) in the example (33c), selecting a (non-thematic) object and a bare infinitive.

(33) a. ?* Læse så Jens ham den ikke.  
   read saw Jens him it not  
   'Jens did not see him red it.'

   b. * Han har [fortalte] [dem] sandheden.  
   he told them truth.DEF  
   'Jens didn't see him read it.'

   c. Har jeg ikke set hende ryge?  
   have I not seen her smoke  
   'Have I not seen her smoke?'

As Sten Vikner pointed out to Holmberg (1999b, p. 11) in personal communication, a theory that assumes that object shift involving objects of non-finite verbs requires the bare verb to be moved out of the way predicts that (33b) would be grammatical. (33b) would be the result of fronting set in (34):

(34) Har jeg ikke set hende ryge?  
   have I not seen her smoke  
   'Have I not seen her smoke?'

It is possible to front the AcI verb together with the raised object and the depenend verb as in (35a) and interestingly it is also marginally possible to front the non-finite AcI verb together with its verbal complement as in (35b):

14Holmberg (1999a, p. 7) provides a parallel example from Swedish which he attributes to Tarald Taraldsen.
15http://hope.poumblog.dk/svaert-at-vide-.html, [26/3 2012].

Draft of Friday 12th October, 2012, 11:39
5. Object Shift and Negation Shift

5.1. The Phenomenon

Occasionally we do find a kind of object shift, where an unstressed pronoun is linearized to the left of a non-finite verb. Lødrup (1996, p. 84) observes that an unstressed reflexive can intervene between the verb få and a perfect participle as in example (39) below.

(39) Og for hun lık [sig] tænk ordentligt om, havde hun søgt og fået det\(^{17}\) and before she got REFL thought carefully PART had she applied and got it ‘and before she had thought carefully about it, she had applied and gotten it’

Lødrup analyses the combination of få (‘to get’) and the past participle as a complex predicate and considers the placement of the reflexive an instance of clitic climbing. However, this kind of clitic climbing appears only to be possible with the verb få (‘to get’) and not with bona-fide auxiliaries as shown for the auxiliary have (‘to have’) below:

(40) ?* Han har [sig] vænnet til det. he has REFL adjusted to it ‘He has grown accustomed to it.’

We do not consider the preposing of the pronoun sig (‘him-/herself’) in (39) an instance of object shift, since the possibility of preposing sig (‘him-/herself’) is lexically restricted to the verb få in combination with a past participle.

In imperative clauses we do find examples of complex tenses where the pronoun appears to have shifted even without fronting the non-finite verb. For instance, in (41) the object pronoun det (‘it’) appears to the left of the main verb læst (‘read.PASTPART’).

(41) Hav [det] læst til i morgen! have it read until tomorrow ‘Make sure you have read it until tomorrow.’

This apparent counter-example to the generalization that only VP-initial pronouns shift rests on the assumption that example (41) does indeed contain a complex verb form. An alternative analysis is that the past participle is a post-modifying resultative participle as also argued for English in Akmajian 1984, p. 11–12. Support for this analysis comes from examples where have (‘to have’) + det (‘it’) + past participle is embedded under a modal verb as below.

(42) men jeg [måtte] have [det] læst\(^{18}\) but I must have it read ‘But I had to read it.’

Modal verbs with infinitival complements in the perfect tense invite an epistemic reading as in example (43), even though this is only a tendency (Öhlschläger, 1989, p. 245).

(43) Han [må] have last\(^{19}\) den. he must have read it ‘It must be the case, that he has read it.’

\(^{17}\)KorpusDK. \(^{18}\)KorpusDK.
The example in (42) only has a deontic reading. This is expected, if *have* (‘to have’) in example (42) is no tense auxiliary, but a main verb with a direct object and a post-modifying participle.

Moreover this construction is also observed with full NP objects as in (44). Since only bare pronouns shift, example (44) can not be object shift.

(44) Hav [alt dit hjemmearbejde] lavet.\footnote{KorpusDK.} have all your home.work done ‘Be sure do have done all your home work.’

For these reasons we assume that (41) is not an instance of object shift in a clause with a complex tense.

Thus, object shift in the presence of a non-finite verb is only possible with a topicalized, transitive past participle selected by the auxiliary *have* (‘to have’) and marginally possible with a passive participle of a ditransitive verb.

### 5.1.2. Negation Shift: The order of negated quantifier phrases

A basic principle in the preceding discussion has been that complements are within the VP, while adjuncts adjoin to the VP (roughly). Manner adjuncts have been shown to defy this strict separation, since they exhibit both complement and adjunct behaviour (see Footnote \ref{footnote:adjuncts}). Another case in point are inherently negated quantificational phrases. These are phrases headed by the nouns *ingen* (‘noone’/’nothing’) or *ingenting* (’nothing’) or containing the negative determiner *ingen* (’no’). Such phrases are at the same time proposition-related adjuncts (sentential negation) and internal complements (Christensen, 2005, p. 75). They are thus subject to conflicting requirements: as internal complements they should be inside the VP, as negated elements with sentential scope they should be outside the VP since a sentential operator precedes its operand. In Danish, Inherently Negated Quantifier Phrases (IQPs) are linearized as adjuncts outside the VP.

**Erteschk-Shir (2005, p. 62, fn. 18) claims that the example s such as (46b) are ungrammatical in Danish.** We haven’t found real examples of direct objects with shifted direct objects and they do appear to be degraded, but not completely impossible.

### 5.1.4.4. Object Shift out of PPs

We already discussed the example (24a) that shows that a pronoun cannot be shifted out of a PP argument. As Holmberg (1999a, p. 2) points out, this also follows from Holmberg’s Generalization: Since only VP-initial pronouns may shift and since there is no way to get the preposition out of the way, shifting is blocked.

The generalization that object shift only occurs when the pronoun is initial in the VP is challenged by examples with shifted locatives, where shifting across a direct object in the VP is not as strictly ruled out as with object pronouns:

(47) a. Grækerne anbragte siden et tempel på den her klippe Greeks.DEF placed later a temple on this here rock ‘Later the Greeks placed a temple on this rock.’

b. Grækerne anbragte her siden et tempel Greeks.DEF placed here later a temple ‘Later the Greeks placed a temple here.’

Grammaticality judgements are subtle and in the lack of authentic examples we will assume, that Holmberg’s Generalization holds, even though some violations of this generalization appear to be more easily tolerated than others.

### 5.1.2. Negation Shift: The order of negated quantifier phrases

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\textsuperscript{19}KorpusDK.

\textsuperscript{20}In Swedish a bare NP can also be preceded by a particle, so object shift is also blocked by particles in Swedish (Holmberg, 1999a, p. 2). Vikner (2006, p. 398) gives the following examples:

(i) a. Peter kastade [bort] [den] Peter threw not away it ‘Peter did not throw it away.’

b. * Peter kastade [den] inte [bort] Peter threw it not away

\textsuperscript{21}The example in (45b) is only possible on a reading where the shifted pronoun is the receiver-argument and the library is the theme-argument.
5. Object Shift and Negation Shift

Negation shift refers to objects which are linearized outside the VP and it is difficult to determine whether inherently negated subject NPs are in the canonical subject position or also adjoined to the VP as negations. A disambiguating environment would be the presence of another sentential adjunct, such as tilsyneladende (‘apparently’). An IQP in subject position would precede this adjunct, while an adjoined subject IQP would follow it. As the examples in (48a) and (48b) show, both orders are possible. So the position relative to sentential adverbs suggests that an inherently negated subject can both be in subject position and adjoined to VP.

(48) a. Mærkeligt også at [tilsyneladende] ingen interesserer sig for hvad der weird also that apparently noone cares REF'L about what there er blevet af nødhjælpsforsyningerne. has become of emergency.supplies.DEF 'Weird also that noone seems to care about what has happened to the emergency supplies.' (http://www.kristeligt-dagblad.dk/laeserdebat/traad/8471, [27/9 2011].)

b. Jeg under mig over, at [ingen] [tilsyneladende] har set fordelen ved I wonder REF'L about that noone apparently has seen advantage.DEF in en lille bil a small car 'I find it strange that noone seems to see the advantage in a small car.' (http://www.ezz.dk/868271-renault-twingo-erfaringer, [27/9 2011].)

Unnegated subjects cannot occur after sentential adverbs.

(49) * Mærkeligt også at [tilsyneladende] regeringen interesserer sig for [...] weird also that apparently government.DEF cares REF'L about ‘Weird also that the government apparently cares about [...]’

Alternatively, the sentential adjunct could adjoin to the subject NP as in the example below. We haven’t found authentic examples of this, however.

(50) ? [Tilsyneladende ingen] har set noget apparently noone has seen anything ‘Apparently noone has seen anything.’

We will assume that inherently negated subject-NPs can linearize both in subject position and adjoined to the VP, but we will ignore subject NPs here and concentrate on inherently negated complements. We will refer to the phenomenon where an IQP is linearized in the position of the negation and not in complement position, as neg shift.22 Neg-shift is observed in both V_{from}+-clauses and in V_{base}+-clauses, but it is reported to be more frequent in V_{base}+-clauses in Christensen 2005, Section 2.2.4.

If the negation and the quantificational element are split, the internal complement is within the VP, while the negation adjoins to VP as expected. The split variant is always possible and the only option, if neg-shift is blocked. Engels (2011, p. 137) notes that neg-shift across a verb is ungrammatical in colloquial speech, thus in colloquial speech the split-variant is the only option.

(51) Det skal [ikke] være [nogen hemmelighed], [...]23 it shall not be any secret ‘It shall be no secret [...]’

(52) Han har [ikke] haft [noget program], endsige politisk vilje til at he has not had any programme lest political determination PREP to gennemføre radikale reformer.24 make radical reforms ‘He has not had any programme, lest political determination to carry through radical reforms.’

5.1. Neg Shift out of PPs

Neg-shift is restricted to IQPs as bare objects, as (53a) demonstrates. Prepositional objects do not allow neg-shift, not even when the preposition is stranded as in (53b).25

(53) a. * fordi regeringen [imod ingen fare], advarede -,- because government.DEF against no danger warned ‘Because the government didn’t warn against any danger,’

Also IQP in-situ is possible with (contrastive) emphasis on the IQP.

(i) Og institutionen – de har fået [ingenenting] for deres penge and institution.DEF they have had nothing for their money ‘And the institution – they have had nothing for their money.’

(http://www.din-debat.dk/forum/viewtopic.php?f=32&t=13929, [19/8 2011])

22IQPs can occur in complement position, but the exact conditions are not entirely clear. IQP in-situ is observed in conjunction with secondary resultative predicates such as tilbage (‘back’) and retur (‘in return’).

(i) Jeg har nu for over en måned siden sendt penge, [...] og har fået [ingenenting] [retur]. I have now for over one month ago sent money and have had nothing in return ‘I have sent the money more than a month ago [...] but I have had nothing in return.’

(http://www.hardwareonline.dk/traad.aspx?id=568259&fid=11, [19/8 2011])

23KorpusDK.

24KorpusDK.

25Christensen (2005, p. 64-65) gives the following examples though.

(i) a. Han kunne [ingen], snakke med -,- he could noone talk to ‘He couldn’t talk to anyone.’

b. Det kan [af ingen arkivalier], bevises -,- it can by no files prove.INF.PASS ‘It cannot be proven by any files.’

We consider the example in (i.a) marginal and would give it two questions marks, while the example in (i.b) is more acceptable. The reason could be that af ingen arkivalier (‘by no files’) is an adjunct and most adjuncts can left-adjoint to the VP as discussed in Section 4.1.3.
5. Object Shift and Negation Shift

5.1. The Phenomenon

b. * fordi regeringen [ingen fare], advarede imod... because government.DEF no danger warned against ‘Because the government didn’t warn against any danger.’

This also applies to object shift as was discussed in Section 5.1.1.4.4. However, there is a difference between object shift and neg shift: Object shift is blocked by intervening elements like finite and non-finite verbs and hence the impossibility to shift elements out of a PP can be explained by referring to Holmberg’s Generalization. This is different with neg shift since neg shift can cross verbs, so here the evidence seems to speak for an analysis that does not analyze neg shift parallel to extraction of elements into the prefield.

5.1.2.2. Neg Shift in Double Object Constructions

Neg-shift in double object constructions is very subtle. We have to consider two situations: either the indirect object is an IQP, or the DO is an IQP. IQPs as indirect objects do not undergo Neg-shift as shown in example (54a) and (54b). Thus an existentially quantified indirect object can only be under the scope of negation in the split variant as in example (54c). There is one exception though: if the existentially quantified indirect object is immediately adjacent to sentential negation for independent reasons, it also allows the IQP, as shown in example (54d). This only occurs in V-front-clauses with a simplex verb.

(54) a. * De vil [ingen mennesker], give... en chance til they will no people give a chance more Intended: ‘They will give noone a second chance.’

b. * fordi de [ingen mennesker], giver... en chance til because they no people give a chance more ‘because they give noone a second chance’

c. De giver [ikke] [ingen mennesker] en chance til they give not any people a chance more ‘They don’t give anyone a second chance.’

d. De giver [ingen mennesker] en chance til they give no people a chance more ‘They give noone a second chance.’

If the DO of a double-object construction is an IQP, it can undergo neg-Shift under two circumstances: It can undergo neg-shift if it crosses an overt verb as in (55).

(55) a. * Jeg har [ingen penge], [lån]... min bror... I have no money lend my brother ‘I have not lend my brother any money.’

b. * fordi jeg [ingen penge], [lån]... min bror... because I no money lend my brother ‘because I am not lending my brother any money’

If neither of these two conditions is met, an IQP as a DO cannot undergo neg-Shift as shown in (57).

(57) * Jeg låner [ingen penge]... [min bror]... I lend no money my brother ‘I am not lending my brother any money.’

A neg-shifted complement cannot contain any post-nominal modifiers (Christensen, 2005, p. 91). The shifted constituent must be syntactically light. Neg-shifting strands post-nominal modifiers in the canonical position of the complement. Interestingly stranding of post-nominal modifiers is generally not possible outside neg-shifting contexts. In (58a) the object ingen indflydelse (‘no influence’) has shifted leaving the PP-modifier på de beslutninger (‘on those decisions’) within the VP. Example (58b) shows that the PP cannot shift along with the object and example (58c) shows, that post-nominal PPs cannot be stranded outside neg-shift, e.g. if the head-noun is topicalized.

(58) a. fordi vi så slet [ingen indflydelse], ville få _ -i [på de beslutninger], because we then at all no influence would have on these decisions
   'because we wouldn’t have any influence on the decisions,’

b. * fordi vi så slet [ingen indflydelse på de beslutninger], ville få _ -i, because we then at all no influence on these decisions would have
   'because we wouldn’t have any influence on the decisions’

c. ?? [Nogen indflydelse], ville vi ikke få _ -i på de beslutninger
   any influence would we not have on these decisions
   'We wouldn’t get any influence on the decisions.’

Adverbials (NPs or PPs) containing IQPs also occur to the left of the VP. This is of course expected since this position is open to all adjuncts. However, inherently negated adverbials must occur to the left of the VP, even though they are temporal adjuncts as in (59a) or locational adjuncts as in (60a). Temporal and locational adjuncts preferably occur to the right of the VP (see Section 4.1.3). Again the negative force of the IQP prevails.

(59) a. De var [på intet tidspunkt] i livsfare,29 they were at no time in danger
   ‘they weren’t in danger at any time.’

b. * De var i livsfare [på intet tidspunkt].
   they were in danger in no time
   ‘they weren’t in danger at any time.’

(60) a. Da den begyndte, stod [ingen steder] skrevet, at magten ville
   when it began stood no place written that power.DEF would
tilfaldesocialisterne.DEF
   ‘When it began it didn’t say anywhere that the power would go to the socialists.’

b. * Da den begyndte, stod skrevet [ingen steder], . . .
   when it began stood written no place
   ‘When it began it didn’t say anywhere, . . .’

5.1.2.3. Raising and Control

The negated object may shift over several verbs, provided they are raising verbs, that is, verbs that do not assign a semantic role to the arguments that are raised. The examples in (61a,c) are raising verbs and those in (61d,e) are control verbs. The control verbs assign a semantic role to one of their arguments that is coreferential with the subject of the embedded verb. As the examples (61d,e) show, neg shift over such controlled verbs is not grammatical.31

5.1. The Phenomenon

(61) a. fordi han ingenting plejer at sige
   because he nothing uses.to to say

b. fordi han intet syntes at have lavet
   because he nothing seems to have done

c. fordi vi ingenting må lave selv
   because we nothing are.allowed.to make ourselves

d. * fordi han intet overtalte ham til at lave
   because he nothing persuaded him PREP to do

e. * fordi han ingenting lover at lave
   because he nothing promises to do

The case of (61e) may be controversial since one could assume that må assigns a semantic role to the one that is not allowed to do anything. We assume that this follows from general inferences and is not due to the assignment of a semantic role by the verb. Evidence for such a treatment comes from examples like (62) in which a weather verb is embedded under a sentence.

(62) a. Da det var regn et hjørne
   when it was rainy a corner
   ‘It was raining over a corner’

b. * Da det var regnet på en hjørne.
   when it was rained on a corner
   ‘It was raining over a corner’

c. * Da det var regnet på en hjørne?
   when it was rained on a corner?
   ‘Was it raining over a corner?’

To sum up this section: Inherently negated quantifier objects are linearized as adjuncts but sub-

5.1.3. Parasitic Gaps and Locality

As we have seen in Section 3.3.3.2 the constituent in the prefield can belong to a deeply embed-

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shifted pronouns and argued that they do not license parasitic gaps. Extracted elements like *havde for en bog* (‘which book’) in (64a) licence a second gap in an adjunct as for instance the phrase *uden at læse først* (‘without reading first’) (see Vilker 2006, p. 11 for a discussion of the examples in (64)). In example (64a) the fronted *wh*-constituent *havde for en bog* (‘which book’) is co-indexed with a gap in the object position of the verb *stille* (‘to put’). This gap, in turn, licenses the second gap (the object of *læse* (‘to read’)). If shifted pronouns would leave a trace inside the VP, we should expect them to be able to license parasitic gaps. However, in example (64b) the shifted object *den* (‘this’) is co-indexed with the first gap, and here the second gap (the object of *læse* (‘to read’)) is not licensed.

64. a. [Hvad for en bog], stillede alde _-hom på reolen _-uden at læse _-først?
   which book put all onto bookcase.DEF without to read first
   ‘Which book did everyone put on the shelf without reading first?’
   b. * Alle stillede den, straks _-hom på reolen _-uden at læse _-først.
      all put it immediately onto bookcase.DEF without to read first
      ‘Everyone put it on the shelf without reading it first.’

Similarly the shifting of a negated object does not licence a parasitic gap in the adjunct:

65. Peter har [ingen bog], stillet _-den på reolen _-uden at læse _-først.
   Peter has no book put onto bookcase.DEF without to read first
   ‘Peter did not put any book on the shelf without reading it first.’

This suggests that there is a fundamental difference between object shift and extraction to the prefield. That there is a difference is also confirmed by the fact that negation shift is clause bound as the following example shows:32

66. * fordi han [ingen penge], sagde, at de havde _-d-.
   because he no money said that they had
   ‘because he said that they had no money’

If negation shift would be possible we would expect that the negated object of *havde* can attach to the verb phrase in the matrix clause, that is, that it can appear to the left of *sagde* (‘said’), but as (66) demonstrates this is excluded.

However, IQPs do seem to be allowed to cross sentence-boundaries in the environments where also sentential negation is allowed to cross a sentence boundary while having scope over the embedded clause. The case in point are neg-raising environments with sentences with the verbs *tro* (‘to think’) and *mene* (‘to think’). In the examples in (67) the IQPs appear in the matrix construction and not in their canonical position in the embedded clause.33

5.2. The Analysis

As was explained in Section 1.2.1 and Section 4.2, arguments are represented on a list called ARG-ST. There is a language type-dependent mapping from this list to the valence features SPR and COMPS. The analysis for object shift and negation shift that we want to propose here assumes that shifted elements are mapped to SPR rather than to COMPS. If this difference in mapping is taken together with some constraints on the position of verbs in shifting situations, everything else follows. We start explaining the analysis of object shift with a simple example involving a transitive verb in Section 5.2.1, then turn to double object constructions in Section 5.2.2, explain why shifting out of PPs is excluded in Section 5.2.3, turn to object shift construction in perfect and passive sentences and partial VP fronting in Section 5.2.4, and finally explain how AcI verbs interact with object shift in Section 5.2.5.

5.2.1. Shifting as Mapping to SPR

In Section 4.2 we provided the following constraint for mapping arguments from the ARG-ST list to the valence features:

68. Mapping from ARG-ST to valence features:

   SYNSEMILOCICAT
   SPR [ ]
   COMPS [ ]
   ARG-ST [ ] ⊕ [ ]

   For Danish we assumed that the specifier list contains the subject, that is, [ ] is a list of exactly one element. However, it is not necessary to restrict the length of the list to exactly one. We can assume that the SPR list has at least one element. In addition we allow other complements to be mapped to SPR. The mapping augmented with the language specific constraint looks as follows:

69. Mapping from ARG-ST to valence features with constraint for Danish:

   SYNSEMILOCICAT
   SPR [ ]
   COMPS [ ]
   ARG-ST [ ] ⊕ [ ]

   ∧ [ ] = [ ] ⊕ [ ] list of shifted elements

   If this constraint is applied to the lexical item for *læser* (‘to read’) that was given as (??) on page ?? and is repeated here as (70) one gets (71) in addition to the canonical mapping, in which the subject is mapped to SPR and the object to COMPS.

5. Object Shift and Negation Shift

(70) CAT value for læser ('to read'):
\[
\text{ARG-ST} \{ \text{NP, NP} \}
\]

(71) CAT value for læser ('to read') with both arguments mapped to SPR:
\[
\begin{align*}
\text{SPR} & \oplus \oplus \\
\text{COMPS} & () \\
\text{ARG-ST} & \{ \text{NP} \oplus \oplus (\text{NP}) \\
\end{align*}
\]
\[
\land \oplus = \text{list of shifted elements}
\]

(71) has an empty COMPS list and two elements in the SPR list. The first element in the SPR list is the subject and the second one is the object. The object is further constrained to be a shifted element. We will return to the exact constraints on shifted elements below.

In Section 4.2.6 we suggested the analysis in Figure 5.1 for V2 clauses. The verb læser is mapped into a verb that selects for a saturated verbal projection (an S) that contains a verbal trace (represented as '//V'). The DSL feature that is used to represent information about the missing verb is a head feature and hence the information is percolated through the tree to the verb trace. In the verb trace the DSL value is shared with the LOCAL value of the trace and hence the verb trace has the same LOCAL value as the verb in initial position. In the case of our example this means that the verb trace selects for an NP via COMPS and for another one via SPR. The verb trace forms a VP with its complement. This VP is modified by ikke ('not') and afterwards combined with its subject in a head-specifier-phrase. The subject is a trace and the information about the missing constituent is percolated up to the mother nodes until it is finally bound off by the element in the prefield.

Figure 5.1.: Analysis of the V2 sentence Jens læser ikke bogen.

5.2. The Analysis

The example with a shifted pronoun is parallel. The only difference is that the object is not realized as a complement but as a specifier. The respective analysis is shown in Figure 5.2.

Figure 5.2.: Analysis of the sentence Jens læser det ikke. with object shift with a transitive verb

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5. Object Shift and Negation Shift

5.2. The Analysis

Verb fronting in object shift constructions:
\[
\text{SYNSEMLOCICATI[SPR ne_list \oplus \langle pron \rangle]} \Rightarrow \text{SYNSEMLOCICATIHEADDSL local}
\]

This constraint says: If the SPR list of a linguistic object of type head-specifier-phrase contains at least two elements and the last element is a (shifted) pronominal, then the DSL value of this linguistic object has to be of type local. Since overt verbs have the DSL value none rather than local, the constraint above ensures that the linguistic object contains a verbal trace. This means that the verb is in fronted position.

\[\text{(72) Verb fronting in object shift constructions:} \]
\[\text{SYNSEMLOCICATI[SPR ne_list \oplus \langle pron \rangle]} \Rightarrow \text{SYNSEMLOCICATIHEADDSL local} \]

5.2.2. Double Object Constructions

As was discussed in the data section, ditransitive verbs allow shifting the indirect object or both the indirect object and the direct object. If both objects are shifted their relative order stays the same, that is, the indirect object precedes the direct one. This is directly accounted for by our proposal: For a ditransitive verb we have three possible mappings:

\[\text{(73) a. give with canonical mapping:} \]
\[\text{SPR} \langle \text{NP} \rangle \]
\[\text{COMPS} \langle \text{NP}, \text{NP} \rangle \]
\[\text{RELS} \langle \text{AGENT}, \text{GOAL}, \text{THEME}, \text{give} \rangle \]

\[\text{(74) ?* Han skænkededonated [den] ikke [biblioteket].} \]
\[\text{He didn’t donate it to the library.} \]

The lexical item in (73b) can be used in the analysis of (75a), which is given in Figure 5.4 on the next page. The lexical item in (73c) with the subject and both objects in the SPR list is used in the analysis of (75b), which is given in Figure 5.5 on page 117.

\[\text{(75) a. Jens giver ham ikke bogen.} \]
\[\text{Jens gives him not book.DEF} \]
\[\text{‘Jens is not giving him the book.’} \]
\[\text{b. Jens giver ham den ikke.} \]
\[\text{Jens gives him it not} \]
\[\text{‘Jens is not giving it to him.’} \]

\[\text{As Sten Vikner (p. c. 2012) pointed out the sentence can be repaired by inserting the preposition til before biblioteket.} \]
\[\text{(i) Han skænkede [den] ikke til [biblioteket].} \]
\[\text{he donated it not to library.DEF} \]
\[\text{‘He didn’t donate it to the library.’} \]

This is predicted by our analysis, since we assume that sentences with trivalent verbs that govern a prepositional object involve different lexical items than those in which the trivalent verb governs two NPs. We assume two lexical items for the stem skænk- that are related by a lexical rule. The PP object in (i) is the most oblique argument of skænkede and hence our analysis correctly predicts that the DO can shift as in (i).
5. Object Shift and Negation Shift

The fact that the order in (76) is ungrammatical is explained by assuming that the non-head daughter in a head-specifier phrase is the most oblique element of the SPR list of the head daughter that is not realized yet.

(76) * Jens giver den ham ikke.
Jens gives it him not

So, for Danish the Head-Complement Schema combines with the least oblique element of the COMPS list first and the HeadSpecifier Schema with the most oblique one. This ensures that we have the same order of complements in the preverbal and the postverbal area.

The informed reader will have noticed that we did not explain the analysis of sentences like (77) so far:

(77) Anne giver Jens den ikke.
Anne gives it Jens not 'Jens does not give it to Anne.'

In (77) the indirect object is positioned in the prefield and the direct object is shifted. In order to analyse (77) we need a lexical item for giver that has the subject and the direct object in the SPR list. But the mapping that we have defined so far does not allow for this, since the SPR list has to be a prefix of the ARG-ST list. The problem immediately goes away if one assumes that extracted elements are not mapped to valency features but to SLASH features as it was suggested by Bouma, Malouf and Sag (2001). However, we do not follow this approach since it comes with a lexical introduction of unbounded dependencies. This is problematic in a number of ways: It requires lexical selection of adjuncts, which causes scope problems in coordinated structures. See Levine and Hukari 2006a for an extensive discussion of the proposal and Chaves 2009 for an attempt to fix the scope problems in coordination data. So instead of assuming that the extracted argument is mapped to SLASH right away, we assume that it is mapped to the COMPS list as usual but that its LOCAL value is coindexed with the element in the SLASH list. This has the effect that a trace is the only object that can be combined with the argument and hence extraction is enforced. (78) shows the lexical item that is needed for the analysis of (77).
5. Object Shift and Negation Shift

(78) _giver_ with shifted direct object and extracted indirect object:

\[
\begin{align*}
\text{SPR} & : \langle \text{NP} \| \text{NP} \rangle \\
\text{COMPS} & : \langle \text{NP[LOC SLASH]} \| \text{NP[THRESH]} \rangle \\
\text{RELS} & : \langle \text{AGENT} \| \text{GOAL} \| \text{THEME} \| \text{give} \rangle 
\end{align*}
\]

The analysis of (77) is shown in Figure 5.6. The verbal trace combines with the trace of the

\[
\begin{align*}
\text{S} & \rightarrow \langle \text{NP} \| \text{S//V} \rangle & \text{S//V/NP} & \rightarrow \langle \text{V} \| \text{NP} \| \text{VP/V/NP[SPR]} \rangle \\
\text{V} & \rightarrow \langle \text{NP} \| \text{VP/V/NP[SPR]} \rangle & \text{Adv} & \rightarrow \langle \text{VP/V/NP[SPR]} \rangle & \text{NP/NP} & \rightarrow \langle \text{V/SPR} \| \text{N} \rangle \\
\text{Anne} & & \text{giver} & & \text{Jens} & & \text{den} & & \text{ikke} & & \text{–} & & \text{–}
\end{align*}
\]

Figure 5.6.: Analysis of the sentence Anne giver Jens den ikke. with object shift with a ditransitive verb and the direct object shifted

The subject and direct object are mapped to the SPR list and hence the combination of the verbal trace and trace of the indirect object form a VP, that is, a linguistic object with a saturated COMPS list. This VP can be combined with the negation ikke and then the modified VP combines with its specifiers _den_ (the direct object) and _Jens_ (the subject).

5.2. The Analysis

5.2.3. Shifting and Prepositional Objects

As was noticed in Section 5.1.1 prepositional objects do not shift and neither do NPs inside of prepositional objects. This is explained by our analysis, since apart from the subject only light pronouns can be mapped to the SPR list. So for the verb _arbejde_ (‘to work’) there is only one mapping possible:

\[
\begin{align*}
\text{SPR} & : \langle \text{NP} \rangle \\
\text{COMPS} & : \langle \text{PP[pij]} \rangle \\
\text{ARG-ST} & : \langle \text{NP} \rangle \oplus \langle \text{PP[pij]} \rangle 
\end{align*}
\]

Since complements have to be realized to the right of the verb (or verb trace), it is clear that full PPs cannot precede the verb or the negation. This explains the ungrammaticality of (23b) which is repeated here as (80) for convenience:

\[
\text{(80) * Vi venter på dig ikke.}
\]

Intended: ‘We are not waiting for you.’

For the same reasons sentences like (24a), repeated here as (81), are ruled out: There is no way for the NP object of the preposition to get into the SPR list of the verb and hence it cannot be realized to the left of the negation. The NP argument of the preposition can be extracted but then it has to be realized in a Head-Filler configuration in the prefield.

\[
\text{(81) * Vi venter på [dig ikke] på.}
\]

Intended: ‘We are not waiting for you.’

5.2.4. Shifting and Auxiliary Verbs: Partial VP-Fronting

We assume passive and perfect auxiliaries to be raising verbs that just take over the SPR list of the verb that they embed. We assume the following argument structure for the auxiliaries:

\[
\text{(82) argument structure of the passive and perfect auxiliaries:}
\]

\[
\begin{align*}
\text{ARG-ST} & : \langle \text{VP[SPR]} \rangle 
\end{align*}
\]

This argument structure is mapped to SPR and COMPS in the following way:

\[\text{(i) [ARG-ST raise(1) @ \langle VP[SPR] \rangle]}
\]

\[\text{(ii) [ARG-ST raise(1) @ \langle VP[SPR] \rangle]}
\]

It remains an open question why PPs cannot shift in Icelandic. Icelandic does allow shifting of full NPs and therefore a constraint on weakness could not be assumed to rule out the shifting of PPs (Engels and Vikner, 2012, p. 19). Engels and Vikner (2012, p. 76) suggest an OT constraint STAYBRANCHNOCASE that says that branching constituents that do not get case must not be moved. This is basically a stipulation of the observable facts and of course we can stipulate an analogous constraint.

The lexical item is a simplification. The raised specifiers have to be marked as raised. This is done by a relational constraint, which will be discussed below in the context of Acl verbs. The version of (82) that incorporates the relational constraint is given in (i):
5. Object Shift and Negation Shift

5.2. The Analysis

verbs, we need another constraint, since non-finite verbs are not affected so far, and without an explicit constraint, we would admit sentence like (86), in which the non-finite verb is realized to the right of the negation:

(86) * Jeg har hende ikke kysset.
I have her not kissed

The constraint in (87) ensures that a VP complement of an auxiliary verb with shifted objects on the specifier list is extracted, since the only way to fulfill the constraints in the consequence of the implication in (87) is to combine the verb with an extraction trace.

(87) Fronting of non-finite verbs in object shift constructions:

\[
\begin{array}{c}
\text{SYNSEM}\text{ILOCICAT} & \text{HEAD} \{ \text{AUX} + \} \\
\text{SPR ne_list} & \text{COMPS} \{ \text{VP} \}
\end{array}
\]

\[
\Rightarrow
\begin{array}{c}
\text{head-argument-phrase} & \\
\text{NON-HEAD-DTRS} & \{ \text{SYNSEM LOCSLOCICHERSLASH} \{ \text{SPR} \} \}
\end{array}
\]

The restriction to auxiliary verbs in the antecedent of the implicational constraint in (87) is necessary since otherwise examples with AcI verbs in which the embedded verb is not extracted could not be analyzed. We will return to this issue in the next section.
5. Object Shift and Negation Shift

The constraints in (72) and in (87) together account for Holmberg’s Generalization, that is, they ensure that the finite verb is fronted and for cases that involve non-finite verbs, that the non-finite verb is extracted. It would be desirable to have one single constraint that rules out object shift when the object is not left peripheral in the VP, but there does not seem a straight-forward way to represent this.

Having explained the interaction between perfect and object shift, we now turn to passives: (88b) shows the passive variant of the active sentence in (88a) and (88c) is the object shift version of this passive variant:

\begin{align}
\text{(88)} & \\
& \begin{cases}
\text{a. Anne anbefaler ikke Jens bogen.} \\
& \quad \text{Anne recommended not Jens book.DEF}
\end{cases} \\
& \quad \text{‘Anne did not recommend the book to Jens.’}
\end{align}

\begin{align}
& \begin{cases}
\text{b. Jens bliver ikke anbefalet bogen.} \\
& \quad \text{Jens is not recommended book.DEF}
\end{cases} \\
& \quad \text{‘Jens was not recommended the book.’}
\end{align}

\begin{align}
& \begin{cases}
\text{c. } \text{? Anbefalet bliver Jens den ikke.} \\
& \quad \text{recommended is Jens it not}
\end{cases} \\
& \quad \text{‘It is not recommended to Jens.’}
\end{align}

We assume that passive is analyzed with a lexical rule that suppresses the subject (the first element on the ARG-ST list with structural case, see Chapter 8 for details). The direct object is then the first element on the ARG-ST list and can be mapped to the SPR list. The ARG-ST list of anbefalet and the linking of the arguments is shown in (89):

\begin{align}
\text{(89)} & \\
& \begin{cases}
\text{SYNSEMILOCICAT} & \begin{cases}
\text{HEAD \{ VFORM passi verb \}} & \text{VFORM passi verb}
\end{cases} \\
\text{ARG-ST} & \begin{cases}
\text{NP} & \text{NP}
\end{cases}
\end{cases}
\end{align}

The agent argument is not contained in the ARG-ST and hence there is no linking of an ARG-ST element to the agent role. The result of the mapping is parallel to the mapping we saw for (85), the only difference between the items is the value of the VFORM feature:

\begin{align}
\text{(90)} & \\
& \begin{cases}
\text{CAT value for anbefalet (‘recommended’) with both remaining arguments mapped to SPR:}
\end{cases}
\end{align}

\begin{align}
& \begin{cases}
\text{HEAD \{ VFORM passi verb \}} \\
\text{SPR \{ } & \text{NP} \text{ }} \text{NP}
\end{cases}
\end{align}

\text{\& } \text{list of shifted elements}

The analysis of (88c) is completely parallel to the analysis of the kysset example with perfect tense and object shift that was illustrated in Figure 5.7 and therefore will not be explained further.

5.2. The Analysis

5.2.5. Acl Verbs and Object Shift

As was discussed on page 93, the raised objects of Acl verbs also undergo object shift. This follows immediately from the analysis that is assumed here, if it is combined with the analysis of raising that is standardly assumed in HPSC (Pollard and Sag, 1994, Section 3.5). Parts of the lexical item for the verb se (‘to see’) are provided in (91):

\begin{align}
\text{(91)} & \\
& \begin{cases}
\text{Lexical item for se (‘to see’):}
\end{cases}
\end{align}

\begin{align}
& \begin{cases}
\text{SPR} & \begin{cases}
\text{NP} & \text{NP}
\end{cases}
\end{cases}
\end{align}

\begin{align}
& \begin{cases}
\text{COMPS} & \begin{cases}
\text{\text{\& \{ VP \{ SPR \{ } \text{NP} \text{ \}}} \text{}}
\end{cases}
\end{cases}
\end{align}

\text{The canonical mapping for this lexical item is shown in (92):}

\begin{align}
\text{(92)} & \\
& \begin{cases}
\text{CAT value for se (‘to see’) with canonical mapping:}
\end{cases}
\end{align}

\begin{align}
& \begin{cases}
\text{SPR} & \begin{cases}
\text{NP}
\end{cases}
\end{cases}
\end{align}

\begin{align}
& \begin{cases}
\text{COMPS} & \begin{cases}
\text{\{ VP \{ SPR \{ } \text{NP} \text{ \}}} \text{}}
\end{cases}
\end{cases}
\end{align}

\text{The least oblique argument of se (its subject) is mapped to the SPR list, all other arguments are mapped to the COMPS list. The subject of the embedded verb is therefore raised to object of the matrix verb. With this mapping to SPR and COMPS we can analyze (93) as in Figure 5.8 on the next page.}

\begin{align}
\text{(93)} & \\
& \begin{cases}
\text{at Jeg aldrig så manden le}
\end{cases} \\
& \quad \begin{cases}
\text{that I never saw man.DEF laugh}
\end{cases}
\end{align}

\text{‘that I never saw the man laugh’}

The verb så (‘saw’) selects for an object and a VP. The object is identical with the specifier of the VP (Ø). It is combined with the object first and the resulting verbal projection is combined with the VP argument (Ø). Since both complements of så are saturated, the result is a VP that can be modified by aldrig. The result is a VP again. This VP is combined with the subject (Ø) and the result is a complete sentence which can function as the complement of the complementizer.

We now turn to a different mapping that can be used in object shift constructions: since the specifier of the embedded VP is raised to the ARG-ST list of the Acl verb, it can be mapped to the SPR list of se. The respective mapping is shown in (94):

\begin{align}
\text{(94)} & \\
& \begin{cases}
\text{CAT value for se (‘to see’) with raised object mapped to specifier:}
\end{cases}
\end{align}

\begin{align}
& \begin{cases}
\text{SPR} & \begin{cases}
\text{Ø} & \text{Ø}
\end{cases}
\end{cases}
\end{align}

\begin{align}
& \begin{cases}
\text{COMPS} & \begin{cases}
\text{Ø} & \text{Ø}
\end{cases}
\end{cases}
\end{align}

\begin{align}
& \begin{cases}
\text{ARG-ST} & \begin{cases}
\text{Ø} & \text{Ø}
\end{cases}
\end{cases}
\end{align}

\text{\& list of shifted elements}

The analysis of (95) is shown in Figure 5.9 on page 125.

\begin{align}
\text{(95)} & \\
& \begin{cases}
\text{Jeg så dem aldrig le}
\end{cases} \\
& \quad \begin{cases}
\text{I saw them never laugh}
\end{cases}
\end{align}

\text{‘I never saw them laugh.’}
The verb *så* as used in the analysis of (95) selects for a VP and two specifiers. This information is shared via the DSL values along the head path and identified with the *local* value of the verbal trace. The verbal trace combines with the VP of *le* ('laugh'). The VP selects for a specifier and this specifier (2) is identified with the object of *så* on its ARG-ST list. Since the object was mapped to the SPR list, the specifier of *le* is the second specifier of *så*. After the combination of the verbal trace and the VP the combination proceeds as usual, that is, the projection is combined with the two specifiers, the first one, which is the subject, is extracted.

It is important to note that the constraint in (87) does not apply to AcI verbs. If it would apply, the sentence in (95) would be ruled out since the VP argument is not extracted.

The example in (33a), repeated here as (96), is ruled out because of the specification of the lexical entry for the AcI verb *så* in (91): the verb selects a VP with exactly one element in the SPR list. In order to analyze (96) *så* would have to be combined with a verb that has two elements in its SPR list: the raised subject and the object. This is excluded by the lexical specification for AcI verbs.

(96)  *?* Læse *så* Jens ham den ikke.

read saw Jens him it not

Intended: ‘Jens did not see him read it.’

Alternatively one could assume that AcI verbs pattern with auxiliaries in attracting arbitrarily many specifiers from the embedded verb and claim that (96) is excluded due to its high process-
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We decided however to incorporate a constraint into the grammar.

The sentence (97), repeated here as (97) can be analyzed as shown in Figure 5.10 on the next page.

(97) * Set ryge har jeg hende ikke.
    seen smoke have I her not
    ‘I have not seen her smoke.’

The SPR element of *ryge (‘to smoke’) is attracted by *set (‘seen’) and from there it is attracted to *har. As specifier of *har can be serialized before the negation.

5.2.6. Parasitic Gaps and Locality

As was pointed out in Section 5.1.3 with respect to example (98), shifted pronouns do not licence parasitic gaps:

(98) * Alle stillede den straks __ hen på reolen uden at læse __ først.
    all put it immediately onto bookcase DEF without reading it first
    ‘Everyone put it on the shelf without reading it first.’

Parasitic gaps are licensed by constituents which have undergone movement to a non-argument position. On the analysis of parasitic gaps in HPSG developed by Pollard and Sag (1994, Section 4.5) a string as the one in (98) would be predicted to be well-formed if the object pronoun is indeed extracted out of the VP into the shifted position. The ungrammaticality of (98) is explained if the “shifted” pronoun has not shifted at all, that is, if it is in no derived position outside the VP. In that case there is no dislocated element and no trace inside the VP at all to license a parasitic gap. The subject is extracted and so this is the only gap that could licence the gap in the adjunct, but note that the selectional restrictions for the subject of *stillede (‘to put’) and the object of *læse (‘to read’) differ and hence the subject gap cannot licence the object gap in the adjunct and the ungrammaticality of (64b) is therefore expected.

The impossibility of parasitic gaps with shifted pronouns (and shifted negated objects) is explained if the “shifted” position (to the left of sentential adjuncts) is no dislocated position at all. If shifted elements are not displaced at all, we also have a straightforward explanation why shifting is clause-bound. The pronouns are locally licensed in two different positions within the clause.

5.2.7. Neg Shift

5.2.8. Spurious Ambiguities

5.3. Alternatives

In this section we will discuss alternative proposals to object shift: Section 5.3.1 discusses analyses that assume that object shift is a kind of cliticization. Section 5.3.2 discusses analyses that assume that the object pronouns are moved to VP-initial positions and either adjoined to the VP or inserted in specifier positions. A linearization-based analysis that employs flat linearization
domains together with ordering constraints similar to those that are suggested in topological field approaches will be discussed in Section 5.3.3.

### 5.3.1. Phonological Incorporation

The phenomenon of object shift is reminiscent of cliticization in Romance languages, where pronominal objects and PPs incorporate into their selecting verb (Monachesi, 1998). Romance cliticization even allows incorporation of several pronominals just like Danish allows more objects to shift (as in example (25a) on page 97). If the shifted pronoun is a clitic, we have an explanation why the pronoun has to be syntactically and prosodically minimal. Syntactic phrases do not cliticize. Also, cliticization would explain why the pronoun appears to “move along” with the finite simplex verbs when the verb is fronted in V2-clauses. However, as shown by Vikner (2006, p. 418) and Erteschik-Shir (2005, p. 53), the shifted pronoun cannot have cliticized onto the verb: In V1-clauses and V2-clauses with non-subject topicalization the pronoun is separated from the verb by the subject. This is unexpected if the shifted pronoun has cliticized onto the verb. If the pronoun were a clitic on the verb, the example in (99a) should be good, but it is not.

Example (99b) is a V1-clause and the shifted pronoun is separated from the verb by the subject.

(99) a. * Kender [hende] Peter ikke?
   knows Peter not
   ‘Doesn’t Peter know her?’

b. Kender Peter [hende] ikke?
   knows Peter her not
   ‘Doesn’t Peter know her?’

Adjacency with the main verb is only observed in clauses without subject-verb inversion, that is, when the subject is in the Prefield.

Erteschik-Shir (2005) assumes that shifting pronouns are weak pronouns. Weak pronouns are special in that they cannot be pronounced on their own. They must phonologically incorporate into a host in order to be pronounced. A full DP on the other hand can be pronounced on its own and does not need to incorporate into a host. The string in (100) is unpronounceable: The weak object *den* (‘it’) cannot incorporate into the adjunct *ikke* (‘not’), since adjuncts (by stipulation) cannot serve as hosts for prosodic incorporation (p. 52). This explains the ungrammaticality of example (100).

(100) * Peter læser+den+ikke.
   reads Peter+it+not
   ‘Peter doesn’t read it.’

In example (101) illustrating object shift, the weak pronoun *den* (‘it’) has incorporated into the verb (and moves with the verb to the V2-position), while the weak adverb *ikke* (‘not’) prosodically incorporates into the cluster consisting of the verb and the weak pronoun.

(101) Peter læser+den+ikke.
   reads Peter+it+not
   ‘Peter doesn’t read it.’

In example (102) the weak pronoun *den* (‘it’) phonologically incorporates into the subject DP. If the pronoun were a clitic on the verb, the example in (99a) should be good, but it is not.

Example (99b) is a V1-clause and the shifted pronoun is separated from the verb by the subject.

(102) * Peter læser+den+ikke?
   reads Peter+it+not
   ‘Doesn’t Peter read it?’

When no V2 applies, i.e. in Vbase-clauses, the weak pronoun can prosodically incorporate into the verb (and the adverb *ikke* (‘not’) incorporates into the subject DP).

(103) fordi han+ikke kender+hende
   because he+not knows+her
   ‘because he doesn’t know her’

The example in (104) where the adverb phonologically incorporates into the cluster of verb and weak pronoun is ruled out, because a weak pronoun must incorporate into the first available constituent, instead it shifts.

(104) * fordi han kender+hende+ikke
   because he knows+her+not
   Intended: ‘because he does not know her’

To sum up: On the analysis in Erteschik-Shir 2005 a pronoun shifts because it cannot phonologically incorporate into an adverb. It must incorporate into a verb or a DP. As Holmberg (1999a, p. 28, Footnote 26) pointed out while discussing Hellan’s analysis of object shift in Norwegian, the analysis in Erteschik-Shir (2005) fails to explain why a weak pronoun also has to shift in the presence of a PP-adjunct. In the examples in (105) and (106) the sentential adjunct is syntactically a PP with a preposition and a DP object or a VP object. In both cases we should expect the pronoun to be able to incorporate into the DP *stør sandsynlighed* (‘great probability’) or the V *at domme* (‘to judge’) of the prepositional complement, given that DPs and verbs are possible hosts for phonological incorporation. But the pronoun does not incorporate into these constituents, instead it shifts.

(105) a. Hun kender [ham] [med stor sandsynlighed] ikke.
   she knows him with big probability not
   ‘It is most likely that he doesn’t know him.’

---

39A weak adverb is an adverb that cannot occur in the Prefield or clause-finally (Erteschik-Shir, 2005, p. 57).
b. * Hun kender [med stor sandsynlighed] [ham] ikke.
   she knows with big probability him not
   Intended: ‘It is most likely that he doesn’t know him.’

(106) a. Hun kender [ham] [after alt at dømme] ikke.
   she knows him after everything to judge not
   ‘Judging by everything, he doesn’t seem to know him.’

b. * Hun kender [after alt at dømme] [ham] ikke.
   she knows after everything to judge him not
   Intended: ‘Judging by everything, he doesn’t seem to know him.’

To account for these data on the analysis in Erteschik-Shir 2005 we would have to assume that the PPs are reanalyzed as adverbs and that adverbs cannot be the host for phonological incorporation. Erteschik-Shir (2005, p. 70) does consider such an analysis for uden tvivl (‘beyond doubt’), but the PPs in (105a) and (106a) allow for very complex internal modification as in (107), making an analysis as a reanalyzed adverb seem implausible.

(107) Hun kender [ham] [after alt hvad hun har sagt på det sidste at dømme]
   she knows him after everything what she has said in the last time to judge
   ikke særlig godt.
   not very well
   ‘Judging by everything she has been saying lately, she doesn’t know him very well.’

In addition, if med stor sandsynlighed (lit. ‘with big probability’) and after alt at dømme (lit. ‘after everything to judge’) are adverbs, we have no explanation why the negation ikke (‘not’) is licensed, since adverbials cannot serve as hosts for prosodic incorporation in Danish (Ertesschik-Shir, 2005, p. 52). So if the DP sandsynlighed (‘probability’) and the verb dømme (‘to judge’) are hosts for the negation in (105a) and (106a), there is no reason why they should not also be able to act as hosts for the weak pronoun. And yet (105b) and (106b) are ungrammatical.

As Mikkelsen (2011b) shows, the incorporation analysis also does not account for cases where a weak pronoun fails to incorporate into a verb or an NP due to information structural properties. Specificational copular clauses only allow unshifted pronouns, since the predicative complement is inherently focal. Thus, the weak, unstressed pronoun remains in-situ. An example of this was provided in footnote 4 on page 90. Only weak, non-focal pronouns shift, so phonological properties of the pronouns do not seem to be the only determining property for object shift.

Finally, Holmberg (1999b, p. 27) pointed out another problem for the clitic analysis: it does not extend to object shift in Icelandic and Faroese that allow for complete NPs to undergo object shift.

### 5.3. Alternatives

Would not be a problem for remnant movement analyses of the kind suggested by Kayne (1994). We discuss remnant movement analyses in general in Section 5.3.2.2. Holmberg’s proposal is discussed in Section 5.3.2.3 and Section 5.3.2.4 discusses an OT approach.

#### 5.3.2.1. Adjunction to VP or Movement to Specifier Positions

Vikner (2006) and Mikkelsen (2011b) assume that shifted pronouns adjoin to VP, while Sells (2008, 2001) assumes that they adjoin to I. Johnson (1991, p. 607) and Collins and Thráinsson (1996, p. 392) (for Icelandic) in turn assume that shifted pronouns are in a specifier position. We will consider each of these possibilities in turn.

There are two properties of object shift that are difficult to reconcile with an adjunction analysis: The shifted pronouns precede all (left-adjoined) adjuncts and multiple shifted pronouns obey a strict ordering in accordance with the obliqueness hierarchy.

If a shifted pronoun adjoins to VP, it is not clear what would prevent a shifted pronoun from occurring between sentence adverbials as in (3b), which is repeated here as (108b) for convenience.

   they sold it fortunately not
   ‘Fortunately they did not sell it.’

   they sold fortunately it not
   ‘Fortunately they did not sell it.’

If the pronoun den (‘it’) is adjoined to a VP containing the sentence adverbial ikke (‘not’) in example (108b), it is not clear what would prevent the sentence adverb heldigvis (‘fortunately’) from adjoining to a VP containing an adjoined pronoun and a sentence adverbial. But as (108b) shows, this is impossible. Shifted pronouns must precede all adjuncts adjoined to the VP. Thus we would need a stipulation to the effect that an adjunct cannot adjoin to a VP to which a pronoun has already adjoined.

There is a second problem related to the analysis of shifted pronouns as adjunction to a higher projection. If two pronouns shift, a strict ordering of the objects is still observed. The indirect object must precede the direct object as predicted by the Complement Principle from Chapter 4.

(109) a. Han forklarede [hende] [det] ikke.
   he explained it not
   ‘He didn’t explain it to her.’

b. * Han forklarede [det] [hende] ikke.
   he explained it her not
   ‘He didn’t explain it to her.’

It is not clear how this strict ordering is obtained under a (movement-based) analysis of shifted pronouns as adjunction to VP (or another projection). If the indirect object moves first and adjoins to the VP we should expect the direct object to adjoin to a VP already containing the indirect object. Thus we would get the opposite order of the one actually observed as shown
5. Object Shift and Negation Shift

5.3. Alternatives

In a Kayne-style analysis the definite object is moved out of the VP (111a), then the adverb is combined with the resulting verbal projection (111b), and in a final step the VP that contains the subject and the main verb is moved to the left periphery resulting in the observable string:

(110) a. [[[nyjar bækur], [vp ég les t]], ]
    (Move indefinite DP out of VP)

   b. [[aldrei [[[nyjar bækur], [vp ég les t]], ]] (Merge the adverb)

If one assumes that the object does not have to move out of the VP as in (111a) then the analysis (113) for the example in (112) becomes possible.

(112) Ég les þessar bækur aldrei.
     I read these books never
     'I never read these books.'

The complete VP including subject, verb, and object is moved to the left of the adverb:

(113) [[vp ég les þessar bækur], [aldrei t]]

The interesting thing that was pointed out by Holmberg is that this is a movement-based analysis, but the object is not moved: it is moved inside the complete VP. Hence such a remnant movement analysis would not have any problems with parasitic gaps.

Holmberg critized this analysis on various grounds involving examples with verb fronting and double object constructions. We do not want to repeat this criticism here, but instead comment on more standard analyses that need remnant movement for the analysis of partial frontings: in order to front the non-finite verb as in (31a), the VP has to be emptied by movement operations: First the pronoun moves out of the VP as in (114a) and then the VP remnant that contains only the bare verb can be fronted as in (114b):

(114) a. har jeg hende, ikke [vp kysset_-],
        have I her not kissed
        'I have not kissed her.'

   b. [vp Kysset_-] har jeg hende, ikke,
      kissed have I her not

As Holmberg (1999a, p. 8) pointed out, such analyses are problematic since they involve a violation of Holmberg’s Generalization: The pronoun has to move over the verb kysset in (114a) for the VP to be ready for moving to the initial position in (114b). If one wants to insist on a remnant movement analysis one has to formulate the respective constraints as a surface filter. Such a surface filter was suggested by Engels and Vikner (2012). The proposal will be discussed in Section 5.3.2.4 in more detail.

Before we turn to this analysis, we want to discuss remnant movement in general: Remnant movement analyses were also suggested for German by den Besten and Weibelhuth (1990) and G. Müller (1998). Haider (1993, p. 281), De Kuthy (2002, Chapter 4.2.5), De Kuthy and Meurers...
(2001, Section 2), and Fanselow (2002) argued against such remnant shift analysis on various grounds. We will repeat one of Haider’s arguments here briefly and refer the reader for more arguments against remnant movement analyses to the references cited above. Haider pointed out that w-indefinites do not scramble in German:

(115) a. dass wer wen mit was traktiert hat that who whom with what maltreated has ‘that who maltreated whom with wat’

b. * dass wer wen mit was traktiert hat that who with whom maltreated has ‘that who maltreated whom with wat’

So, if there is a VP in (115a), there is no way to empty it by movement of the w elements, but nevertheless the following example with partial fronting is possible:

(116) Traktiert hat er wen mit was?
maltreated has he whom with what

The data is unproblematic for argument composition approaches that were first developed in Categorial Grammar (Geach, 1970) and are commonly assumed in the framework of HPSG (Hinrichs and Nakazawa, 1994; Meurers, 1999a, 2000; Müller, 1996b, 1999a, 2002). In such an approach the auxiliary attracts the arguments of the embedded verb and therefore they can be realized in the Mittelfeld even if the main verb is fronted.

Fanselow (2002) argued that remnant movement is not needed to account for the data. The only phenomenon that he identified as requiring a remnant movement analysis is the problem of multiple frontings (see Müller 2003 for an extensive discussion of relevant data, Bildhauer 2011 on a large accessible data base of annotated corpus examples, and Bildhauer and Cook 2010a; Müller, Bildhauer and Cook 2012 for information structural conditions on multiple frontings). Müller (2005a,b) develops an alternative analysis of these multiple frontings which uses an empty verbal head in the Vorfeld (the position before the finite verb in root clauses), but does not assume a remnant movement analysis for partial fronting. Instead of the remnant movement analysis the mechanism of argument composition that we also used in our analysis was used to account for partial frontings. Müller (Submitted) argued that a theory that uses less tools has to be preferred over others and grounds of parsimony and since recent Minimalist grammars use both remnant movement and argument composition (see for instance Chomsky 2007, p. 20) the proposal presented here has to be preferred over movement-based approaches not just on empirical ground and but also on theoretical grounds.

5.3.2.3. Stylistic Movement

Holmberg (1999b) argues for a separate component of syntax: Stylistic Syntax. He assumes a full derivation of the clause based on Move and Merge in the Minimalist Program and then assumes that there are additional processes that apply after this basic construction. (117a) shows the basic structure of his Swedish example before movement. In (117b) the subject has moved to the specifier position of IP, the finite verb has moved to C, and the main verb has moved to the specifier position of CP. In (117c) has shifted to the position preceeding the negation.

$$\text{(117) a. Infl [inte han [VP jag [V kysst henne]]] not have I kissed her}$$
$$\text{b. [CP kyst [CP hat [Infl inte [VP jag [V t: henne]]]]]}$$
$$\text{c. [CP kyst [CP hat [Infl henne, inte [TP [VP jag [V t: henne]]]]]]}$$

This analysis avoids the problems of remnant movement-based approaches by building the complete structure first and applying ‘normal’ movements first and delaying object shift till the very end of the derivation. As Engels and Vikner (2012, p. 92) point out, the analysis faces theory internal problems. In GB/Minimalism it is assumed that only full phrases can be fronted and hence fronting a single word violates common assumptions. Apart from this the pronoun is inserted into a position that is low in the tree. That is: an existing tree has to be taken apart for putting something into the middle. Usually movement operations target the left or right periphery of an existing object.

Moreover, Engels and Vikner (2012, p. 92) point out empirical problems of Holmberg’s proposal: While object shift is optional in Swedish as is shown in (118), it is obligatory when the verb is fronted, as (119) shows.

$$\text{(118) a. Jag kysste inte henne. I kissed not her \’I did not kiss her.\’}$$
$$\text{b. Jag kysste henne inte. I kissed her not}$$

$$\text{(119) a. * Kysst har jag inte henne.}$$
$$\text{kissed have I not her}$$
$$\text{b. Kysst har jag henne inte.}$$
$$\text{kissed have I her not}$$

This is not predicted by Holmberg’s analysis since V top. is independent of object shift. In the analysis presented here the facts follow since the object has to be mapped to SPR, since only VPs, that is, verbal projections with an empty COMPS list can be fronted. As Engels and Vikner (2012, p. 93) also point out simple V top. would also allow the following frontings, which are ungrammatical:

$$\text{(120) a. Jeg har ikke smidt den ud.}$$
$$\text{I have not thrown it out}$$
$$\text{b. * Smidt har jeg den ikke ud.}$$
$$\text{thrown have I it not out}$$

$$\text{(121) a. Jeg har ikke stillet det på bordet.}$$
$$\text{I have not put it on table.DEF}$$
$$\text{b. * Stillet har jeg det ikke på bordet.}$$
$$\text{thrown have I it not on table.DEF}$$

The examples in (118a,b) are due to ?, p. 59 and Holmberg (1999b, p. 7), respectively.
Furthermore, the analysis has a certain cost: It is necessary to assume an additional level where such stylistic movements take place. The processes that are assumed to play a role in the analysis of object shift are ordered in a certain way. The problem with such proposals is that it is not easy to see how this can be combined with performance models. By now we know about linguistic processing, that it is fast and starts immediately as soon as the words are heard (Tannehaus et al., 1995, 1996). It is not easy to see how this can be reconciled with models that assume that a complete structure is built first and then mapped to another structure. Of course proponents of such analyses point out that their models are competence models, but still competence models should be compatible with and augmentable by performance models (Sag and Wasow, 2011). Since Holmberg emphasizes the fact that his analysis is derivational rather than representational as his earlier analyses, his analysis has to be rejected on these grounds.

In comparison to Holmberg’s analysis our analysis is constraint-based and representational. When a speaker hears an element at the beginning of a sentence followed by a finite verb he or she can form the hypothesis that these elements correspond to positions in the clause that will follow. The analysis is surface oriented and hence easily combinable with performance models. Intermediate levels and constraint orderings are not involved.

5.3.2.4. OT Surface Filters

Engels and Vikner (2012)

5.3.3. Linearization-Based Analyses

Bjerre (2006) presents an analysis of object shift in the frame-work of linearization-based HPSG (Reape, 1994; Kathol, 2000; Müller, 1995b, 1996a, 1999a, 2002, 2004). Linearization-based Syntax separates constituency from linear order. Information on the constituents is represented as the value of the DOM(ain)-feature and constraints on linear order are defined as constraints pertaining to the order of elements on the DOM-list. Consider the analysis for the sentence in (122) which is given in Figure 5.12 on the next page:

(122) at Jens læser bogen
that Jens reads book.DEF
‘that Peter reads the book’

Figure 5.12.: Linearization-based analysis of Danish clauses

objects) or in the position N (the position of full NP objects within the VP). n is the field for the subject and al the field for VP adjuncts. F is the field the corresponds to the prefield. The order of elements on the DOM list is constrained by precedence rules of the following (simplified) kind.

(123)  

Figure 5.13 shows our example augmented with the negation ikke and with the topological field assignment. The interesting case is now the analysis of object shift, which has the same structure

Figure 5.13.: Linearization-based analysis of Danish clauses with topological labels
The first principle defines a constraint for the domain-type \( I \) to the effect that only unstressed phonemes are allowed. The second constraint regulates the order of indirect and direct objects.

\[ I \Rightarrow \text{SYNSEMLOCATIHEAD pron} \]

Jens ikke læser den

Figure 5.14.: Linearization-based analysis of object shift

The analysis is given in Figure 5.14. The object pronoun is assigned to the field \( I \) rather than \( N \) and hence is linearized to the left of

\[ S[\langle n:Jens, m:læser, I:den, a1:ikke \rangle] \]

NP[\langle n:Jens \rangle] VP[\langle m:læser, I:den, a1:ikke \rangle] Adv[\langle a1:ikke \rangle] VP[\langle m:læser, I:den \rangle] V[\langle m:læser \rangle] NP[\langle I:den \rangle]

2. Indirect objects precede direct objects in I or in N:

\[ \text{head-complement-phrase} \Rightarrow \]

\[ \text{SYNSEMLOCAT} \quad \text{SUBJ} \quad \text{COMPS} \quad \text{list} \]

\[ \text{HEAD-DTR} \quad \text{SYNSEMLOCAT} \quad \text{SUBJ} \quad \text{COMPS} \quad \text{list} \]

\[ \text{NON-HEAD-DTR} \quad \text{SYNSEMLOCAT} \quad \text{SUBJ} \quad \text{COMPS} \quad \text{list} \]

3. An unstressed object can only occur in N if preceded by an NP or by a verb in V:

\[ \text{DOM list } \langle N \rangle \Rightarrow \]

\[ \text{DOM list } \langle N \rangle \]

\[ \text{DOM list } \langle N \rangle \]

The first principle defines a constraint for the domain-type \( I \) to the effect that only unstressed objects are allowed. The second constraint regulates the order of indirect and direct objects. The indirect object is defined to precede the direct object. However the order is only defined for the order in the content field for objects following the verb within the VP (V). In order to also apply to the nexus field (I) (the shifted position) the type of the first item should be (verbal) which is defined to be the supertype of both (the position of the verb in V_front clauses) and V (the position of the verb in V_back clauses). This would ensure that the order of I before DO is observed both for shifted and unshifted pronouns. The third constraint is a constraint on a DOM list containing an unstressed object in N (the content field). Such a list is only licensed if the unstressed object is preceded by an NP in the canonical object position \( N \) if it is preceded by a verb in the V position (inside the content field, that is, if the clause is a V_front clause).

Bjerre (2006) does not discuss shift of unstressed adverbial pronouns, but this could be accounted for by ensuring that not only objects are compacted into the positional domains I or

---

41Bjerre assumes that objects that are positioned in the prefield are licenced there in head filler structures. Probably he would apply this to subjects as well. Figure 5.14 would have to be augmented with a trace in the subject position and a Head-Filler combination at the top of the structure. However, this would not change the DOM values and assignment of topological fields, since traces are assumed to not contribute any domain objects.

42It is unclear how the schema for head-complement phrases presented here should account for verbs that are not ditransitive. The constraint can be reformulated as an implicational constraint on head complement phrases with two elements in the COMPS list. See for instance (87) on page 121 for an implicational constraint with a complex antecedent.

43The shuffle operator was defined by Reape (1994). It combines two lists into a new list. The relative order of the elements of each list may not be changed, but elements of the second list can be interspersed between elements of the first list.
5. Object Shift and Negation Shift

N, but also locative obliques. This would require an appropriate subtyping of pronouns though. Also Bjerre (2006) does not account for modified and coordinated pronouns which fail to shift. As mentioned in footnote 5 on page 91, however, their linearization possibly follow from the constraint that shifted pronouns are unstressed (given a theory of the percolation of stress-assignment).

On the analysis in Bjerre 2006, object shift is entirely a matter of linearization of objects: object shift is analyzed as alternative linearization of elements in DOM lists that is regulated via LP-constraints. Such an analysis does not have to decide on the phrase structure of shifted objects, that is, whether they are adjoined to higher categories or whether they are particular extraction structures.

For V2 clauses Bjerre assumes a Head-Filler Schema that is similar to the one we are using here. The fronted constituent is compacted and inserted as a single object into the linearization domain. The inserted element is assigned the topological type left-peripheral, which resolves to either F (the prefield) or m (the position of complementizers and fronted verbs). The domain insertion of extracted elements as single domain objects leaves the partial fronting examples that we analyzed in Section 5.2.4 unexplained. The problem with sentences like (31a), repeated here as (124a), is that the fronted VP is a opaque object. Therefore pronouns like hende are not separate domain objects. One could combine kysset and hende, but this would result in a VP in which hende is trapped (124b):

\[
(124) \quad \begin{align*}
\text{a.} & \quad \text{Kysset har jeg hende ikke.} \\
& \quad \text{kissed have I her not} \\
& \quad \text{‘I have not kissed her.’}
\end{align*}
\]

\[
(124) \quad \begin{align*}
\text{b.} & \quad \text{[Kysset hende] har jeg ikke.} \\
& \quad \text{kissed her have I not} \\
& \quad \text{‘I have not kissed her.’}
\end{align*}
\]

It may be possible to come up with theories involving partial compaction as was suggested by Kathol and Pollard (1995) for extrapolation. Such theories assume that a linguistic object contributes two or more objects to a linearization domain. But due to the contrast in (125) such a partial compaction would have to be specific to object shift, which makes such an approach rather stipulative and unattractive.

\[
(125) \quad \begin{align*}
\text{a.} & \quad \text{Læst har Bjarne den ikke.} \\
& \quad \text{read has Bjarne it not} \\
& \quad \text{‘Bjarne did not read it.’}
\end{align*}
\]

\[
(125) \quad \begin{align*}
\text{b.} & \quad \text{* Læst har Bjarne ikke bogen.} \\
& \quad \text{read has Bjarne not book.DEF} \\
& \quad \text{‘Bjarne did not read the book.’}
\end{align*}
\]

The problem with (125) is that the order of bogen relative to ikke is normal, but the non-finite verb may only be extracted when its object is a shifted pronoun. If we allow partial compaction in order to allow for the object to be serialized in the sentential domain, the fact that (125a) is grammatical while (125b) is not remains mysterious. Similarly one can not simply allow for alternative serializations of bare verbs, since this would also admit the ungrammatical strings in (120b) and (121b) on page 135.

5.4. Problems

What all models have to capture somehow is that there is a relation between the verb and its pronominal argument that differs from a relation between a verb and a full NP argument. We capture this by claiming that the pronouns are specifiers and hence have to be serialized to the left of the negation, while the full NPs are complements, which are serialized inside of the VP and hence to the right of the verb and to the right of the negation. The difference between (125a) and (125b) is that the prefield in (125a) is filled by a maximal phrase, that is, a VP that does not require any complements, since both Bjarne and den are specifiers in our analysis. In (125b), on the other hand, læst is not a maximal VP, since bogen is a complement. Since only maximal projections are allowed as filler daughters in head-filler phrases, (125b) is ruled out.

5.4. Problems

While our analysis makes the right predictions for Danish, it seems to be possible to have partial frontings like the one in (126a) in Swedish (example from Fox and Pesetzky 2005, p. 25):

\[
(126) \quad \begin{align*}
\text{a.} & \quad \text{Get henne har jag den inte.} \\
& \quad \text{given her have I it not}
\end{align*}
\]

\[
(126) \quad \begin{align*}
\text{b.} & \quad \text{* Get den har jag henne inte.} \\
& \quad \text{given it have I her not}
\end{align*}
\]

The fronting of a verb together with the indirect object is marginally possible, while the fronting together with the direct object as in (126b) is ungrammatical. In Danish it is impossible to front a verb with one complement unless the full VP is fronted and hence the analogs of both (126a) and (126b) are ungrammatical. However, if we transferred our analysis to Swedish, it would predict that (126a) is ungrammatical and (126b) is grammatical. This is due to the fact that the least oblique element (the IO) can be mapped to the SPR list and then be realized to the left of the negation. Our explanation of the ungrammaticality of the shifting of a DO over the IO was related to the order of the elements on the ARG-ST list in Section 5.2.2. Only a prefix of this list can be mapped to the SPR list. An inclusion of the Swedish data in (126) in an analysis of object shift seems to require a relaxation of the prefix constraint. The consequence would be that one would allow for both orders in (127) in principle and would also admit sentences like (74) on page 115. One would therefore need to formulate additional constraints that enforce the respective IO < DO serializations. The problem with such linearization rules is that they do not apply to local trees and not even to head domains but to the complete clausal domain: the position of a pronoun inside a fronted partial VP is compared to a pronoun in the remainder of the clause. How such linearization constraints can be formalized is an open issue which we leave to further research.

Furthermore we do not have an analysis for the object iudicantis in (14b), which is repeated here as (127):

\[
(127) \quad \begin{align*}
& \quad \text{og frikadellerne var [mig] faktisk lidt for bastante – og for kolde} \\
& \quad \text{and meat.balls were me actually bit too heavy and too cold} \\
& \quad \text{‘and the meat balls were actually a bit too heavy and too cold for my taste’}
\end{align*}
\]

This is a general problem: the dative iudicantis in German allows scrambling and we do not know of any HPSG account of this.
5.5. Conclusion

In this chapter we have presented an analysis of object shift in Danish without assuming any kind of movement or dislocation and without reducing object shift to a mere linearization phenomenon. We have suggested that lexical pronouns are members of the SPR list of fronted verbs, provided that they are not preceded by less oblique non-pronominal constituents or by their verbal head. Projecting pronouns in turn are members of the COMPS-list. This accounts for the different linearization of the objects and it accounts for the strict ordering of indirect objects before direct objects among both shifted and unshifted objects.

6. Copula Constructions

6.1. The Phenomenon

Research on copula structures has a long tradition (see Mikkelsen 2011a for an overview). One important question is the question of how many copulas are needed for the observable syntactic patterns and the respective meanings that can be expressed. We follow recent research in assuming that there are basically three types of copula constructions, two of which are order variants of each other (Section 6.1.1). Section 6.1.2 discusses V2 languages like Danish and German and compares English and Danish to German, which has rather free constituent order in general. Section 6.1.4 shows that one of the copula constructions is a raising construction and Section 6.1.5 discusses the formation of predicate complexes.

6.1.1. Equational, Predicational, and Specificational Constructions

Recent research on predication distinguishes three types of copula structures: equational, predicational, and specificational structures (Mikkelsen, 2011a, Section 2). In equational structures two expressions of the same type are equated. Examples of this type are given in (1):

(1) a. Cicero is Tully.
   b. That must be her.
   c. Honest is honest.

In (1a) two proper nouns are equated: that is, it is expressed that the referents of the two referential NPs are identical. Similarly, two pronouns are equated in (1b) and two adjectives in (1c).

Mikkelsen gives the following examples for predicational constructions:

(2) a. Harvey/my brother/the guest of honor/she/everyone/noone was [happy].
   b. Sylvia is [from Seattle].
   c. Sylvia is [an architect].
   d. Sylvia is [the architect on that project].
   e. Sylvia is [my friend].
   f. Sylvia is [mayor of Seattle].

As the examples show, the predicate complement can be an AP, PP, NP or a noun with a complement. Mikkelsen (2011a, p. 1809) claims that (2f) is an instance of an N predicate (NP in her terminology), but the class of such predicates is smaller: It is basically nouns with their complements, but without modifiers:

\[\text{Examples like (i) can be found though. See Section 6.2.2 for a suggestion how such cases can be accommodated.}\]

(1) Former Leftist Rebel Is Elected Mayor of Bogotá (WSJ, 30.10.2011)
6. Copula Constructions

6.1. The Phenomenon

A V2 clause is derived from (9b) by fronting one constituent. Given this background we can show that Danish also has specificational structures in which the subject of the clause is the predicate. Since the post-negation position in (10b) is filled by Max, *vinderen* has to be extracted from the pre-negation position and hence, it has to be the subject of the clause.

(10) a. Max, er ikke vinderen, er han vel. (Max= Subj, vinderen = Comp)

b. Vinderen, er ikke Max, er det vel. (Max= Comp, vinderen = Subj)

c. Vinderen, er Max ikke, er han vel. (Max= Subj, vinderen = Comp)

Note that this also corresponds to the question tags used in the sentences.

German differs from both English and Danish in being a language with rather free constituent order. We provide Danish examples in (12): While the extraction of objects and predicates in postverbal position is possible in Danish (12a,b), the extraction of the post-copula element in specificational constructions like (12c) is ungrammatical (12d).

(11) a. Klug / ein Mörder, der ist Peter. (predicational)

b. Ja, aber Peter, der ist ein Mörder / nicht Klaus. (referential element)

Yes, but Peter that is a murderer not Klaus.

So, we can identify predicational and equational constructions in German but specificational structures cannot be identified.

6.1.3. Constraints on Specificational Structures

As was pointed out by Gerbl (2007, p. 102, 190–191) for English the post-copular element cannot be extracted from specificational structures. We provide Danish examples in (12): While the extraction of objects and predicates in postverbal position is possible in Danish (12a,b), the extraction of the post-copula element in specificational constructions like (12c) is ungrammatical (12d).

(12) a. Bogen, tror han, at Max læser ej. (subordinate)

book.DEF thinks he that Max reads

‘He thinks that Max reads the book.’

b. Klug, tror han, at Max er ej. (subordinate)

smart thinks he that Max is

‘He thinks that Max is smart.’
c. Han tror, at vinderen er Max.
   ‘He thinks that the winner is Max.’

6. Copula Constructions

6.1. The Phenomenon

The predicative copula is usually analyzed as a raising predicate that does not contribute semantically, except for tense information in the case of finite forms of the copula (Paul, 1919, p. 41). One property of raising verbs is that they are not sensitive to the type of their arguments, for instance they allow for expletive subjects, which is – of course – compatible with the fact that they do not assign semantic roles to their arguments. An example for an adjective that allows for an expletive subject is laut (‘loud’):

(16) In der Mensa ist es laut.
   ‘It is loud in the commons.’

The adjective laut also has a non-expletive version, and (16) is actually ambiguous between the expletive and the non-expletive reading. With the expletive predicate, (16) means that the people, machines, or whatever, in the commons are loud, whereas in the non-expletive reading the es (‘it’) could refer to a child.

German is a language that has subjectless verbs and adjectives. Müller (2002, p. 72–73) discusses the following examples:

(17) a. weil schulfrei ist
   ‘because school-free is
   ‘because there is no school’

b. weil ihm schlecht ist
   ‘because he is sick’

c. Für dich ist immer offen.
   ‘It is always open for you.’

Again such data is consistent with a raising analysis that raises the subject of an embedded predicate if there is one but does not rule out embedded predicates that do not have a subject at all.

6.1.5. Predicate Complex Formation

Certain verbs form a predicate complex in languages like German, Dutch, Persian, and Hindi. The arguments of the verbs that are involved in complex formation can be scrambled according to the general rules of the respective language. In addition parts of the predicate complex can be fronted while arguments of the fronted heads may be left behind. Adjuncts in pre-complex position can scope over different elements of the predicate complex. An industrial-strength overview of the phenomenon in German can be found in Bech 1955. Bech coined the term coherent construction for verbal complexes. Analyses of the data in the framework of Transformational Grammar/GB can be found in Evers 1975, Haider 1993, Chapter 9, G. Müller 1998 and HPSG analyses can be found in Hinrichs and Nakazawa 1994, Kiss 1995, Bouma and van Noord 1998, Meurers 2000, Kathol 2000, and Müller 1999a, Chapter 14, 17, 18, 2002, Chapter 2. Müller (2002, Chapter 2) extended the verb complex analysis to verb adjective combinations. Since the focus of this chapter is predicational constructions, we exclusively discuss copula constructions and other predicational structures here.

As within coherent combinations of verbs, different scopings can also be observed in copula constructions:

(18) weil ihr der Mann immer treu sein wollte
   because the man.NOM always faithful to her
   ‘because the man always wanted to be faithful to her’

The sentence in (18) has the two readings that are indicated in the translation, but here the situation is less clear since the two readings may be due to the ambiguity between the modification of the copula and the modal. However, there are sentences like (19) where the adjective is fronted together with the adverbial.

(19) Immer treu wollte er ihr sein.
   always faithful wanted to he.NOM heir.DAT be
   ‘He wanted to be faithful to her forever.’

Due to the existence of such sentences, the possibility of adverbs modifying adjectives directly cannot be ruled out in general. Note furthermore, that the sentence in (19) is not ambiguous. The reason for this is that immer treu forms one topological unit and adverbials in this unit cannot scope over verbs or adjuncts in other topological units.
So, while it is not entirely clear whether the two readings of (18) are due to the attachment of the adverbia l to the two verbs rather than to the adjective and the modal, it is clear that the phrase *ihre immer treu in* (18) and (20) cannot be a closed AP in the wide scope reading since then the scoping of the adverb over a predicate outside the domain of the AP could not be explained.

(20) weil der Mann *ihre immer treu sein* wollte
    because the man always wanted to be faithful
    ‘because the man always wanted to be faithful to her’
    ‘because the man wanted to be faithful to her forever’

The example in (18) also shows that the subject of the adjective, which is also the subject of the modal, can appear between the adjective and its complement (*ihre ‘her’*). The alternative order in (20) is also possible. See also den Besten 1985, p. 60 on this point.

The examples discussed so far show that copula constructions with adjectives fulfill the criteria for so-called coherent constructions: Adjuncts can scope over predicates in the predicate complex, predicates can be fronted without their arguments, arguments of several heads can be scrambled with respect to each other. However, Müller (2002, p. 69) pointed out that there are also examples that are reminiscent of incoherent constructions: In (21) the adjectives are not adjacent to the copula but intraposed in the Mittelfeld:

(21) a. Sie wuchsen in einem gesellschaftlichen Klima auf, das *freier* in Deutschland
    never was
    ‘They grew up in a social climate that was freer than ever in Germany.’
    b. daß ausschlaggebend für die Interpretation abgeleiteter Verben bestimmte
       that decisive for the interpretation derived verbs certain
       ‘that certain semantic interpretation models are which self
       ...[. . .] are decisive for the interpretation of derived verbs’

Due to space limitations the discussion of the data remains sketchy here, but a thorough discussion of the data can be found in Müller 2002, Chapter 2.1.9.

Müller (2002, Chapter 2.2.7) focussed on adjectival predication, but of course the copula can be combined with predicative NPs and PPs as well. In contrast to adjectival predication, predicative NPs and PPs do not enter the predicate complex in the sense that the noun or preposition forms a complex with the copula. Instead nouns and prepositions that are used predicatively have to form full phrases and hence can be intraposed (that is, scrambled) (Hoberg 1981, p. 173):

(22) a. Auch bei Newton war der entscheidende Schritt die Erkenntnis gewesen, daß ...5
    also at Newton was the decisive step the insight been that
    ‘The insight that ... was the decisive step for Newton too.’

b. wiegen wir uns heute in dem Glauben, daß das Happening wir sind.6

This section showed that predicative constructions can take part in cluster formation (primary and resultative predication with adjectives) but that there are also cases in which no complex formation takes place (primary predication with NPs and PPs, and resultative predication with PPs). An analysis should provide a unified account of these phenomena.

### 6.2. The Analysis

#### 6.2.1. The Copula as Raising Verb

Before we turn to the analysis of a concrete example, we have to provide the lexical entry for the copula. (23) shows the lexical entry for the copula that is analoguous to the ones assumed by Pollard and Sag (1994, p. 147) and Bender (2000, p. 48):

(23) Preliminary entry for the predicative copula for Danish and English:

```
(23) [ARG-ST [PRD [HEAD SUBJ]] [IND LTOP]]
```

The copula selects a predicative phrase (PRD ⊕) and takes over the referential index ([ ]) from the embedded predicative phrase. The copula does not contribute semantically, hence the RELS list is empty. The copula enters inflectional lexical rules and these rules introduce relations that provide information about tense. The arguments of the respective relations are of type event. Therefore, the INDEX value of the copula in (23) is specified by the inflectional rule to be of type event and hence the INDEX value of the embedded predicate has to be of type event as well. The requirement that the predicative element is of type event will play an important role in Section 6.2.8 on raising nouns in English.

---

5 *Taz, 01.07.1995, p. 10.*
6 *Taz, 01.07.98, p. 26.*
7 *We omitted the SYNSEM and CAT features in order to keep things readable. See page 162 for the final version of the copula with full feature specification.*
8 *event is to be understood as the most general type referring to situations. The only thing that is important here is that the type differs from the type used to refer to objects.*
The subject of the copula is represented under SUBJ and the referential index of the subject (\(\text{[I]}\)) is linked to the theme role of the adjective (ARG2).

With these lexical items for the copula and the adjective we can now explain Figure 6.1, which shows the analysis of (26).

\[
\begin{align*}
\text{(26)} & \quad \text{Han er klog. he is smart} \\
& \quad V_1[\text{SPR (\(\text{[I]}\))}, \\
& \quad \text{COMPS (\(\text{}\))}, \\
& \quad \text{RELS (\(\text{h4:present(e, h5), h5:smart(e, x)\)}, \\
& \quad \text{HCONS (\(\text{}\))} \\
& \quad \text{(25) shows the lexical item for the predicative adjective klog ('smart'):} \\
& \quad \begin{align*}
\text{head} & \quad \text{SUBJ (\(\text{[I]}\))} \\
\text{spr} & \quad \text{COMPS (\(\text{}\))} \\
\text{rel} & \quad \text{h4:present(e, h5), h5:smart(e, x)} \\
\text{hcons} & \quad \text{} \\
\end{align*}
& \quad \text{The subject of the adjective is NP. It is linked to smart(e,x) in the lexical item for klog. (The linking is expressed by the structure sharing \(\text{[I]}\) in (25).) The copula selects for the adjective (\(\text{[I]}\))}.
\end{align*}
\]
and takes its subject over to its SPR list. The copula is inflected, which adds the present relation to the RELS list. After combination with the adjective, the copula is combined with the subject by the Head-Specifier Schema.

6.2.2. Predicative NPs

We assume that predicative NPs have the same internal syntactic and semantic structure as non-predicative NPs. They only differ with respect to their external distribution, that is, the way they can be used in sentences. We follow Müller 2009b in assuming the unary branching Schema 4, which licences a predicative NP from a non-predicative one.9

Schema 4 (Predicative NP Projection Schema)

This unary projection applies to a full NP and licenses the predicative NP (PRD++) with an appropriate SUBJ value. The referential index of the subject NP (I) and the referential index of the daughter NP (2) are arguments of the relation equal-rel. This relation is introduced constructionally via C-CONT (see Section 1.3.2 on semantic composition and C-CONT). The unary branching rule cannot apply to its output since the daughter NP has to have an IND value of type index and the resulting sign has an IND value of type event.


6.2. The Analysis

We now can analyze (27) as is shown in Figure 6.2.

27) *Han er en klog mand.
   he is a smart man

Figure 6.2.: Analysis of Han er en klog mand. ‘He is a smart man.’

The NP en klog mand is analyzed as described in Chapter 2: Adjective and noun form an N, which is then combined with the determiner into an NP. The referential index of the noun mand is y. This index is projected along the head path to the full NP. Schema 4 projects the referential NP into a predicative phase. The predicative phrase has a singleton list containing an NP as the value of the head feature SUBJ. The referential index of the NP in the SUBJ list is one argument of the relation equal-rel and the other argument is the referential index of the NP en klog mand, that is y. The index of the predicative NP is the event variable that belongs to the relation equal-rel. As was specified in (23), the index of the embedded predicate is identified with the index of the copula. The item in (23) is the specification of a root. Roots have to be inflected before being usable in syntax. Inflectional lexical rules that apply to verbs add tense information. In the case of a relation for present tense is added. The copula has the SUBJ list of the embedded predicate as a prefix of its ARG-ST list. As was shown in (24), this prefix...
The previous sections showed how predicational copula constructions can be analyzed in Danish and this analysis is equally applicable to English. However, German allows for the formation of predicate complexes and in order to capture this, the lexical entry for the copula has to be generalized. As was argued in Section 6.1.5, German adjective copula combinations should be analyzed as complex predicates, that is, the copula and the adjective form a unit and the arguments of the adjective are combined with the resulting complex in later steps. Parallel analyses have been suggested for the verbal complex in German by Hinrichs and Nakazawa (1989, 1994), Kiss (1995), Müller (1996b, 1999a, 2002), and Meurers (1999a, 2000). They use the technique of argument composition or argument attraction that was first developed by Geach (1970) in the framework of Categorial Grammar.

The generalized version of the lexical item for the copula in (23) is given in (32):

(32) Generalized entry for the predicative copula for German, Danish, and English:

\[
\begin{array}{c}
\text{ARG-ST} \quad \Box \oplus \oplus \\
\text{CONT} \quad \Box \oplus \oplus \\
\text{HCONS} \quad \Box \\
\text{RELS} \quad \Box \\
\end{array}
\]

The difference between (32) and the earlier entry is that the COMPS list of the embedded predicate is raised to the ARG-ST of the copula. This is similar to what Müller (2002, p. 103) suggested. For a discussion of Muller’s proposal see Section 6.3.3.

Note that nothing is said about the actual members of the lists. It is therefore possible to handle the cases in (33) as well as the subjectless examples that were given in (17).

(33) a. weil er auf seinen Sohn stolz ist
   because he.NOM on his son proud is
   "because he is proud of his son"
   b. weil er klug ist
   because he.NOM smart is
   "because he is smart"

In the analysis of (33a), $\Box$ contains the subject (er) and $\Box$ the PP (auf seinen Sohn). In the analysis of (33b) – repeated here as (34a) – $\Box$ is the empty list. In the analysis of (17b) – repeated here as (34a) – $\Box$ is the empty list and $\Box$ contains the dative object ihm (‘him’).

(34) a. weil ihm schlecht ist
   weil him.DAT bad is
   "because he is sick"

is mapped to SPR. In Figure 6.2 the SUBJ list of the embedded predicate and hence the SPR list of the copula contains the NP. After the combination of copula and predicative phrase the resulting VP is combined with the missing specifier. The RELS and HCONS values are always the concatenation of the respective values of the daughters, with the exception of the projection from NP to NP, where $\text{h5:equal}_\text{rel}(x, y)$ is contributed by the C-CONT of Schema 4.

Note that this analysis allows us to keep most parts of the analysis constant for examples that involve a predicative NP rather than a predicative adjective.

The analysis with the special predication schema changes the semantic type of an NP and its syntactic properties. It is interesting to note that a similar analysis is necessary for temporal NPs: As Flickinger (2008, p. 91–92) points out, it is not just simple NPs that can act as modifiers of verbs. The time nouns can be embedded inside of a more complex NP, as (28) shows.

(28) a. Kim disappears those days.
   b. Kim disappears some of those days.

Therefore a treatment in which the time noun has a MOD value that allows it to modify a verb is not appropriate. Further evidence for an analysis as unary projection is provided by parallel German examples:

(29) a. Er arbeitete den größten Teil der Nacht.
   he worked the.ACC largest part of the.GEN night
   ‘He worked almost all night.’
   b. Er arbeitete die halbe Nacht.
   he worked the.ACC half,ACC night
   ‘He worked half of the night.’

In (29a) the time expression der Nacht is genitive but the whole NP is accusative. This accusative is called a semantic case. It is connected to the function of the NP and is not assigned by the verb. It is clear from data like (29a) that an analysis like the one suggested by Müller (2007b, p. 226) that assigns both function (i.e. MOD value) and case lexically cannot explain the data in (29a). Hence we have evidence from another area of grammar that type shifting phrasal schemata are needed.

In addition to the unary branching Schema 4 one needs a similar schema or lexical rule for sentences with determinerless predication like (2f), repeated here as (30).

(30) Sylvia is mayor of Seattle.

The noun mayor is mapped to a predicative version. This predicative version can be combined with its arguments but since the index is of the wrong type it cannot be combined with adjuncts. Hence, it is explained why (31) is excluded:

(31) * Sylvia is new mayor of Seattle.

If one wants to admit the elected mayor of examples, one could assume a version of our predication schema that maps an $\Box$ onto a predicative NP. This schema would introduce the semantic content of the missing determiner and apart from this be parallel to Schema 4.
The lexical item in (32) can also be used for Danish and English if one assumes that head-complement phrases require their non-head daughter to be saturated. If this assumption is made, it follows that the COMPS list of the predicative argument \( [\varnothing] \) has to be the empty list if this argument is used in a head-complement phrase. Hence, nothing but the subject is raised from the predicative element. German and Dutch differ from English and Danish in allowing complex formation. When predicate complexes are formed, \( \varnothing \) can be non-empty, since the predicate complex schema does not impose any restrictions on the length of the COMPS list of its non-head daughter.

6.2.4. Raising and Complex Formation

There is another important aspect regarding the lexical item in (32) and the Predicate Complex Schema. The predicate is selected via COMPS rather than VCOMP or XCOMP as it was suggested in earlier proposals by Chung (1993), Rentier (1994), Müller (1997), and Kathol (1998) (see Section 6.3.3). With a uniform selection of verbal complements via COMPS it is possible to treat optionally coherent verbs like versuchen (‘to try’) with one lexical item (Kiss, 1995, p. 178), rather than with two lexical items as in the analyses of Kathol (2000, p. 195) and Müller (1999a, p. 340–341; 2002, p. 100–101). The matrix verb does not specify whether it forms a verbal complex with the embedded verb or not. It does not mention the LEX value of the embedded verbal element. Because of this we can analyze examples with a predicate complex as in (36a) and examples like (36b) with so-called intraposition:

\[
(36) \text{a. Karl hat das Buch nicht [zu lesen versucht].} \quad \text{(Predicate Complex S.)}
\]

Karl has the book not to read tried

‘Karl did not try to read the book.’

\[ (36) \text{b. Karl hat [das Buch zu lesen] nicht versucht.} \quad \text{(Head-Complement S.)} \]

Karl has the book to read not tried

‘Karl did not try to read the book.’

The combination of zu lesen and versucht in (36a) is licensed by the Predicate Complex Schema and the combination of das Buch zu lesen with versucht in (36b) is licensed by the Head-Complement Schema.

In contrast to the optionally coherent verb versuchen (‘to try’), verbs like scheinen (‘to seem’) or modals, that obligatorily construct coherently, select a verbal complement that is LEX+. Consequently they do not allow for intraposition of a VP complement, but require complex formation.

---

Footnote 10: This is a simplification. Some phrasal signs actually are allowed in the verbal complex. See Müller 1999a, Chapter 14.3, Chapter 17.5 for an analysis of the so-called Third Construction and Verb Projection Raising.
Müller (2002, p. 112) criticized Kiss’s analysis of optional coherence because it also licences unwanted structures like (37) and hence results in spurious ambiguities.

(37) weil Karl das Buch [dem Mann zu geben] verspricht
because Karl the book the man to give promises ‘because Karl promises to give the book to the man’

In (37) versprechen is combined with a partly saturated verbal projection dem Mann zu geben and the non-saturated argument das Buch is raised and combined with dem Mann zu geben verspricht in a later step. However, this structure is excluded if arguments are required to be saturated and elements of the predicate complex are required to be LEX +.11

With the new treatment of predicate selection via COMPS, it is not required that predicative PPs are part of the predicate complex as was suggested by Müller (2002, p. 241) for PPs in resultative constructions. Instead PPs like NPs can be analyzed as complements in head-complement structures, while adjectives can take part in complex formation or adjective phrases can be part of head-complement structures. The crucial difference between nouns and prepositions on the one hand and adjectives on the other hand is the direction of government: verbs and adjectives govern their arguments to the left, while nouns and prepositions take their arguments to the right. Only those dependents that govern their arguments to the same side as their governing heads can form a complex with their head.

Returning to the copula, it allows the embedding of fully saturated phrases like predicative APs, NPs, and PPs but also allows for the formation of a predicate complex consisting of adjectives and copula. Since coherence is optional we can explain so-called focus movement of adjectives as in (21) – repeated here as (38) –, something that was noted by Müller (2002, p. 69) but not treated in his analysis.

(38) a. Sie wuchsen in einem gesellschaftlichen Klima auf, das freier in Deutschland
they grew in a social climate PART(up) that freer in Germany
nie war,12
never was ‘They grew up in a social climate that was freer than ever in Germany.’

b. daß ausschlaggebend für die Interpretation abgeleiteter Verben bestimmte
that decisive for the interpretation derived verbs certain
semantische Interpretationsmuster sind, […]13
semantic interpretation.models are ‘that certain semantic interpretation models […] are decisive for the interpretation of derived verbs’

6.2.5. German, English, Danish: Specificational Constructions, Question Tags, and Left Dislocation

The difference between specificational and predicational structures is best captured by generalizing the German lexical item for the copula even further: Instead of using the append operator

\[ \oplus \] to concatenate two lists as in (32), the more general version of the copula uses the shuffle operator (\( \odot \)):

(39) \[ \text{ARG-ST value for the predicational and specificational copula:} \]

\[
\text{ARG-ST} \quad \oplus \quad \circ \quad \left( \begin{array}{c} \text{HEAD} \\ \text{COMPS} \end{array} \right) \quad \odot \quad \left( \begin{array}{c} \text{PRD} \\ \text{SUBJ} \end{array} \right) \]

The shuffle operator was introduced by Reape (1994, p. 152–153) to combine two lists. The resulting list has to contain all elements of the two lists that are combined and the relative order of the respective lists has to be maintained. If we shuffle the two lists (1, 2, 3) and (4, 5), for instance, we get all lists in which 1 is before 2 and 1 is before 3 and 4 is before 5. But 4 and 5 may appear before or between the elements in the first list. (4, 1, 5, 2, 3) is part of the result of the shuffle operation. For the lexical item above this means that the predicative argument can be linearized before, between or after the elements of its SUBJ and COMPS list.

Since English and Danish do not form predicate complexes there is just the Head-Specifier Schema and the Head-Complement Schema, which require arguments to be fully saturated. Hence \( \text{[]} \) is instantiated as the empty list, \( \text{[]} \) is a list containing exactly one element, since neither English nor Danish allows for subjectless constructions. Shuffle combines the elements of two lists in any order provided the order of the elements in the respective lists is preserved. In the example above we have a trivial case: Two lists with exactly one element are shuffled. The result is that the predicative argument is ordered first or last. When it is ordered last we get a lexical item as in (23) with a mapping to SPR and COMPS as in (24). The respective analysis was already explained in Section 6.2.1. If the predicative argument is shuffled to the initial position on the ARG-ST list it will be mapped to SPR and the subject of the predicate will be mapped to COMPS as in (40).

(40) The copula with the specification mapping to SPR and COMPS:

\[
\text{SPR} \quad \oplus \quad \text{COMPS} \]

\[
\text{ARG-ST} \quad \oplus \quad \left( \begin{array}{c} \text{HEAD} \\ \text{COMPS} \end{array} \right) \quad \odot \quad \left( \begin{array}{c} \text{PRD} \\ \text{SUBJ} \end{array} \right) \]

\[
\text{CONT} \quad \oplus \quad \left( \begin{array}{c} \text{IND} \\ \text{LTOP} \end{array} \right) \]

\[
\text{RELS} \quad \text{HCONS} \]

The analysis of (41) is given in Figure 6.4 on the following page.

---

11 This is a simplification as was already noted in footnote 10.
12This is 00.10 07 95, p. 10.
13In the main text of Kaufmann, 1993, Konzeptuelle Grundlagen semantischer Dekompositionsstrukturen, p. 162.
6.2. The Analysis

This constraint says that all items that have a predicative argument as the first member of their ARG-ST list require their second member of their ARG-ST list (the subject that is predicated over) to have an empty SLASH list. If an element is extracted, its SLASH value is a list with one element that is identical to the local value of the extracted element. If something is extracted from inside an argument, SLASH also contains at least one element. Hence, requiring that the SLASH value is the empty list blocks extraction of the second ARG-ST element and extraction out of this element. See Chapter 11 for the details of the analysis of nonlocal dependencies.

The constraint in (42) ensures that the example in (12d) – repeated here as (43a) is excluded. In addition it avoids spurious ambiguities for sentences like (43b).

(43) a. * Max tror han, at vinderen er _ ).
   Max thinks he that winner.DEF is
   'He thinks that the winner is Max.'

b. Max er vinderen.
   Max is winner.DEF
   'Max is the winner.'

Without the restriction in (42) the sentence in (43b) could have the structure in (44):

(44) Max, [erj [vinderen [_[_vinderen]]]]

Max would be the extracted complement of the (moved) copula (_) and vinderen would be the specifier. Since the extraction of the underlying subject is prohibited, (44) is ruled out and the only legitimate structure for (43b) is the one in (45):

(45) Max, [erj [_[_vinderen]]]

Note that these restrictions cannot easily captured by a surface-oriented linearization constraint that requires the element that is predicoted over has to stay after the copula, since this constraint is not violated in (46):

(46) Er Max vinderen?

Rather one would need a set of constraints that requires the predicate to be serialized before its subject, but only if the structure is predicational. The constraint has to be blocked from being applied to the normal predicational structures since otherwise normal predicational structures are ruled out. This means that one would mark the predicate according to the predicational/predicational status of the construction it appears in or alternatively make the linearization constraint dependent on other linguistic objects like the copula or the phrasal configuration as a whole. Since phrasal approaches that would treat predicational structures as a fixed construction are problematic (Müller 2006; Müller and Wechsler To Appear), the only option seems to be to assume complex linearization constraints that refer to three items. This is a highly undesirable situation that is avoided in models that analyze the fronting of a constituent as extraction.

Before we turn to the next topic, we want to give the final, fully specified lexical item that subsumes the copula in Danish, English, German, and probably a lot of other languages:

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Languages with free constituent order restrict the lexical item for the copula further in requiring the combination between the predicate and the raised elements to be appended rather than shuffled. That is, they restrict (47) to (32).

**6.2.7. Raising and Nonlocal Dependencies**

The treatment of raising in the lexical entry for the copula in (47) differs in an interesting way from the characterization of raising as it is given in Ginzburg and Sag (2000, p. 22). Ginzburg and Sag assume the following constraint:

\[
\text{raise}() := \text{Loc} \cdot \text{Rest}
\]

This version of raising differs from earlier proposals in that only local values are shared instead of whole synsem objects. The reason for this treatment is that one would get problems with the lexical slash amalgamation that was suggested by Bouma et al. (2001): if the whole synsem object was shared, there would be slash amalgamation in the subject and in the phrase from which the subject is raised, an unwelcome result (Ginzburg and Sag, 2000, p. 21, fn. 8). The problem with (48) is that it is too specific. As was discussed above, the value of subj could be the empty list. A solution seems to be the disjunctive specification of raising verbs that allows for an empty subj list as in (49):

\[
\text{raise}() := \text{Loc} \cdot \text{Rest} \lor \text{raise}() \cdot \text{rest}
\]

But such a disjunction is not sufficient for German since complements are raised as well and the number of elements on the comp list is restricted by performance factors only (Müller, 2004, p. 220). So if one were to assume an amalgamation account of nonlocal dependencies for German, one would be forced to use a relational constraint that walks through lists and produces a copy of the list that contains elements that share the local values with the elements of the list from which they are raised. The arg-st of raising verbs would then look as follows:

\[
\text{arg-st list for German with subj and comp raised with a special relational constraint:}
\]

\[
\text{arg-st raise}() \cdot \text{raise}() \cdot \text{rest} \lor \text{arg-st raise}() \cdot \text{rest}
\]

Where raise is defined as follows:

\[
\text{raise}() := \text{Loc} \cdot \text{Rest}
\]

Note that this is only part of what would be necessary. As in Ginzburg and Sag’s original proposal a lot of things are unspecified: What happens with other features outside of local (for instance lex, see Müller 1996b)? Are they shared? If so, this has to be made explicit. If not, what is the value of these features? In model theoretic approaches unspecified values of features can have any possible value. This would result in spurious ambiguities or wrong analysis in structures that involve raising, unless one stipulates values.

So, rather than complicating the analysis of raising, we will drop the amalgamation analysis and return to an analysis that introduces nonlocal dependencies in syntax. This can be done through a trace or a unary branching projection. In Chapter 11 we assume a trace. As Bouma, Malouf and Sag (2001, p. 29) point out, the amalgamation analysis is not necessary to account for extraction path marking phenomena, one of the highlights of the Bouma, Malouf, Sag paper. If adjuncts are registered at a head (either in an adjunct as dependents analysis or via a mechanism of the kind suggested by Levine and Hukari (2006a, Chapter 3.7.2)), a pathway marking element can attach to the head and check its inher/slash value and the slash values that are contributed by the elements in the comp list and the slash values of the registered adjuncts.

**6.2.8. Predicative Raising-Nouns**

Doug Arnold brought the following kind of predicative noun phrases to our attention:

\[
\text{He is a dead cert/a certainty to win.}
\]

\[
\text{This is a cinch to prise off.}
\]

These nouns are raising nouns and can only be used predicatively:

\[
\text{He is a dead cert/a certainty to win came into the room.}
\]

\[
\text{This is a cinch to prise off came into the room.}
\]

We assume the lexical entry in (54) for a noun like cert.
6. Copula Constructions

6.3. Alternatives

This section discusses previous proposals in the literature. We start with a lexical rule-based proposal to predication, continue with Van Eynde’s non-raising approach, and finish the section with a discussion of Müller’s earlier treatment of primary and secondary adjectival predication.

The constraint in (55) is the only stipulative part of the analysis, but we see no other way to account for this data without employing several semantic features for external and internal content of phrases as was done by Kasper (1995).

This noun is similar to normal nouns in that its semantic contribution is a referential index with person and number features and in that it takes a determiner as specifier that has to agree with the noun in number. The noun takes as its complement a VP and raises the missing specifier of this VP (the subject) to its own subj list. The referential index of the noun is linked to the first argument of the relation that is contributed by the noun and the semantic contribution of the VP is linked to the second argument.

Since the noun is specified to be prd +, all projections of this noun are excluded in positions in which non-predicative NPs are required and hence sequences like (53) are ruled out.

After combination of the lexical item in (54) with the VP complement, the determiner, and possibly some adjuncts, the resulting phrase can function as the daughter in the predicative NP.

One thing is missing to make the analysis of sentence like (52) complete: The predication schema does not identify the head value of the non-head daughter with the head value of the mother. After all it usually applies to non-predicative NPs and hence, sharing of the head values would cause conflicts in these cases. Therefore the subj value of the raising noun NP is not identified with the subj value in the mother node. This has to be stated explicitly for the cases under discussion:

\[ \text{(55) \ non-head-dtrs} \Rightarrow \text{np-pred-phrase} \]

This constraint says that for all structures of type np-pred-phrase with a predicative non-head daughter, the subj value of the mother node is identical to the subj value of the non-head daughter.

\[ \text{This constraint in (55) is the only stipulative part of the analysis, but we see no other way to account for this data without employing several semantic features for external and internal content of phrases as was done by Kasper (1995).} \]

Figure 6.5.: Analysis of *He is a cert to win.*
6.3. Pollard and Sag 1994 and Sag and Ginzburg 2000

Pollard and Sag (1994, p. 360) sketch the lexical rule in (56) that takes nouns as used in normal referential NPs like a teacher in (57a) and maps them onto another lexical item that can be used predicatively like in (57b).

\[
\begin{align*}
(56) & \quad N\{\neg PRD, SUBJ\} | \{\text{RESTRICTION} (\text{\[\]})\} \rightarrow N\{\neg PRD, SUBJ (\text{XP} \text{\[\]})\} \text{\[\]}
\end{align*}
\]

(57) a. A teacher laughs.
   b. John is a teacher.

Ginzburg and Sag (2000, p. 409) give the following variant of the rule in (56):

\[
\begin{align*}
(58) & \quad \text{ Singular Predicative Noun Lexical Rule:}
\end{align*}
\]

\[
\begin{align*}
[\text{SS|LOC|CAT|HEAD} \text{\[\]}) & \circlearrowleft \text{\[\]})] \quad \Rightarrow LR
\end{align*}
\]

\[
\begin{align*}
[\text{SS|LOC|CAT|ARG-ST} \text{\[\]}) & \circlearrowleft \text{\[\]})] \quad \Rightarrow LR
\end{align*}
\]

\[
\begin{align*}
[\text{SS|LOC|CAT|ARG-ST} \text{\[\]}) & \circlearrowleft \text{\[\]})] \quad \Rightarrow LR
\end{align*}
\]

The lexical rule in (56) adds a subject to the valence features of the noun and by doing so makes it parallel to predicative adjectives. The copula and verbs like seem and consider are treated as raising verbs that raise the element in SUBJ and make it their own subject or – in the case of consider – object.

Pollard and Sag suggest that the element in the set of restrictions of the noun in the input of the rule is represented as the main semantic contribution of the resulting noun. So the contribution of teacher in (57b) is teacher(\[\]), while it is \[teacher(\[\])\] for (57a). As Pollard and Sag point out, this analysis does not extend to proper nouns like those in (1a) – repeated here as (59) – for semantic reasons.

(59) Cicero is Tully.

Like most researchers Pollard and Sag (1987, p. 66) distinguish between the be of predication and the be of identity, and hence the lexical rule does not have to account for cases with two proper names or two pronouns.

As Kasper (1995) pointed out in unpublished work, the lexical rule-based analysis fails for examples that contain modifiers in the predicative phrase:

(60) He is a good candidate.

The classical analysis of adjectives assumes that nominal modifiers attach to an N and identify their referential index with the referential index of the noun. But if the semantic contribution of candidate is a predicate rather than an index, modification cannot apply as usual. This problem is solved by our analysis. The NP a good candidate has the normal NP internal syntax and only the complete NP is mapped onto a predicative NP.

6.3.2. Van Eynde 2008, 2009

Van Eynde (2008, p. 264–265) suggests the following alternative to the raising analysis: Lexical items for seems as in (61a) are constrained by (62) and items like the one that is needed for consider in (61b) are constrained by (63).

(61) a. John seems a nice guy.
   b. Bob considers his brother a genius.

(62) a1-pred-lex ⇒
\[
\begin{align*}
[\text{ARG-ST} \text{\[\]}) & \circlearrowleft \text{\[\]})] \quad \Rightarrow \text{LR}
\end{align*}
\]

(63) a2-pred-lex ⇒
\[
\begin{align*}
[\text{ARG-ST} \text{\[\]}) & \circlearrowleft \text{\[\]})] \quad \Rightarrow \text{LR}
\end{align*}
\]

By assuming these constraints on lexical entries Van Eynde can analyze the sentences in (61) with normal nouns without having to assume a separate predicative lexical item for the predicative usage of the noun or a unary schema that maps non-predicative NPs onto predicative ones. The referential NP is compatible with the specification Z\[\] and the referential index of the NP will be linked to the theme role of the coref-relation.

Van Eynde (2008, p. 265) assumes that all predicate selectors contribute such semantic information and explicitly includes the copula be here. He argues that the dative of judgment depends on the copula, which he takes as evidence for its relational status:

(64) Es ist mir zu kalt.
   it is med. DAT too cold
   ‘It is too cold for me.’

However, traditionally it is said that this dative depends on the zu rather than on the copula and there is evidence that casts doubts on Van Eynde analysis. In the following examples we

---

15The curly brackets around \[\] in the input are missing in Pollard and Sag’s version of the lexical rule.
16See also Gerbl 2007, p. 241.
have mir zu warme and mir zu kalte, with zu present but in a prenominal context in which copulas are never present:

(65) a. bis auf das mir zu kalte Ziel Spitzbergen19
   ‘except for the goal Spitsbergen, which is too cold for me’
b. die mir zu warme Book-Unterseite20
   ‘the bottom of the Book, which is too warm for me’

In order to have a uniform analysis Van Eynde would have to assume an empty copula in prenominal position that takes an inflected adjective as argument. This is highly implausible, since the copula is hardly ever realized prenominaly and never with inflected adjectives (66b).

(66) a. * ein klug seinder Mann
   a smart being man
b. * ein kluger seinder Mann
   a smart being man
c. schon länger her seinder Herbsturlaub21
   already longer ago being fall.holiday

Interestingly, examples like (66c) with seinder can be found, but here the adverb her (‘ago’) cannot be inflected and the only way to realize her prenominaly rather than as part of postnominal relative clause is to use the adjectival form of the copula. In any case, even (66c) is marked, which is probably also the reason for the non-standard orthography that can be found at the web page: schon-länger-her-seinder-Herbsturlaub.

So, the examples with zu are not good examples to support Van Eyndes theory, but there are also examples of copula constructions with a dative but without a degree word like zu (‘to’ or genug (‘enough’) being present:

(67) Du bist mir ja ein schöner Vorsitzender!
   you.NOM are me.DAT PART a nice chair
   ‘You are a nice chair to me.’

Van Eynde provides parallel Dutch examples. Such sentences are used to express that the speaker thinks that the addressee does not have all properties that are usually assigned to the predicative noun. Such datives should be handled as scopal modifiers that encapsulate the meaning of the predication similar to the semantic representation that was suggested by Van Eynde in (62). But the respective semantic representation is the result of combining a copula construction with an adjunct rather than being part of the specification of the copula that takes a dative as complement.

Another example of datives in copula constructions is shown in (68):

(68) a. * He seems to be him.
   b. * He seems John Malkovich.

Here the copula has to be used:

(70) a. * He seems him.
   b. * He seems John Malkovich.

The same is true for gerunds and infinitives if the subject of the infinitive is not realized as the subject of seems:

(72) a. * His main worry now seems to get rid of his detractors.
   b. * The greatest pleasure on earth seems to be eating oysters . . . .
   c. The greatest pleasure on earth seems eating oysters . . . .
   d. His main worry now seems to be to get rid of his detractors.

This difference is captured by an analysis that treats seem as a raising verb and assumes that there is an equational copula be. Since seem does require a phrase of type event as complement, gerunds and infinitives are excluded and since the identity copula can be combined with gerunds and infinitives, examples like (72c,d) are well-formed.

Secondly, there seems to be no way to account for the differences in question tags and pronouns in left dislocation structures that were discussed in Section 6.1.1. In the type shifting analysis we have predicative NPs and they combine with the pronoun dass, that, and where they add the dative to the argument list of a verb. In Van Eyndes analysis the work is done by the copula and there are no different NP types, hence there is no explanation for question tag formation and left dislocation.

In addition there is a very general problem of the analysis: It does not extend to predicates with an expletive subject as in (16) – repeated here as (73a) – or predicates that do not have a subject at all as for instance (17) – (17a) is repeated here as (73b).

(73) a. Das Bier ist den Gasten oft zu warm.
   the beer is the guests.DAT often too warm
   ‘Often the beer is too warm for the guests.’

In both cases there is nothing present that could be “coreferential” with the adjectival predicate. Van Eynde (presentation at HPSG 2009) suggests that the THEME role of the coref-ref is optionally filled: that is, in the case of expletives there is no index linked to THEME. He argues that this is parallel to cases like (74):

(74) a. He eats pizza.
   b. He eats.

In (74b) the object of eats remains implicit. Note that this analysis introduces a disjunction in the lexical item for the copula, namely a disjunction between referential and expletive indices of the subject NP. In addition one would need another disjunction that accounts for the fact that the subject can be missing altogether. Therefore one would have to have three versions of the copula: one for clauses with referential subjects, one for clauses with expletive subjects, and one for clauses without subject. The big problem for such a proposal is that it has to be ensured that the right copula is used with the right embedded predicate. For instance it is impossible to use (17b) with a subject:

(75) * weil der Mann ihm schlecht ist
    because the man him DAT sick is

Similarly, expletives are impossible in normal prediative constructions:

(76) Es ist klug.
    it is smart
    ‘He/she is smart.’

(76) does not have a reading in which nobody is smart or there is generic smartness. The es has to be referential and it has to refer to something that has neuter gender as for instance Mädchen (‘girl’) or Burschlein (‘boy’). This means that the subject of the copula has to be expletive if and only if the embedded predicate requires for an expletive. It can be missing if and only if the embedded copula does not require a subject. This is best captured by a raising analysis.

### 6.3.3. Müller 2002

Some authors have suggested using a special valence feature called XCOMP or VCOMP for the selection of an argument that entitles predicate complex formation (see Chung 1993 for Korean, Rentier 1994 for Dutch, and Müller 1997, 2002 and Kathol 1998; 2000, Chapter 8 for German). Müller (2002, p. 103) extended the verb complex analysis of other authors to copula constructions and resultative secondary predicates. He gave the following lexical item for the copula:

(77) sein (predicative copula, according to Müller (2002, p. 103)):

\[
\begin{align*}
\text{sein} & \in \begin{cases}
\text{REFL} & \text{MOD none}, \\
\text{PRD} +, & \text{SUBJ}, \text{SUBCAT}, \\
\text{XCOMP} & \text{LEX} +
\end{cases}
\end{align*}
\]

The copula raises both the subject, if there is one (I), and other arguments of the embedded adjective (8Q). The predicative adjective is required to be LEX+. Therefore it forms a complex with the copula directly and all its arguments are raised.

The problem with this lexical item is that it specifically selects a predicative adjective. Müller selected all verbs that take part in complex formation via XCOMP, but those that were realized as full phrases – that is in so-called incoherent constructions – were selected via SUBCAT (COMPS in the notation we use here). The problem that results from this treatment is that two lexical items for the predicative copula are needed, one that selects NP and PP predicates and one for adjectival predicates. Similarly the lexical rule for resultative predication selects the result predicate via XCOMP. Since both PPs and adjectives can function as the result predicate in German but only structures with adjectives fulfill the criteria for coherent constructions, a more general treatment of the facts is desirable.

In the analysis presented here, the lexical item for cut as used in (78) is (79).

(78) Er schneidet die Zwiebel klein / in Stücke.
    he cuts the onions small into pieces

(79) ARG-ST for schneid-cut- as used in the resultative construction:

\[
\begin{align*}
\text{ARG-ST} & \in \begin{cases}
\text{NP} & \text{MOD none}, \\
\text{PRD} +, & \text{SUBJ}, \text{NP ref}, \text{COMPS} \text{ref}
\end{cases}
\end{align*}
\]

This lexical item is not special to German. It is the same for English (and other languages, see Verspoor 1997, Wechsler 1997, and Wechsler and Noh, 2001 for analyses of English and Korean). German forms a predicate complex, but English and Danish do not. This is a fact about the syntax of the respective languages but it is not represented in the lexical items. Hence, crosslinguistic generalizations are captured better in the analysis presented here.

### 6.4. Conclusion

This chapter provides the basic building blocks for predicational, specificalional and equational constructions.

We have shown that the arguments provided by Van Eynde for an identity analysis without raising are not convincing. In addition, in his analysis there are problems with pronouns in predication structures, the analysis cannot account for question tags and pronouns in left dislocation structures, and the analysis does not extend to subjectless constructions and to account for intraposed APs.

We suggest returning to a raising analysis of predication that raises the complete value of SUBJ of the embedded predicate rather than identifying LOCAL values of raised subjects. The predicational lexical rule was recoded as a unary branching immediate dominance schema, which allows
the inclusion of modifiers in the NP. In addition it was suggested to dispense with the XCOMP feature and to return to a COMPS-based analysis in which predicative and non-predicative arguments are selected uniformly via COMPS. This makes it possible to treat the various predication structures as optionally coherent constructions.
A. List of Phrases Covered/Rejected by the Grammar

**NP**

1. **bogen**
   `book.DEF` 'the book'

2. **den bog**
   `the book`

3. *** den bogen**
   `the book.DEF`

4. **den kloge bog**
   `the smart.DEF book`

5. **en kloge bog**
   `a smart.INDEF book`

6. *** den kloge bog**
   `the smart.INDEF book`

7. *** en kloge bog**
   `a smart.DEF book`

**Tense**

8. **Bjarne læser en bog.**
   `Bjarne reads a book`

9. **Bjarne læste en bog.**
   `Bjarne read a book`

**Tense + Perfect**

10. **Bjarne har læst bogen.**
    `Bjarne has read a book`

**V2**

11. **Bjarne læser ikke en bog.**
    `Bjarne is not reading a book`

12. **at Bjarne læste en bog**
    `that Bjarne read a book`

13. **Peter tror, at Bjarne ikke læste en bog.**
    `Peter believes that Bjarne did not read a book.`

14. **at Bjarne ikke giver Max bogen**
    `that Bjarne not gives Max book.DEF`

15. *** at Bjarne ikke giver bogen Max**
    `that Bjarne not gives book.DEF Max`

**Negation + V2**

16. **Bogen læser Bjarne.**
    `The book, Bjarne reads.`

17. *** Bogen Bjarne læser.**
    `The book, Bjarne reads.`

18. **Bogen giver Bjarne manden.**
    `The book, Bjarne gives Bjarne man.DEF`

19. *** Manden giver bogen Bjarne.**
    `Manden gives book.DEF Bjarne`

20. **Nu læser Bjarne bogen.**
    `now reads Bjarne book.DEF`

21. *** Nu Bjarne læser bogen.**
    `now Bjarne reads book.DEF`

**Constituent Order**

11. **Bjarne læser ikke en bog.**
    `Bjarne reads not a book`

12. **at Bjarne læste en bog**
    `at that Bjarne read a book`

13. **Peter tror, at Bjarne ikke læste en bog.**
    `Peter believes that Bjarne not read a book`
V2 + case

(23) Han læser bogen.
he.nom reads book.DEF
'He reads the book.'

(24) * Han læser bogen.
he.acc reads book.DEF

(25) Ham tror jeg vinder.
he.acc think I win
'As for him, I think he wins.'

(26) Har tror jeg vinder.
he.nom think I win
'As for him, I think I win.'

(27) Han tror jeg du kender.
he.acc think I you know
'As for him, I think you know him.'

(28) * Han tror jeg du kender.
he.nom think I you know

V2 + case + coordination

(29) Ham elsker Max og have Peter.
he.acc loves Max and hates Peter
'As for him, Max loves him and Peter hates him.'

(30) Han elsker Max og have Peter.
he.nom loves Max and hates Peter
'He loves Max and hates Peter.'

Vbase + case

(31) at han læser bogen
that he.nom reads book.DEF
'that he reads the book.'

(32) * at ham læser bogen
that he.acc reads book.DEF

V2 + case + coordination

that trace

(33) Bjarne tror jeg vinder.
Bjarne think I wins
'As for him, I think he is going to win.'

(34) * Bjarne tror jeg at vinder.
Bjarne think I that wins

Questions

(35) Giver Bjarne manden bogen?
gives Bjarne man.DEF book.DEF

(36) * Giver Bjarne bogen manden?
gives Bjarne book.DEF man.DEF

predicational structures

(37) Max er ikke vinderen.
Max is not winner.DEF
'is he?'

(38) Vinderen er Max ikke.
winner.DEF is Max not
'is he?'

(39) * Klog er ikke Max.
smart is not Max
'Max is not smart.'

(40) Klog er Max ikke.
smart is not Max
'Max is not smart.'

predicational structures + adjective + agreement

(41) Drengen er stor.
boy.DEF is big

(42) Huset er stort.
house.DEF is big

(43) Drengene er store.
boy.DEF.PL are big

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specification structures

(44) Vinderen er ikke Max. winner.DEF is not Max 'is it?'

coordination

(45) Bjarne og Max arbejder. Bjarne and Max work
(46) * Bjarne arbejder og. Bjarne works and
(47) Bjarne læser bogen og zeitung. Bjarne reads books and newspapers
(48) Bjarne kender ham og seine frau. Bjarne knows him and his wife 'Bjarne knows him and his wife.'

Passive

(49) Bogen bliver læst. book.DEF was read 'The book was read.'
(50) Der bliver arbejdet. there was worked 'There was working.'
(51) Max bliver anbefalet bogen. Max is recommended book.DEF 'The book is recommended to Max.'
(52) * Max bliver anbefalet han Max is recommended he
(53) * at ham bliver anbefalet bogen that him is recommended book.DEF

Adjuncts

(54) Bjarne læser bogen nu. Bjarne reads book.DEF now
(55) Bjarne læser nu bogen. Bjarne reads now book.DEF
(56) at Bjarne nu læser bogen that Bjarne now reads book.DEF
(57) at Bjarne læser bogen nu that Bjarne reads book.DEF now
(58) * at Bjarne læser nu bogen that Bjarne reads now book.DEF
(59) * Bjarne læser bogen ikke. Bjarne reads book.DEF not
(60) * at Bjarne læser bogen ikke that Bjarne reads book.DEF not
(61) * at Bjarne har nu læst bogen that Bjarne has now read book.DEF 'that Bjarne has read the book now.'
(62) at Bjarne sandsynligvis ikke læser bogen that Bjarne probably not reads book.DEF 'that Bjarne probably does not read the book'
(63) * at Bjarne ikke sandsynligvis læser bogen that Bjarne not probably reads book.DEF

Adjuncts + Manner Adverbs

(64) at Bjarne læser bogen forsigtig that Bjarne reads book.DEF carefully
(65) at Bjarne forsigtig læser bogen that Bjarne carefully reads book.DEF
(66) * at Bjarne læser forsigtig bogen that Bjarne reads carefully book.DEF 'that Bjarne reads the book carefully'
(67) at Bjarne forsigtig giver Max bogen that Bjarne carefully gives Max book.DEF
(68) at Bjarne giver Max bogen forsigtig that Bjarne gives Max book.DEF carefully
Adjuncts + Manner Adverbs + V2

Interrogatives

Object shift
"at Bjarne den ikke læser that Bjarne it not is.reading"

"Bjarne har ikke læst den. Bjarne has not read it. ‘Bjarne has not read it.’"

"Bjarne har den ikke læst Bjarne has it not read ‘Bjarne has not read it.’"

"Har Bjarne ikke givt ham det? has Bjarne not given it ‘Hasn’t Bjarne given it to him?’"

"Læser Bjarne den ikke? reads Bjarne it not"

"Læser Bjarne ikke den? reads Bjarne not it (stressed pronoun)"

"Har Bjarne ikke læst den? has Bjarne not read it"

"Har Bjarne den ikke læst? has Bjarne it not read"

"Bjarne læser det sandsynligvis ikke. Bjarne is reading it probably not ‘Bjarne probably is not reading it.’"

"Bjarne læser sandsynligvis det ikke. Bjarne is reading probably it not ‘Bjarne probably is not reading it.’"

"Giver Bjarne den ikke Peter? gives Bjarne it not Peter"

"Giver Bjarne ham den ikke? gives Bjarne him it not"

"Peter giver Bjarne det ikke. Peter gives Bjarne it not ‘Bjarne does not give it to Peter.’"

"Giver Bjarne ham ikke bogen? gives Bjarne him not book.DEF ‘Doesn’t Bjarne give him the book?’*

Object Shift + V Fronting

"Læser Bjarne den ikke? reads Bjarne it not"

"Læser Bjarne ikke den? reads Bjarne not it (stressed pronoun)"

"Arbejder Bjarne på den ikke? works Bjarne not at it ‘Doesn’t Bjarne work on it?’"

"Arbejder Bjarne den ikke på? works Bjarne it not at"

"Arbejder Bjarne på den ikke? works Bjarne at it not"

"Bjarne afleverer bogen til ham. Bjarne delivered book.DEF to him ‘Bjarne delivered the book to him’"

"Bjarne afleveret den ikke til ham. Bjarne delivered it not to him ‘Bjarne did not deliver it to him.’"

"Bogen afleveret ham ikke til Bjarne delivered him not to"

"Doesn’t Bjarne give him the book?"

"That I could not read it. ‘I could not read it.’”
(121) Bjarne har ikke villet læse den.  
Bjarne has not wanted read.INF it  
‘Bjarne did not want to read it.’

(122) * Læse har Bjarne den ikke villet.  
read.INF hat Bjarne it not wanted

Object Shift + V Fronting + Passive

head specifier structures

(123) * Bjarne læst den  
Bjarne read.PPP it

Preposition Stranding

(124) Hvad arbejder Bjarne på?  
what works Bjarne on  
‘What does Bjarne work on?’

(125) En bog arbejder Bjarne på?  
a book works Bjarne on  
‘A book, Bjarne works on.’

(126) Den arbejder Bjarne på?  
it works Bjarne on  
‘Bjarne works on it.’

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