Danish in Head-Driven Phrase Structure Grammar

Stefan Müller and Bjarne Ørsnes

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 & 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 worthwile 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.

The Project

This book is part of a larger project, called CoreGram, with the goal to develop large scale computer processable grammar fragments of several languages that share a common core (Müller 2013a,b). Currently we work on the following languages:

- German (Müller 2007b, 2009b; Müller & Ørsnes 2011)

- Danish (Ørsnes 2009b; Müller 2009b; Müller & Ørsnes 2011, In Preparation)

- Persian (Müller 2010b; Müller & Ghayoomi 2010; Müller, Samvelian & Bonami In Preparation)

- Maltese (Müller 2009a)

- Mandarin Chinese (Lipenkova 2009; Müller & Lipenkova 2009, 2013)

- Yiddish (Müller & Ørsnes 2011)

- English

- Spanish

- French

For the implementation we use the TRALE system (Meurers, Penn & Richter 2002; Penn 2004), which allows for a rather direct encoding of HPSG analyses (Melnik 2007). The grammars of German, Danish, Persian, Maltese, and Mandarin Chinese are of non-trivial size and can be downloaded at http://hpsg.fu-berlin.de/Projects/CoreGram.html. They are also part of the version of the Grammix CD-rom (Müller 2007a) that is distributed with this book. The grammars of Yiddish and English are toy grammars that are used to verify cross-linguistic analyses of special phenomena and the work on Spanish and French is part of work in the Sonderforschungsbereich 632 which just started. See Bildhauer (2008) for an implemented grammar of Spanish that will be converted into the format of the grammars mentioned above.

We believe that books are the best way to document such fragments since it is often not possible to construct a coherent view of one language from journal articles. The reason is that journal articles tend to need a long time from first submission to final publication and sometimes basic assumptions may have changed during the development of the linguistic theory in the meantime. The first book in this series was Müller (2007b), which describes a fragment of German that is implemented in the grammar BerliGram. Another book on the Persian Grammar developed in the PerGram project is in preparation (Müller, Samvelian & Bonami In Preparation).

The situation in mainstream formal linguistics has often been criticized: basic assumptions are changed in high frequency, sometimes without sufficient motivation. Some concepts are not worked out in detail and formal underpinnings are unclear (see for instance Gazdar, Klein, Pullum & Sag 1985: p. 6; Pullum 1985, 1989, 1991: p. 48; Kornai &

Pullum 1990; Kuhns (1986: p. 550); Crocker & Lewin (1992: p. 508); Kolb & Thiersch (1991: p. 262); Kolb (1997: p. 3–4); Freidin (1997: p. 580); Veenstra (1998: p. 25, 47); Lappin et al. (2000: p. 888); Stabler (2010: p. 397, 399, 400); Fanselow (2009)). For a more detailed discussion of this point see Müller (2010a: Chapter 3.7). As already mentioned, we work in the framework of HPSG, which is well-formalized (King 1999; Pollard 1999; Richter 2004) and stable enough to develop larger fragments over a longer period of time. HPSG is a constraint-based theory which does not make any claims on the order of application of combinatorial processes. Theories in this framework are just statements about relations between linguistic objects or between properties of linguistic objects and hence compatible with psycholinguistic findings and processing models (Sag & Wasow 2011).

As is argued in Müller (2010a: Chapter 11.4), HPSG is compatible with UG-based models of language acquisition as for instance the one by Fodor (1998). See Fodor (2001: p. 385) for an explicit remark to that end. However, in recent years evidence has accumulated that arguments for innate language specific knowledge are very weak. For instance, Johnson (2004) showed that Gold's proof that natural langauges are not identifiable in the limit by positive data alone (Gold 1967) is irrelevant for discussions of human language acquisition. Furthermore, there is evidence that the input that humans have is sufficiently rich to aquire structures which were thought by Chomsky (1971: p. 29–33) and others to be inacquirable: Bod (2009) showed how syntactic structures could be derived from an unannotated corpus by Unsupervised Data-Oriented Parsing. He explained how Chomsky's auxiliary inversion data can be captured even if the input does not contain the data that Chomsky claims to be necessary (see also Eisenberg (1992) and Pullum & Scholz (2002); Scholz & Pullum (2002) for other Poverty of the Stimulus arguments). Input-based models of language acquisition in the spirit of Tomasello (2003) seem highly promising and in fact can explain language acquisition data better than previous UG-based models (Freudenthal et al. 2006, 2009). We argued in Müller (2010a) that the results from language acqustion reasearch in the Construction Grammar framework can be carried over to HPSG, even in its lexical variants.[1] If language acquisition is input-based and language-specific innate knowledge is minimal as assumed by Chomsky (1995); Hauser, Chomsky & Fitch (2002) or non-existing, this has important consequences for the construction of linguistic theories: Proposals that assume more than 400 morpho-syntactic categories that are all innate and that play a role in all languages of the world even though they are not directly observable in many languages (Cinque & Rizzi 2010) have to be rejected right away. Furthermore, it cannot be argued for empty functional projections in language X on the basis of overt morphemes in language Y. This has been done for Topic Projections that are assumed for languages without topic morphemes on the basis of the existence of a topic morpheme in Japanese. Similarly, functional projections for object agreement have been proposed for languages like English and German on the basis of Basque data even though neither English nor German

has object agreement. Since German children do not have any evidence from Basque, they would not be able to acquire that there are projections for object agreement and hence this fact would have to be known in advance. Since there is no theory external evidence for such projections, theories that can do without such projections and without stipulations about UG should be preferred. However, this does not mean that the search for universals or for similarities between languages and language classes is fundamentally misguided, although it may be possible that there is very little that is truely universal (Evans & Levinson 2009): In principle there exist infinitely many descriptions of a particular language. We can write a grammar that is descriptively adaquate, but the way the grammar is written does not extend to other languages. So even without making broad claims about all languages it is useful to look at several languages and the more they differ from each other the better it is. What we try to do here in this book and in the CoreGram project in general is the modest version of main stream generative grammar: We start with grammars of individual languages and generalize from there. We think that the framework we are using is well-suited for capturing generalizations within a language and across languages, since inheritance hierachies are ideal tools for this (see Section 1.5). Of course when building grammars we can rely on several decades of research in theoretical linguistics and build on insights that were found by researchers working under UG-oriented assumptions. Without a theory-driven comparative look at language certain questions never would have been asked and it is good that we have such valuable resources at hand although we see some developments rather critical as should be clear from the statements we made above.

Returning to formalization of linguistic theories, the same criticism that applies to GB/Minimalism applies to Construction Grammar: The basic notions and key concepts are hardly ever made explicit with the exception of Sign-Based Construction Grammar (Sag 2010, 2012), which is an HPSG-variant, Embodied Construction Grammar (Bergen & Chang 2005), which uses feature value matrices and is translatable into HPSG (see Müller (2010a: Chapter 9.6) for the discussion of both theories), and Fluid Construction Grammar (Steels 2011). Müller (2010a: Chapter 3.6.4; To appear(c)) showed that the combinatory operations of Minimalism as defined in Chomsky (2008) and Stabler (2001) corresponds to three of the schemata used in HPSG grammars since at least Pollard & Sag (1994): Merge corresponds the Head-Specifier Schema and the Head-Complement Schema of HPSG and Move corresponds to the Head-Filler Schema. So HPSG can be said to provide an explicit formalization of Minimalist ideas. HPSG differs from Minimalism in important respects though: It is constraint-based rather than generative-enumerative. The implications of this cannot be discussed in full detail here, but the interested reader is referred to Pullum & Scholz (2001) and Müller (2010a: Chapter 11.2). In addition we agree with Jackendoff (2008, 2011), Jacobs (2008), Sag (2010), and others that Move and Merge are not sufficient to deal with language in its full richness in non-stipulative ways. Hence we believe that additional schemata or phrasal constructions in the sense of CxG or Simpler Syntax (Culicover & Jackendoff 2005) are needed. To what extent phrasal constructions are needed and where Merge-like combinations together with a rich lexicon are sufficient or rather necessary is an empirical issue and the present book tries to

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[1] In fact we believe that a lexical treatment of argument structure is the only one that is compatible with the basic tenets of theories like Categorial Grammar (CG), Lexical Functional Grammar (LFG), CxG, and HPSG that adhere to lexical integrity (Bresnan & Mchombo 1995). For discussion see Müller (2006), Müller (2010a: Chapter 11.11), Müller (2010b), Müller (To appear(c)), and Müller & Wechsler (To appear).

contribute to this discussion.

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 be 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 extraposition 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 & 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 & 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 rule 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 absense 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 absense 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 occurance only and provide glosses for the other ones.

Acknowledgments

A Note on the Way this Book is Published

This book is available for download at http://hpsg.fu-berlin.de/~stefan/Pub/danish.html. Once completed it will be submitted to the Open Access series *Implemented Grammars* that is run by Language Science Press http://www.langsci-press.org/, which is an imprint that grew out of the OALI initiative. The interested reader will find more information about OALI on its web page at http://hpsg.fu-berlin.de/OALI/ and some further background in my *Personal Note on Open Access in Linguistics* (Müller 2012).

Berlin, October 10, 2013   Stefan Müller

Contents

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 & 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. (2014) 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
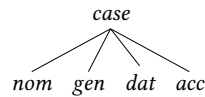
Figure 1.1: Subtypes of *case* in a grammar of German

object are maximally specific, 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 *Frau* ('woman') since *Frau* can be used in NPs of all four cases. (1) shows a simplified description of the nominal agreement information for the German noun *Frau* ('woman') (see Kathol (1999) for details and Wechsler & Zlatić (2003) for a comprehensive overview of agreement in HPSG). *Frau* 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.

$$(1) \quad \begin{bmatrix} \text{GEN} & \textit{fem} \\ \text{CASE} & \textit{case} \\ \text{NUM} & \textit{sg} \\ \textit{nom-agr} & \end{bmatrix}$$

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.

$$(3) \quad \begin{bmatrix} \text{GEN} & \textit{fem} \\ \text{CASE} & \textit{nom} \vee \textit{acc} \\ \text{NUM} & \textit{sg} \\ \textit{nom-agr} & \end{bmatrix} \vee \begin{bmatrix} \text{CASE} & \textit{nom} \vee \textit{acc} \\ \text{NUM} & \textit{pl} \\ \textit{nom-agr} & \end{bmatrix}$$

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):

$$(4) \quad \begin{bmatrix} \text{GEN} & \textit{fem} \\ \text{CASE} & \textit{nom} \vee \textit{acc} \\ \text{NUM} & \textit{sg} \\ \textit{nom-agr} & \end{bmatrix}$$

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* ('⊕'). *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 more 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 & 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 & Sag (1994). (5) shows parts of the lexical item for *Frau* ('woman').

$$
(5) \begin{bmatrix} \text{PHONOLOGY} \langle \textit{FRAU} \rangle \\ \text{SYNTAX-SEMANTICS} \begin{bmatrix} \text{LOCAL} \begin{bmatrix} \text{CATEGORY} \begin{bmatrix} \text{HEAD} \begin{bmatrix} \text{AGR} \;\boxed{1}\; \begin{bmatrix} \text{GEN} & \textit{fem} \\ \text{CASE} & \textit{case} \\ \text{NUM} & \textit{sg} \\ \textit{nom-agr} \end{bmatrix} \\ \textit{noun} \end{bmatrix} \\ \text{SPR} \;\left\langle \text{DET}[\text{AGR} \boxed{1}] \right\rangle \\ \textit{category} \end{bmatrix} \\ \text{CONTENT} \;\dots \begin{bmatrix} \text{INST} & X \\ \textit{frau} \end{bmatrix} \\ \textit{local} \end{bmatrix} \\ \text{NONLOCAL} \;\dots \\ \textit{synsem} \end{bmatrix} \\ \textit{word} \end{bmatrix}
$$
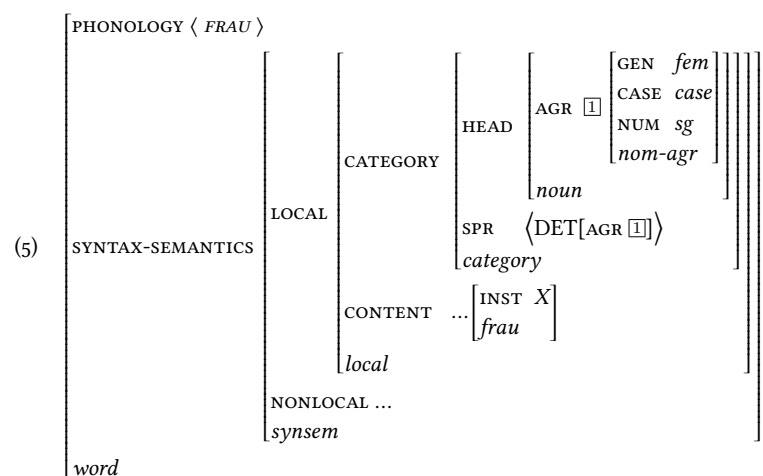
The first feature value pair describes the phonological form of the word. The value of PHON is a list of phonemes. For reasons of readability usually the orthographic form is given in HPSG papers and phonological structure is omitted, but see Bird & Klein (1994) and Höhle (1999) for analyses. The second feature is SYNTAX-SEMANTICS (SYNSEM) and its value is a description of all properties of a linguistic object that are syntactically and semantically relevant and can be selected by other heads. Information that is locally relevant (LOCAL) is distinguished from information that plays a role in non-local dependencies (NONLOCAL, see Section 11). Syntactic information is represented under CATEGORY (CAT) and semantic information under CONTENT (CONT). The example shows the HEAD value, which provides information about all aspects that are relevant for the external distribution of a maximal projection of a lexical head. In particular the part of speech information (*noun*) is represented under HEAD. The value of AGREEMENT (AGR) is the one given in (1). As well as information regarding the head features, valence information also belongs under CAT. The example shows the SPR feature, which is used for the selection of a specifier (see the next section for details on valence). The $\boxed{1}$ is an

example of structure sharing. It ensures that the specifier that is realized together with the noun has compatible agreement features.

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.

(6)	Verb	ARG-ST	SPR	COMPS
	sleeps	$\langle$ NP[*nom*] $\rangle$	$\langle$ NP[*nom*] $\rangle$	$\langle\,\rangle$
	likes	$\langle$ NP[*nom*], NP[*acc*] $\rangle$	$\langle$ NP[*nom*] $\rangle$	$\langle$ NP[*acc*] $\rangle$
	talks	$\langle$ NP[*nom*], PP[*about*] $\rangle$	$\langle$ NP[*nom*] $\rangle$	$\langle$ PP[*about*] $\rangle$
	gives	$\langle$ NP[*nom*], NP[*acc*], NP[*acc*] $\rangle$	$\langle$ NP[*nom*] $\rangle$	$\langle$ NP[*acc*], NP[*acc*] $\rangle$

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 & Comrie (1977) and Pullum (1977).

SUBJECT => DIRECT => INDIRECT => OBLIQUES => GENITIVES => OBJECTS OF
           OBJECT   OBJECT   COMPARISON

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 $\boxed{1}$ 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.

V[SPR ⟨⟩,
COMPS ⟨⟩]

⟨1⟩ NP[*nom*]   V[SPR ⟨ 1 ⟩,
COMPS ⟨⟩]
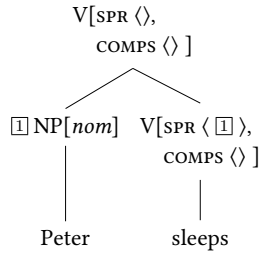
Peter   sleeps

Figure 1.2: Analysis for *Peter sleeps.*

V[SPR ⟨⟩,
COMPS ⟨⟩]

⟨1⟩ NP[*nom*]   V[SPR ⟨ 1 ⟩,
COMPS ⟨⟩]

V[SPR ⟨ 1 ⟩,   2 NP[*acc*]
COMPS ⟨ 2 ⟩]
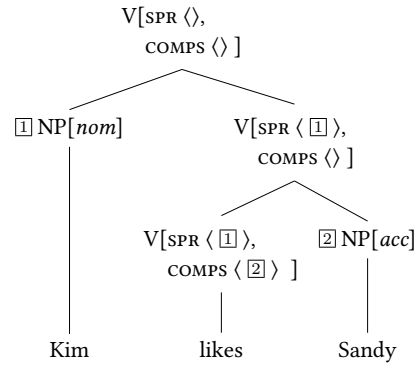
Kim   likes   Sandy

Figure 1.3: Analysis for *Kim likes Sandy.*

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 matrice that represents the dominance relations in the tree in Figure 1.4 is shown in (7).

$$(7)\begin{bmatrix} \text{PHON} & \langle \textit{ the man } \rangle \\ \text{HEAD-DTR} & \begin{bmatrix} \text{PHON} \langle \textit{ MAN } \rangle \end{bmatrix} \\ \text{NON-HEAD-DTRS} & \left\langle \begin{bmatrix} \text{PHON} \langle \textit{ THE } \rangle \end{bmatrix} \right\rangle \end{bmatrix}$$

NP

Det   N
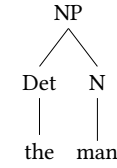
the   man

Figure 1.4: *the man*

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))
head-complement-phrase ⇒

$$\begin{bmatrix} \text{SYNSEM|LOC|CAT|COMPS } 1 \\ \text{HEAD-DTR|SYNSEM|LOC|CAT|COMPS } \langle 2 \rangle \oplus 1 \\ \text{NON-HEAD-DTRS } \left\langle \begin{bmatrix} \text{SYNSEM } 2 \end{bmatrix} \right\rangle \end{bmatrix}$$

This constraint splits the COMPS list of the head daughter into two parts: a list that contains exactly one element (⟨ 2 ⟩) and a remaining list (1). 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 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 & Sag (1994) for an analysis of English with a flat VP and Bouma & 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 Head-Specifier-Schema:[1]

---

[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.

Schema 2 (Specifier-Head-Schema)
head-specifier-phrase ⇒
$$\begin{bmatrix} \text{SYNSEM|LOC|CAT|SPR } \boxed{1} \\ \text{HEAD-DTR|SYNSEM|LOC|CAT|SPR } \boxed{1} \oplus \langle\, \boxed{2}\, \rangle \\ \text{NON-HEAD-DTRS } \left\langle \begin{bmatrix} \text{SYNSEM } \boxed{2} \end{bmatrix} \right\rangle \end{bmatrix}$$

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

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 INITIAL+ and those which follow their complements as INITIAL−. The following LP constraints ensure the right ordering of heads with respect to their complements:

(8) a. HEAD [INITIAL+] < COMPLEMENT
     b. COMPLEMENT < HEAD [INITIAL−]

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 preceeds 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))
head-complement-phrase ⇒
$$\begin{bmatrix} \text{SYNSEM|LOC|CAT|COMPS } \boxed{1} \oplus \boxed{3} \\ \text{HEAD-DTR|SYNSEM|LOC|CAT|COMPS } \boxed{1} \oplus \langle\, \boxed{2}\, \rangle \oplus \boxed{3} \\ \text{NON-HEAD-DTRS } \left\langle \begin{bmatrix} \text{SYNSEM } \boxed{2} \end{bmatrix} \right\rangle \end{bmatrix}$$

The COMPS list of the head daughter is split into three parts: a list of arbitrary length (⬚1), a list containing one element (⟨ ⬚2 ⟩) and another list of arbitrary length (⬚3). ⬚1 and ⬚3 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):

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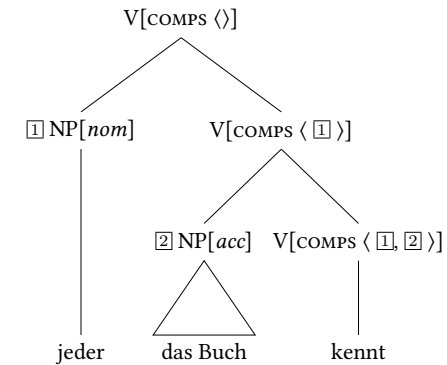
Figure 1.5: Analysis of *jeder das Buch kennt* (everybody the book knows)

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 & Nakazawa (1989), Pollard (1996a), and Engelkamp, Erbach & 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

V[COMPS ⟨⟩]

⟨2⟩ NP[*acc*]   V[COMPS ⟨ 1 ⟩]

⟨1⟩ NP[*nom*]   V[COMPS ⟨ 1, 2 ⟩]

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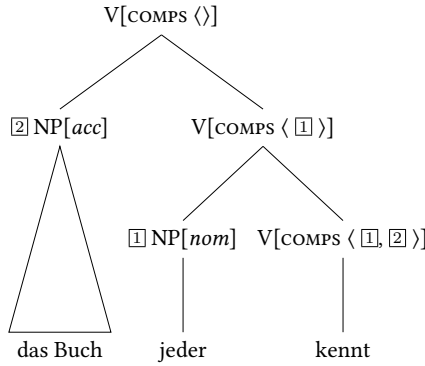
Figure 1.6: Analysis of *das Buch jeder kennt* (the book everybody knows)

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 1 or 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)   *headed-phrase* ⇒
$$\begin{bmatrix} \text{SYNSEM|LOCAL|CAT|HEAD } \boxed{1} \\ \text{HEAD-DTR|SYNSEM|LOCAL|CAT|HEAD } \boxed{1} \end{bmatrix}$$

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

The first publications on HPSG assumed Situation Semantics (Barwise & Perry 1983) as the underlying semantic framework (Pollard & Sag 1987, 1994). While there are also more recent publications in this tradition (Ginzburg & 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 & Sag (2005b)) and Lexical Resource Semantics (LRS, Richter & Sailer (2004)).

1.3.1 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*

$$\begin{bmatrix} \text{IND } \boxed{1} \begin{bmatrix} \text{PER} & 3 \\ \text{NUM} & sg \\ index \end{bmatrix} \\ \text{RELS } \left\langle \begin{bmatrix} \text{INST } \boxed{1} \\ dog \end{bmatrix} \right\rangle \\ mrs \end{bmatrix}$$

b. *chases*

$$\begin{bmatrix} \text{IND } \boxed{1} \; event \\ \text{RELS } \left\langle \begin{bmatrix} \text{EVENT} & \boxed{1} \\ \text{AGENT} & index \\ \text{PATIENT} & index \\ chase \end{bmatrix} \right\rangle \\ mrs \end{bmatrix}$$

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*]⟨1⟩ stands for a description of an NP with the semantic index identified with 1. The semantic indices of the arguments are structure shared with the arguments of the semantic relation *chase′*.

(12)   *chase*:

$$
\begin{bmatrix}
\text{SYNSEM|LOC} & \begin{bmatrix}
\text{CAT} & \begin{bmatrix}
\text{HEAD} & \begin{bmatrix} \text{VFORM} & \textit{fin} \\ \textit{verb} \end{bmatrix} \\
\text{ARG-ST} & \langle \text{NP}[\textit{nom}]_{\boxed{1}}, \text{NP}[\textit{acc}]_{\boxed{2}} \rangle
\end{bmatrix} \\
\text{CONT} & \begin{bmatrix} \text{IND} & \boxed{3}\ \textit{event} \end{bmatrix}
\end{bmatrix} \\
\text{RELS} & \left\langle \begin{bmatrix} \text{EVENT} & \boxed{3} \\ \text{AGENT} & \boxed{1} \\ \text{PATIENT} & \boxed{2} \\ \textit{chase} \end{bmatrix} \right\rangle
\end{bmatrix}
$$
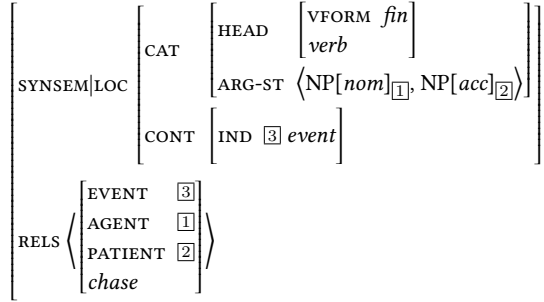
Generalizations over linking patterns can be captured elegantly in inheritance hierarchies (see Section 1.5 on inheritance hierarchies and Davis (1996); Wechsler (1991); Davis & Koenig (2000) for further details on linking in HPSG).

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.
      b. $\forall x(dog(x) \rightarrow \exists y(cat(y) \land chase(x,y)))$
      c. $\exists y(cat(y) \land \forall x(dog(x) \rightarrow chase(x,y)))$

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) ⟨ h0, { h1: every(x, h2, h3), h2: dog(x), h4: chase(e, x, y),
         h5: some(y, h6, h7), h6: cat(y) } ⟩

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 1.7. h0 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 1.7 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: h0 = h1 and h3 = h5 and h7 = h4.
         (*every dog* has wide scope)
      b. Solution two: h0 = h5 and h7 = h1 and h3 = h4.
         (*some cat* has wide scope)
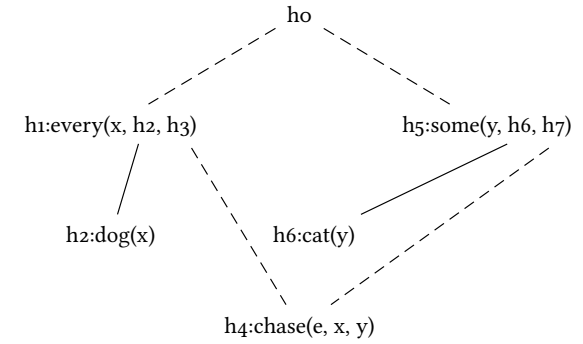
Figure 1.7: Dominance graph for *Every dog chases some cat.*

The solutions are depicted as Figure 1.8 and Figure 1.9.
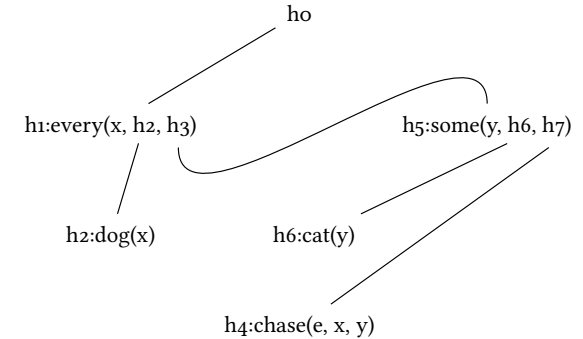
Figure 1.8: every(x,dog(x),some(y,cat(y),chase(x,y)))

There are scope interactions that are more complicated than those we have been looking at so far. In order to be able to underspecify the two readings of (16) both slots of a quantifier have to stay open.

(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 *dog′* was identified with the restriction of the quantifier. This would not work for (16a) since either *some′* or *nephew′* can be the restriction of *every′*. Instead of direct specification so-called handle constraints are used
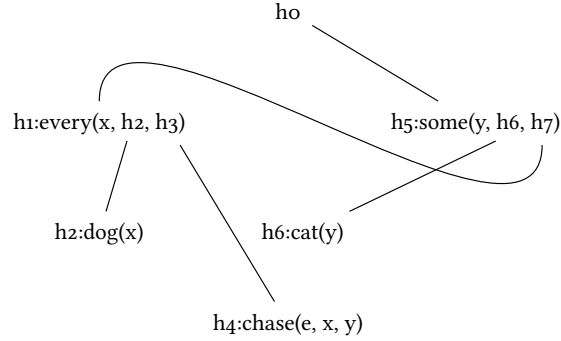
Figure 1.9: some(y,cat(y),every(x,dog(x),chase(x,y)))

(*qeq* oder $=_q$). 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) ⟨ h0, { h1:every(x, h2, h3), h4:dog(x), h5:chase(e, x, y),
       h6:some(y, h7, h8), h9:cat(y) }, { h2 $=_q$ h4, h7 $=_q$ h9 } ⟩

The handle constraints are associated with the lexical entries for the respective quantifiers. Figure 1.10 shows the analysis. For compositional cases as in Figure 1.10, the RELS value of a sign is simply the concatenation of the RELS values of the daughters. Similarly the HCONS value is a concatenation of the HCONS values of the daughters.

1.3.2 The Analysis of Non-Compositional Constructions

Copestake, Flickinger, Pollard & Sag (2005b) extended the basic analysis that concatenates RELS and 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):
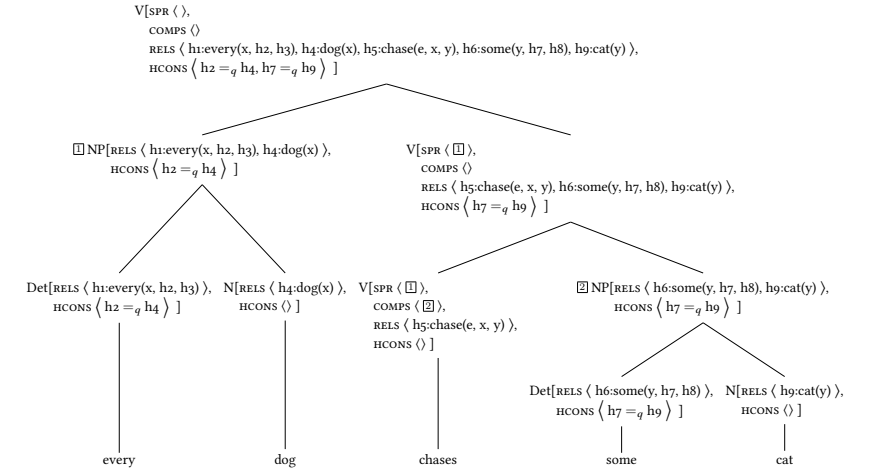
Figure 1.10: Analysis for *Every dog chases some cat.*

(18) $\begin{bmatrix} \text{HOOK} & \begin{bmatrix} \text{INDEX} & \textit{event-or-index} \\ \text{LTOP} & \textit{handle} \end{bmatrix} \\ \text{RELS} & \textit{list of relations} \\ \text{HCONS} & \textit{list of handle constraints} \\ \textit{c-cont} & \end{bmatrix}$

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]

---

[2] We do not assume a unary branching schema for bare plurals but an empty determiner, since using an empty determiner captures the generalizations more directly: while the empty determiner is fully parallel to the overt ones, the unary branching schema is not parallel to the binary branching structures containing an overt determiner. See also Alqurashi & Borsley (2013) for a similar point regarding relative clauses in Modern Standard Arabic with and without a complementizer.

(19)

$$
\begin{bmatrix}
\text{SYNSEM}|\text{LOC}|\text{CONT}\ \boxed{1} \\
\text{RELS}\ \boxed{2} \oplus \boxed{3} \\
\text{HCONS}\ \boxed{4} \oplus \boxed{5} \\[2ex]
\text{C-CONT}\
\begin{bmatrix}
\text{HOOK}\quad \boxed{1}\ \begin{bmatrix} \text{IND}\ \boxed{0} \end{bmatrix} \\[2ex]
\text{RELS}\quad \boxed{2}\ \left\langle
\begin{bmatrix}
\text{ARG0}\quad \boxed{0} \\
\text{RESTR}\quad \boxed{6} \\
\text{BODY}\quad \textit{handle} \\
\textit{udef-rel}
\end{bmatrix}
\right\rangle \\[4ex]
\text{HCONS}\quad \boxed{4}\ \left\langle
\begin{bmatrix}
\text{HARG}\quad \boxed{6} \\
\text{LARG}\quad \boxed{7} \\
\textit{qeq}
\end{bmatrix}
\right\rangle
\end{bmatrix} \\[6ex]
\text{HEAD-DTR}\
\begin{bmatrix}
\text{SYNSEM}|\text{LOC}|\text{CONT}\ \begin{bmatrix}\text{IND}\ \boxed{0} \\ \text{LTOP}\ \boxed{7}\end{bmatrix} \\[2ex]
\text{RELS}\ \boxed{3}\ \left\langle
\begin{bmatrix}\text{LBL}\quad \boxed{7}\\ \text{ARG1}\quad \boxed{0}\\ \textit{tired}\end{bmatrix},
\begin{bmatrix}\text{LBL}\quad \boxed{7}\\ \text{ARG0}\quad \boxed{0}\\ \textit{squirrel}\end{bmatrix}
\right\rangle \\[2ex]
\text{HCONS}\ \boxed{5}\ \langle\,\rangle
\end{bmatrix}
\end{bmatrix}
$$
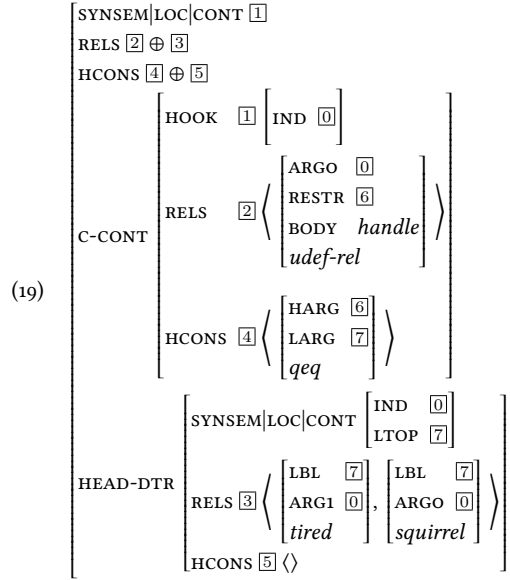
The semantic content of the determiner is introduced constructionally in C-CONT. It consist of the relation *udef-rel'*, which is a placeholder for the quantifier that corresponds to *some* or *every* in the case of overt determiners. The RELS and HCONS values that are introduced constructionally (②and ④) are concatenated with the RELS and HCONS values of the daughters (③and ⑤).

The Semantics Principle can now be specified as follows:

Principle 2 (Semantics Principle) *The main semantic contribution of a phrase is identical to the value of* C-CONT|HOOK. *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.*

1.3.3 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 (window(x) $\rightarrow$ CAUSE(max, open(x)))

c. CAUSE(max, $\forall$ x (window(x) $\rightarrow$ 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:

(21) $\langle$ h0, { h1:CAUSE(x, h2), h3:open(y) }, { h2 $=_q$ h3 } $\rangle$

The CAUSE operator embeds the *open'* relation, but the embedding is not direct. It is stated as a dominance constraint h2 $=_q$ 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 scopings of CAUSE, $\forall$, and *wieder* ('again'):

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

 b. CAUSE > $\forall$ > *again'* > *open'*

 c. $\forall$ > CAUSE > *again'* > *open'*

 d. $\forall$ > *again'* > CAUSE > *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 $\forall$ 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 in the style of Generative Semantics and relies on several empty heads and movement operations that are necessary to derive readings. As was pointed out by Jäger & 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 & 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. An example for the application of lexical rules is morphology (Pollard & Sag 1987: Chapter 8.2, Orgun 1996, Riehemann 1998, Ackerman & Webelhuth 1998, Kathol 1999, Koenig 1999). 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.[3] The rule takes as input a verbal stem that governs both a nominative and an accusative. The nominative argument is not represented in the COMPS 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 ($\boxed{3}$).

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

$$
\begin{bmatrix}
\text{PHON } \boxed{1} \\
\text{SYNSEM|LOC|CAT} \begin{bmatrix} \text{HEAD} & verb \\ \text{SUBCAT} & \langle \text{NP}[nom], \text{NP}[acc]_{\boxed{2}} \rangle \oplus \boxed{3} \end{bmatrix} \\
stem
\end{bmatrix} \mapsto
$$

$$
\begin{bmatrix}
\text{PHON } f(\boxed{1}) \\
\text{SYNSEM|LOC|CAT} \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \text{VFORM } passive\text{-}part \end{bmatrix} \\ \text{SUBCAT} & \langle \text{NP}[nom]_{\boxed{2}} \rangle \oplus \boxed{3} \end{bmatrix} \\
word
\end{bmatrix}
$$

The stem is mapped to a word and the phonology of the input ($\boxed{1}$) 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 & Nerbonne 1993: Chapter 7.4.1; Copestake & 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.

---

[3] For 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.

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

$$
\begin{bmatrix}
\text{PHON } f(\boxed{1}) \\
\text{SYNSEM|LOC|CAT} \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \text{VFORM } passive\text{-}part \end{bmatrix} \\ \text{SUBCAT} & \langle \text{NP}[nom]_{\boxed{2}} \rangle \oplus \boxed{3} \end{bmatrix} \\
\text{LEX-DTR} \begin{bmatrix} \text{PHON } \boxed{1} \\ \text{SYNSEM|LOC|CAT} \begin{bmatrix} \text{HEAD} & verb \\ \text{SUBCAT} & \langle \text{NP}[nom], \text{NP}[acc]_{\boxed{2}} \rangle \oplus \boxed{3} \end{bmatrix} \\ stem \end{bmatrix} \\
acc\text{-}passive\text{-}lexical\text{-}rule
\end{bmatrix}
$$

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-movment approach for English, Chapter 4 for a head-movment approach for Danish, and Kiss & Wesche (1991); Kiss (1995); Meurers (2000); Müller (2007b) 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) und *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 & 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 1.11 on the facing page gives an example of how (parts of)

an inheritance hierarchy that includes both lexical and phrasal types may look. In Sec-
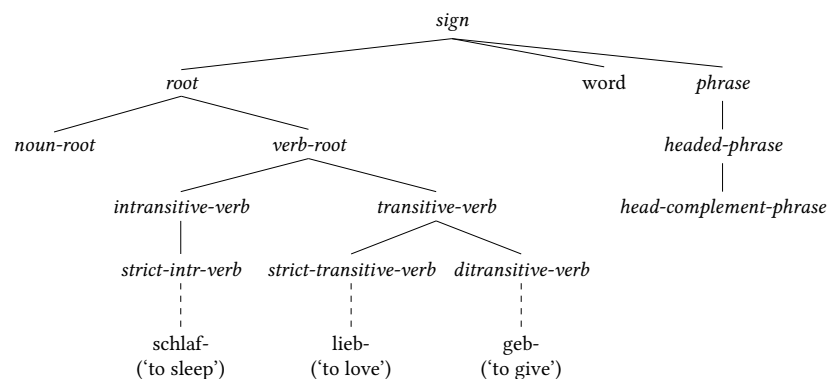
Figure 1.11: Part of an inheritance hierachy that contains lexical entries and immediate dominance schemata

tion 1.2.5 we discussed constraints on phrases of type *headed-phrase*. Since structures 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 & 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 sikkert   altid   tegneserier
     the little boy   reads presumably always comics
     'The little boy is presumably always reading comics.'

SUBJ	V	ADJUNCTS	OBJ
den lille dreng ('the little boy')	læser ('reads')	sikkert altid ('presumably always')	tegneserier ('comics')

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.

		VP	
	Subj	V	OBJ
(at) ('that')	den lille dreng ('the little boy')	læser ('reads')	tegneserier ('comics')

Thus, not only do topological models for individual languages differ, they also differ considerably for different langues, 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 & 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 makes 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 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.

(2)   [Om   andre bisper har lignende planer], vides   ikke.[1]
       whether other bishops have similar plans   know.PASS.PRES not
       'It is not known whether other bishops have similar plans.'

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.

Prefield	T/C	Sentence Field		
			Verbal Field	
Om andre bisper ... ('whether other bishops)	vides ('know.PRES.PASS')	ikke ('not')		
	om ('whether')	andre bisper ('other bishops')	har ('have')	lignende planer ('similar plans')

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.[2] Before presenting the topological model we will present the basic clause types in Danish to be accounted for by the model.

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[1] KorpusDK.
[2] We follow Bierwisch (1963), Thiersch (1978), Müller (2007b) 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.

3.2   V$_{BASE}$-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 & Heltoft (2011: p. 1569)).

- **Type I**: V$_{BASE}$-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]

  (3) a.   fordi beviserne   [ikke] [hang] sammen[4]
            because evidence.DEF   not   hang   together
            'because the evidence was not sufficient'

       b.   Bare   Antonio [ikke] [misforstår]   det.[5]
            if.only Antonio not   misunderstands   it
            'If only Antonio does not misunderstand it.'

- **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) a.   [Danmark] [er] [ikke] repræsenteret ved finalen   i Wien.[6]
             Denmark   is not   represented   at final.DEF in Vienna
            'Denmark is not represented at the final in Vienna.'

---

[3] Interestingly type I-clauses (with a complementizer) can also be the complement of another complementizer. In example (i), the complementizer *at* ('that') takes as its complement a type I-clause introduced with the complementizer *mon* ('I wonder') (Hansen & Heltoft 2011: p. 1588). The complemenizer *mon* ('I wonder') is further discussed in Section 3.3.3.1 below.

   (i)   Tænker blot på, [at] [mon ikke de   også holder sommerferie]
         think   just of that MON not they also make   summer.vacation
         'I was just thinking, I wonder if they are not also on summer vacation.'
         (http://www.netdoktor.dk/interactive/discussion/viewtopic.php?f=84&t=17419,[5/7 2011].)

[4] KorpusDK.
[5] KorpusDK.
[6] KorpusDK.

b. fortalte en ældre mand, at [tidligere] [kunne] han [ikke] lide
   told an elderly man that previously could he not like
   udlændinge,[7]
   foreigners
   'an elderly man told that he used not to like foreigners,'

- **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) a. [Kommer] far [ikke] snart ned?[9]
      comes Dad not soon down
      'Isn't Dad coming down soon?'
   b. Men [kommer] amerikanerne [ikke] til København, kommer Bournonville
      but come Americans.DEF not to Copenhagen comes Bournonville
      til dem.[10]
      to them
      'If the Americans do not come to Copenhagen, Bournonville will come to them.'

Imperative clauses allow the Prefield to be filled by a pronoun resuming a conditional clause which is either left-dislocated or appearing in the previous discourse as in (6). We consider such clauses to be of type II.

(6) Lyst til at prøve? [Så] [kom] ind og hør om Eye-Care.[11]
    desire PREP to try then come in and hear about Eye-Care
    'Wanna try? Then come on in and hear about Eye-Care.'

In the following we will assume that the V_{BASE}-clause (Type I) illustrated in (3a) and (3b) is the basic constituent order, while the V_{FRONT}-clauses (Type II and III) illustrated in (4a) and (5a) are seen as variants of the basic structure with a fronted finite or imperative verb. We will also show how the proposed topological model reflects this assumption.

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[7] http://www.tvaerkulturelt-center.dk/SamirBagi.htm,[13/10 2010].

[8] Reis & Wöllstein (2010) claim for German that such V1-conditionals are not in the Prefield, but in an un-integrated left-adjoined position. The exact position of the conditional clause is not crucial in this context. In any case, the conditional is subordinated to the matrix clause *kommer Bournonville til dem* ('comes Bournonville to them').

[9] KorpusDK.

[10] KorpusDK.

[11] KorpusDK.

3.2.1 V_{BASE}-clauses: The basic constituent order

The basic constituent order illustrated in (3) is referred to as the neutral word order in Hansen & Heltoft (2011). The neutral constituent order signals the absence of a particular illocutionary force and the absence of a truth value.[12] Therefore the neutral word order in embedded clauses is compatible with a wide range of semantically different matrix predicates, e. g. factive predicates such as *fortryde* ('to regret') and interrogative predicates such as *spørge* ('to ask').

The distinguishing property of the basic constituent order in (3a) and (3b) is that the finite verb is adjacent with the non-finite verbs (if present) as in (7) and that the finite verb follows the subject and sentence adverbials such as sentential negation *ikke* ('not') and modal particles.[13]

(7) [...], at hun [ikke] [ville have kunnet genkende] mig på gaden.[14]
    that she not would have could recognize me in street.DEF
    '[...] that she would not have been able to recognize me in the street.'

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 drenge [dog] [er] underlige![15]
    how boys DOG are strange
    'How strange boys are!'

(9) Hvem der [ikke] [skulle] på arbejde imorgen![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_{BASE}-position and clauses with the basic constituent order as V_{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).

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[12] On the analysis in Truckenbrodt (2006: p. 265–66) verb fronting is associated with Hearer orientation: In imperatives the Speaker wants something from the Hearer, in declaratives and interrogatives the Speaker wants from the Hearer that a particular proposition belongs to the Common Ground.

[13] See however the discussion of preposed negation in Chapter 10.

[14] KorpusDK.

[15] KorpusDK.

[16] http://www.gamereactor.dk/forum/?forum=5&thread=34086&page=2, [9/1 2012].

(10) Mig gøre rent?[17]
      me do.INF cleaning
      'Me and cleaning?'

(11) Men hvorfor [altid] [gå]   i det samme?[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 & 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.

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 on the next page. 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.

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[17] http://netdate.dk/debat/fri-debat-8/154163-jeres-mening?page=19, [6/7 2011]
[18] KorpusDK.
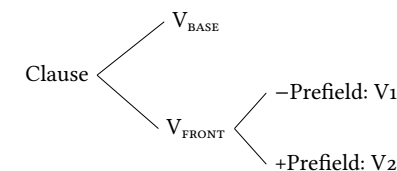
Figure 3.1: Clause Types in Danish

3.3 A topological model

We will use the following topological model of the Danish clause based on the model presented in Ørsnes (2009a). The examples illustrate the V$_{\text{BASE}}$-order and the two V$_{\text{FRONT}}$-orders: V1- and V2-clauses.

Prefield	T/C	Sentence Field		
			Verbal Field	
	at	drengen ikke	har set	filmen
	('that')	('the boy not')	('has seen')	('the movie')	(V$_{\text{BASE}}$)
Drengen	har	ikke	set	filmen
('the boy')	('has')	('not')	('seen')	('the movie')	(V$_{\text{FRONT}}$: V2)
	se	ikke		filmen!
	('watch')	('not')		('the movie')	(V$_{\text{BASE}}$: V1)

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

- The Prefield
- The T/C-field (Tense and Complementizer)
- The Sentence Field

Embedded within the Sentence Field is the

- Verbal Field

The position of the Verbal Field will be shown to be the crucial distinction between German and Danish constituent order. The Prefield is the field of fronted constituents in V2-clauses, *wh*-constituents in V$_{\text{BASE}}$-clauses and resumptive pronouns for left-dislocated constituents (as in (6) above). The T/C-field (mnemotechnical for Tense and Complementizer-field) is the field for tensed (and imperative) verbs in V$_{\text{FRONT}}$-clauses and for the complementizer in V$_{\text{BASE}}$-clauses. Canonically a complementizer introduces a V$_{\text{BASE}}$-clause, but some complementizers can also introduce a V2-clause, i.e. a clause containing

a Prefield and yet another T/C-field occupied by a verb (we will return to such cases of *embedded V2* below).

The Prefield and the T/C-field fulfill special functions. The Prefield is the position of fronted elements, i.e. operators or discourse prominent constituents. The T/C-field (also called the Modality Field in Hansen & Heltoft (2011)) is crucial for identifying the clause as either a V_{FRONT}- or a V_{BASE}-clause and thereby for identifying the illocutionary force of the clause.

The Sentence Field contains the *propositional core* of the clause. It is the part of the clause following the Prefield and the T/C-field. The name is meant to indicate that the sentence field contains the part of the sentence which is not related to illocutionary force (T/C) or to a special discourse prominent position (Prefield). The Sentence Field itself contains the verbal field. The verbal field accommodates all the verbs in V_{BASE}-clauses and the non-finite verbs in V_{FRONT}-clauses. The Verbal Field splits the Sentence Field into two parts. The region to the left of the Verbal Field hosts the subject[19] and adverbial phrases (and usually in that order).[20] The region to 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 V_{BASE}-clauses).

---

[19] Heavy subjects (subject-NPs with post-modification) can be shifted to the right as in the example below where the subject occurs after the Verbal Field containing *er samlet* ('are gathered').

   (i)   I   Eterra er samlet   [IT-håndværkerne, der skal bygge platforme til virksomheder], [...]
         in Eterra are gathered IT-workers.DEF   who skal build platforms for companies
                                                          (KorpusDK)
        'In Eterra are gathered the IT-workers that are going to build platforms for companies.'

The constraints on this kind of Heavy NP-Shift are not quite clear. Note that the example in (i) cannot be analyzed as a kind of presentational sentence where a subject is demoted to object. Presentational sentences require their postverbal NPs to be indefinite (Lumsden (1988) and many others), and the post-verbal NP in (i) is definite.

[20] Compare however, the discussion of preposing of sentential adjuncts in V_{BASE}-clauses in Chapter 10. Jørgensen (2000b) and Hansen & Heltoft (2011: p. 1745) also discuss examples where an adjunct precedes a subject in a V_{FRONT}-clause as shown in (i).

   (i)   Han lå der, ja, hvor er [forresten] [madrassen]?   (KorpusDK)
         he   lay there yes where is by.the.way mattress.DEF
        'He was lying there, well, where is the mattress by the way?'

Only particular adverbs seem to be able to precede the subject and preferably in constituent questions as in (i), but the exact conditions appear not to be well understood. Sentential negation does not allow this kind of preposing in V_{FRONT}-clauses.

   (ii)   * Hvad har [ikke] Peter sagt?
          what has not   Peter said
          'What hasn't Peter said?'

3.3.1 V_{BASE}-clauses in the topological model

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

	Prefield	T/C	Sentence Field		
				Verbal Field	
1)		at ('that')	drengen ikke ('the boy not')	har set ('has seen')	filmen ('the movie')
2)	Mig ('me')			gøre rent? ('doing cleaning')	
3)	Hvem ('who')		der bare ('there only')	havde ('had')	ferie lige nu! ('vacation right now')
4)	Hvordan ('how')			analysere ('analyze')	et digt? ('a poem')

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 3) in the table illustrates an optative clause, i.e. an unembedded V_{BASE}-clause. The finite verb is in the Verbal Field and the Prefield contains a *wh*-element. Example 4), finally, shows a *wh*-infinitival question: the non-finite verb is in the Verbal Field and the *wh*-constituent is in the Prefield.

3.3.2 V_{FRONT}-clauses in the topological model

The following table shows how different kinds of V_{FRONT}-clauses are represented in the proposed topological model.

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[21] Hansen & 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.

	Prefield	T/C	Sentence Field		
			Verbal Field		
1)	Drengen ('the boy')	har ('has')	ikke ('not')	set ('seen')	filmen ('the movie')
2)	Filmen ('the movie')	har ('has the boy')	drengen ikke ('not')	set ('seen')	
3)	Hvem ('who')	har has	ikke ('not')	set ('seen')	filmen? ('the movie')
4)		har ('has')	drengen ikke ('the boy not')	set ('seen')	filmen? ('the movie')
5)		Se ('see')	ikke ('not')		den film! ('that movie')

As the table shows, the crucial difference between the V_{BASE}-order and the V_{FRONT}-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 V_{FRONT}-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 V_{FRONT}-structures gives the effect of Verb Second.

In the V_{BASE}-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:

(15) Han siger, han [ikke] [har] lyst.[22]
      he   says he   not   has   desire
      'He says he doesn't want to.'

---

[22] KorpusDK.

Example (15) shows a complementizerless embedded clause. The finite verb is within the Verbal Field as witnessed by the position to the right of sentential negation. The following table gives the topological analysis.

	Prefield	T/C	Sentence Field		
			Verbal Field		
(han siger) ('he says')			han ikke ('he not')	har ('has')	lyst ('desire')

In constructions with embedded V2 as in (16) (Vikner 1995: Chapter 4), the complementizer is (almost) obligatory (Hansen & Heltoft (2011: p. 1589) give a couple of examples without a complementizer, but they appear to be rare). Again this shows that the position of the finite verb is independent of the presence of a complementizer.[23] The example in (4b) above, repeated here as (16) for convenience, illustrates the presence of a complementizer in embedded V2.

(16) Efter den sidste fest   fortalte en ældre   mand, [at] [tidligere kunne han ikke
      after the last   party told   an elderly man   that before   did   he not
      lide udlændinge], [...]][25]
      like foreigners
      'After the latest party an elderly man told me that he used not to like foreigners,
      [...]'

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

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[23] It is often claimed that embedded V2 is licensed by the semantics of the embedding predicate (Hansen & Heltoft (2011: p. 1683–1686) and Wiklund, Bentzen, Hrafnbjargarson & Hróarsdóttir (2011)). Assertive verbs allow embedded V2, while emotive and factive predicates resist it. However, embedded V2 also depends on the kind of constituent appearing in the Prefield of the embedded clause. While embedded V2 with a fronted NP, PP or AP is highly degraded or ungrammatical with emotive and factive predicates, embedded V2 with a fronted conditional clause is perfectly all right. Example (i.a) shows the factive predicate *opdage* ('to discover') with embedded V2. The fronted constituent is a conditional clause. Example (i.b) shows the emotive predicate *trøst* ('consolation') again with a fronted conditional clause in embedded V2.

(i)   a. han havde opdaget, at [hvis man kombinerede kokain med sovetabletter], [var]
          he had   discovered that if you mixed   cocain with sleeping.pills was
          virkningen formidabel.
          effect.DEF formidable
          'He had discovered that if you mixed cocain with sleeping pills, the effect was formidable.'
          (KorpusDK)
      b. Så kan de   have den (falske) trøst,   at [hvis bare de holder pinslerne ud
          then can they have the false consolation that if   only they tolerate sufferings PART
          her i livet], [skal] det nok   gå dem godt i døden.[24]
          here in life.DEF will it for.sure go them well in death.DEF
          'Then they can keep the (false) consolation that if only they stand the sufferings of this life,
          they will be all right in death.'
          (http://www.studieportalen.dk/forums/Thread.aspx?id=351462,[7/7 2011])

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, [...][26]
            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 *sæt* ('if') (Vikner (1995: p. 45) and Hansen & 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!].
            wish it   not was so
            'I wish it wasn't like that'

       c.   [Gudskelov] [det ikke var koen], [...] sagde kællingen, da   hends
            luckily   it   not was cow.DEF   said woman.DEF when her
            mand   døde.[27]
            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 prefield.[28]

(19)   [Hvilke værdier] [mon]   der   er   blevet fokuseret på, [...][29]
       which values   I.wonder there have been   focussed on
       'I wonder what values have been focussed on, [...]'

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

Prefield	T/C	Sentence Field	
		Verbal Field	
	mon	han alligevel	kommer?	
	('I wonder')	('he anyway')	('comes')	
Hvilke værdier	mon	der	er blevet fokuseret	på
('which values')	('I wonder')	('there')	('have been focused')	on

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[30]
       pulse.DEF is on way up but sweat.PRES do   I   not
       'The pulse is increasing, but I am not sweating.'

The T/C-field canonically only contains one lexical category (C^0 or V^0). 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.[31]
       they almost   indulge REFL in it
       'They almost indulge in it.'

Prefield	T/C	Sentence Field		
		Verbal Field		
De	nærmest boltrer			sig i det
('they')	('almost indulge')			REFL in it

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http://www.bt.dk/politik/rendyrket-personangreb?page=2, [13/10 2010].

KorpusDK.

Erteschik-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 (i) ungrammatical. As shown, these examples are perfectly grammatical (Cf. also the examples and the discussion in Hansen & Heltoft (2011: p. 1568)).

(i)   [Hvem] [mon] ikke får   lov?
      who   MON not gets permission
      'I wonder who isn't allowed to do so.'
      (http://ing.dk/artikel/93437-godkendt-gm-majs-forringer-forplantningsevnen-hos-mus, [5/7 2011])

KorpusDK.

KorpusDK.

KorpusDK.

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.
      pupils.DEF for example   almost   indulge REFL in it
      'The pupils for example almost indulge in it.'

Prefield	T/C	Sentence Field	
		Verbal Field	
Eleverne for eksempel ('the pupils for example')	nærmest boltrer ('almost indulge')		sig i det REFL in it

3.3.3.2 The Prefield

The Prefield is delimited to the right by the finite verb in V$_{FRONT}$-structures and it is always filled in V2-clauses. In V$_{BASE}$-structures the Prefield can contain a *wh*-constituent and occasionally an accusative NP in Mad-Magazine sentences. The Prefield allows exactly one constituent of almost any syntactic category: NP, PP, VP, CP, ADVP, ADJP. In (23) the Prefield contains an NP-object and in (24) it contains a PP-adjunct.

(23) [Ham] har Giuseppe Tornatore selv   opfundet.[32]
      him   has Giuseppe Tornatore himself invented
      'Giuseppe Tornatore has invented him himself.'

(24) [Til dette valg]   opstiller   DM-listen, [...][33]
      to this election candidates DM-list.DEF
      'The DM-list is a candidate to this election, [...]'

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

Prefield	T/C	Sentence Field	
			Verbal Field
Ham ('him')	har ('has ')	Giuseppe Tornatore selv ('Giuseppe Tornatore himself')	opfundet ('invented')
Til dette valg ('to this election')	opstiller ('candidate ')	DM-listen ('the CM-list)	

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

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[32] KorpusDK.
[33] KorpusDK.

can be morpho-syntactically marked in a way that is unexpected from their syntactic dependency to the rest of the clause. 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$_i$] håber vi _$_i$ vil vise sig hos os [...][34]
         them hope we   will show REFL with us
         'We hope of them that they will show up with us.'

      b. [Synge$_i$] [lærte] han _$_i$[35]
         sing.INF learned he
         '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 Prefield (26a). Modal particles appear to be wholly excluded as shown in (26b) (as also noted for German in Hoberg (1997: p. 1587)).

(26) a. [Ikke] vil jeg bo noget andet sted.[36]
         not   will I   live any   other place
         'Not will I live in any other place.'

      b. * [Jo]   vil jeg bo   et andet sted.
         as.you.know will I   live an other place
         '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] fortrøstningsfulde.[37]
         israelis.DEF instead   are confident
         'The israelis instead are confident.'

      b. [Allerede i gymnasiet] [havde] jeg forkastet Nietzsche.[38]
         already in high.school had   I   rejected Nietzsche
         'Already in high school I had rejected Nietzsche.'

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[34] http://www.dr.dk/Sporten/Fodbold/Superliga/2010/09/01/221736.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.

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:

(28) ?? Det var med [israelerne   derimod] de   forhandlede.
        it   was with israelis.DEF instead   they negotiated
        'Instead they negotiated with the Israelis.'

It is not entirely clear how the examples in (27a) and (27b) should be analyzed. They could be analyzed as instances of multiple fronting (multiple constituents in the Prefield), even though multiple fronting appears not to occur in Danish as opposed to German (Müller 2003a, 2005b). Multiple fronting will not be dealt with here, but topic-binding adverbs as in (27a) will, however, assume some importance in Chapter 10 on preposed negation.

3.3.3.3 The Verbal Field

The Verbal Field contains all verbs (finite and non-finite) in V_{BASE}-clauses and all the non-finite verbs (if present) in V_{FRONT}-clauses. Canonically the verbs in the Verbal Field form a verb cluster that cannot be interrupted by other linguistic material. Exceptions are some unstressed reflexives as in example (29) (see also Lødrup (1996: p. 84)) and adverbs modifying lexical Vs as in example (30) below.

(29) men Gerda havde aldrig fået [sig]   taget   sammen til det[39]
        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 have almost   indulged REFL 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 adverb *positivt* ('positively') intervenes between the two non-finite verbs.

(31) Forslagene er   blevet [positivt] modtaget, og ideen   er
        proposal.DEF have been   positively received   and idea.DEF is
        grundlæggende god,[40]
        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 adverbial modifying

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[39] KorpusDK.
[40] KorpusDK.

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, [...]
        proposal.DEF have been   government.DEF little too positively received
        'To the government the proposals have been a little to 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).

(33) Jeg ved   at   han ikke ville$_1$ have$_2$ kunnet$_3$ gøre$_4$ 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   drøftede [den] slet ikke
              you discussed it   at.all not
              'You didn't discuss it at all.'
      b.   I   har slet ikke drøftet   [den].[41]
              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 [ingenting] har   set.[42]
         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

Adjuncts occur to the right of the internal complements. But some adjuncts 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 turistområdet,
              and here appears it   clearly that we do a lot   in tourism.area.DEF
              […][43]

            '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 Höhle (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 life time') is in a field for (left-)dislocated constituents (see also Höhle (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 turistområdet],
         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 turisområdet* ('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 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.

   (i)   Det kunne jo   være, ræsonerede han, at   [hvem der   ellers havde mistet den røde bold],
         it   could you.know be   reasoned he   that who there ever had   lost   the red ball
         ville   sætte   en eftersøgning igang efter den […]
         would initiate a   search   PART for it
         'It could be, he reasoned, that whoever had lost the read ball, would initiate a search for it.'
         (KorpusDK)

The embedded *at* ('that')-clause in (i), however, can also be an instance of embedded V2 with *hvem der ellers havde mistet den røde bold* ('whoever had lost the red ball') in the Prefield. We do not treat the *at* ('that')-clause in (i) as embedded V2 though, since it is marginal with an adverb following the finite verb:

   (ii)   ?? Det kunne jo   være, …, at   [hvem der   ellers havde mistet den røde bold], ville
           it   could you.know be   that who there ever had   lost   the red ball   would
           omgående   sætte   en eftersøgning igang efter den […] (KorpusDK)
           immediately initiate a   search   PART for it
           'It could be, he reasoned, that whoever had lost the read ball, would initiate a search for it immediately.'

The fact that free relative clauses do not have to be extraposed as in (ii) is further evidence that they are not clauses but NPs headed by the *wh*-word followed by a relative clause.

(41) [...] så må partiet melde [holdninger] [ud], [...][46]
    then must party.DEF make stances clear
    '[...] then the party must make its stances clear, [...]'

(42) Den danske regering bør snart melde [ud], [at den støtter de amerikanske
    the Danish government must soon make clear that it supports the American
    planer].[47]
    plans
    'The Danish governement 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 [resultatet] er utilfredsstillende, [...][48]
      that result.DEF is unsatisfactory
      '[...] that the result is unsatisfactory, [...]'

    b. [...], at [det] er utilfredsstillende, [at vi ikke har været i stand til
      that it is unsatisfactory that we not have been able to
      det].[49]
      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$_{\text{BASE}}$-clause. 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:

Prefield	T/C	Sentence Field		Extraposition
			Verbal Field	
		Resultet ('the result')	er ('is')	utilfredsstillende ('unsatisfactory')	
	at ('that')	det ('it')	er ('is')	utilfredsstillende ('unsatisfactory')	at vi ikke ... ('that we have not ...')

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.

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[46] KorpusDK.
[47] KorpusDK.
[48] KorpusDK.
[49] KorpusDK.

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
    after the last party told an elderly man that previously did he not
    lide udlændinge], [...][50]
    like 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$_{\text{FRONT}}$-clause preceded by a complementizer should be regarded as extraposed while an embedded V$_{\text{BASE}}$-clause preceded by a complementizer is not, as illustrated in the second row in the table below.

Pref.	T/C	Sentence Field			Extraposition
			Verbal Field		
	at ('that')				tidligere kunne han ... ('previously could he ...')
	at ('that')	han tidligere ikke ('he previously not')	kunne lide ('could like')	udlændinge ('foreigners')	

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 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.

Left-disloc.	Prefield	T/C	Sentence Field		
				Verbal Field	
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

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[50] http://www.tvaerkulturelt-center.dk/SamirBagi.htm,[13/10 2010].

(2010) suggest that *denn* ('because') is of the category PARORD, that is, syntactically it is a coordinator. This is illustrated below.

Pf	T/C	S-field	PARORD	Pf	T/C	S-field
manden ('the man')	fortalte ('told')		at ('that')	tidligere ('previously')	kunne ('could')	han ikke … ('he not like …')

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 & 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).

(46)   [...] [$_{VP}$ ruger   på deres guld] gør de   også.[51]
               brooding on their gold do   they also
        'Sit on their gold to protect it, they also do.'

In (46) a whole VP consisting of the verb *ruge* ('to broode') and its locative complement has been topicalized, leaving the T/C-field to be filled by the dummy-verb *gøre* ('to do'). However, the topicalized VP is no 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 straight-forward 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.'

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[51] http://www.fyldepennen.dk/tekster/2193/da-danerne-blev-kristne, [7/7 2011].

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).

# Prefield	T/C	Sentence Field		Extraposition
		Verbal Field		
Peter Peter	har ('has')	vasket ('washed')	op ('up')	og jeg har støvsuget ('and I have vacuum cleaned')

The first problem is that this analysis seems to suggest that the second conjunction 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 *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.'

# Prefield	T/C	Sentence Field		Extraposition
		Verbal Field		
Peter Peter	har ('has')	vasket ('washed')	op ('up')	og har støvsuget ('and has vacuum cleaned') …

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 carpet.DEF
        'Peter has vacuum cleaned and washed the carpet.'

Prefield	T/C	Sentence Field		
			Verbal Field	
Peter	har	støvsuget og vasket		gulvtæppet
Peter	('has')	('vacuum cleaned and washed')		('the carpet')

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.

Concluding it must be said that the topological model has proven to be a useful descriptive tool, but it suffers from not being able to accommodate hierarchical structures in an intuitive way.

3.5 Other Languages

As noted in the introduction the topological model presented here deviates from previous topological models of Danish by positing a separate Verbal Field which divides the Sentence Field into two parts: the part to the left contaning the subject and adjuncts and the part to the right containing the internal complements of the verb as well as adjuncts. Positing a separate verbal field captures the fact that the verbs are all adjacent in V_{BASE}-clauses. It also allows for a straight-forward comparison of the constituent order in Danish and German. Danish is an SVO language, i.e. the verbal field precedes the object (and other internal complementes). German is a SOV language (Fourquet 1957; Bierwisch 1963; Thiersch 1978; Müller 2007b; Haider 2009) i.e. the Verbal Field follows the subject and complements of the verb. This is evident from the topological models of the two languages below.

Prefield	T/C	Sentence Field		
			Verbal Field	
	at	manden ikke	har set	filmen
	('that')	('the man') ('not')	('has') ('seen')	('the movie')

Prefield	T/C	Sentence Field		
				Verbal Field
	dass	der Mann den Film nicht		gesehen hat
	('that')	('the man ') ('the movie') ('not')		('seen') ('has')

Thus this topological framework captures the basic difference between the constituent order in Danish and German. In Chapter 4 we will show how a host of differences between Danish and German constituent order follows from this basic difference.

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 the discussion of constituent order phenomena in later chapters. The model allows for a straight-forward comparison

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 scarse. 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 *mændene* ('the men') must occur inside the VP to the right of sentential negation. The examples in (2) show that the unstressed pronoun *dem* ('them') occurs outside the VP linearly preceding the sentential adverb *ikke* ('not').[1]

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[1] The 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 ....*

(1) a. Hun tager ikke [mændene] alvorligt.
       she takes not   men.DEF   seriously
       'She doesn't take the men seriously.'

   b. *Hun tager [mændene] [ikke] alvorligt.
       she takes men.DEF   not   seriously

(2) a. Hun tager [dem] [ikke] alvorligt.[2]
       she takes them not   seriously
       'She doesn't take them seriously.'

   b. *Hun tager [ikke] [dem] alvorligt.
       she takes not   them seriously

The same is true for negated adverbs like *aldrig* ('never') and sentential adverbs like *heldigvis* ('fortunately') and also for combinations of the negation and sentential adverbs. For instance in (3) we have both the sentential adverb *heldigvis* ('fortunately') and the negation *ikke*. The pronouns have to shift over both adverbials as in (3a). It may not be realized between the two adverbials (3b) or to the right of them (3c).

(3) a. De solgte [den] heldigvis   ikke.
       they sold   it   fortunately not
       'Fortunately they did not sell it.'

   b. *De solgte heldigvis [den] ikke.
       they sold fortunately it   not

   c. *De solgte heldigvis ikke [den].
       they sold fortunately not   it

Example (4) gives an example of a pronoun which is a predicative complement of the copula verb *være* ('to be').

(4) De ser forholdsvis raske ud   – men de er [det] ikke.[3]
    they look fairly   healthy PART but they are it   not
    'They look fairly healthy, but they are not.'

As was mentioned above, (Danish) object shift exclusively applies to pronominal constituents. But being a pronoun is not a sufficient condition in itself. The pronominal constituents must be minimal (Mikkelsen 2011b: p. 252). Minimality applies to the phonological status of the pronoun on the one hand and to its syntactic complexity on the other hand. Only unstressed pronominals shift, indeed unstressed pronominals must shift (due to constraints on the VP to be addressed in Section 5.1.1.5.1 below).[4]

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[2] KorpusDK.

[3] KorpusDK.

[4] This is not true in its full generality. Mikkelsen (2011b) shows that unstressed pronouns which are focal due to inherent properties of the construction do not shift. Her area of interest are specificational copular clauses where the copular complement is inherently focal. In specificational copular clauses the pronoun

In a similar vein an unshifted pronominal must be (contrastively) stressed. This is shown in the examples below, where capital letters indicate stress, and a subscripted zero indicates that the pronoun is unstressed.

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

   b. Hun tager $_0$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.[5] 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,[6]
       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 dem[7]
       we hate not   those from Yoguslavia   we speak just not   with them
       'We don't hate the ones from Yoguslavia, we just do not speak with them.'

   b. *Vi hader [dem fra Jugoslavien] ikke,
       we hate   those from Yoguslavia   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:

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does not shift even though it is unstressed. This is shown in the following example from Mikkelsen (2011b: p. 257):

(i) Min løbemakker   i fjor   var Simon, men min løbemakker   i år   er (*ham) ikke
    my running.partner in last.year was Simon but my running.partner in year is him   not
    ham
    him
    'My running partner last year was Simon, but my running partner this year is not him.'

We will briefly return to this problem in Section 5.2.1.

[5] 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.

[6] KorpusDK.

[7] KorpusDK.

(8)   a.   og   han satte aldrig [sig   selv] i   første række[8]
           and 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
             and 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

Finally bare pronouns are barred from shifting when they occur in coordinated structures. Two bare coordinated pronouns cannot shift but have to remain in the canonical object position to the right of sentential adjuncts:

(10) a.   Giv ikke op, og   giv ikke [ham eller hende] skylden.[9]
           give not   up and give not   him or   her   blame.DEF
           'Don't give up, and don't blame him or her.'

      b.   * Giv ikke op, og   giv [ham eller hende] ikke skylden.
             give not   up and give him or   her   not blame.DEF

Thus, we arrive at the generalization that only unmodified, uncoordinated and unstressed personal and reflexive pronouns shift.

Shifted pronouns do not surface in a position to the left of the subject. Instances of Long Object Shift, where the object appears between the (fronted) verb and the subject are reported for Swedish (Erteschik-Shir 2005: p. 73). Long Object Shift is not observed in Danish, but still there appears to be a difference in acceptability depending on the particular choice of pronoun. Long object Shift is much better with 1st person pronouns, occurring as experiencer arguments as in (11a,b) than with 3rd person pronouns as in (11c).[10]

(11) a.   ?? Nu   interesserer [mig] den nye   literatur ikke synderligt
              now interests   me   the new literature not   particularly
              'Actually the new literature does not really interest me.'

      b.   ? Faktisk gør [mig] de nye regler   ikke noget
             actually do   me   the new regulations not   anything
             'Actually I am not really opposed to the new regulations.'

      c.   ?* Nu så   [det] Peter ikke selv
             now saw it   Peter not   himself
             'Now Peter didn't see it himself.'

The exact restrictions on Long Object Shift are far from clear, and Long Object Shift will not be further discussed here.

Object shift is strictly clause-bound (Vikner 2006: p. 405). A pronoun can never shift into the matrix construction of an embedding verb. This situation would only obtain in a context with embedded V2, that is, when a verb selects a clause with verb fronting, since object shift is only observed in V1- and V2-clauses (see Section 5.1.1.5.1). In clauses with embedded V2, a pronoun cannot shift across its selecting head into the matrix clause. In the examples in (12), the complement clause is V2 with the object *forretten* ('the starter') in the prefield. As (12b) shows the reflexive pronoun *sig* ('REFL') cannot occur in the matrix clause.

(12) a.   Jeg ved   at   forretten brød han [sig] ikke om.
           I   know that starter.DEF cared he   REFL not   about
           'I know that he didn't like the starter.'

      b.   * Jeg ved   [sig] at   forretten brød han ikke om.
             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, athematic 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').[11] The pronoun occurs to the left of the negation *aldrig* ('never').

(13) og   jeg hørte [dem] ellers   aldrig tale   om Gud[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[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.

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[8] KorpusDK.
[9] KorpusDK.
[10] As will be discussed on page 123 in connection to example (41) a similar phenomenon is observed in the *få*-construction. Here the light pronoun precedes a past participle.

[11] See also de Geest (1970: p. 45), Kirsner & Thompson (1976), and Müller (2002: p. 63–64) on role assignment of perception verbs.
[12] KorpusDK.
[13] KorpusDK.

5.1.1.1 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 canonically 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 øjeblikket,   sagde en ung   soldat i forkontoret[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.'

As Engels & 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). These data suggest that a locative adjunct must be closely associated with the verb to be allowed to shift, i.e. it must be subcategorized.[15]

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[14] KorpusDK.

[15] 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.

(i) a. Jeg læser ikke på Københavns Universitet.
       I   read   not on Copenhagen University
       'I am not enrolled at the University of Copenhagen.'

     b. Jeg læser [her] ikke.
       I   read   here not
       'I am not enrolled here.'

(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.'

An additional argument for treating the pronoun in (17) as a complement and not as an adjunct is that the pronoun can be shown not to be adjoined to the VP. As mentioned in Chapter 4 all adjuncts can left-adjoin to the VP, so *her* ('here') in (17) would not have to undergo object shift to appear in the position before the sentential negation. It could also be left-adjoined to the VP. However, left-adjunction and object shift differ in at least two ways, suggesting that the pronoun in (17) is indeed shifted and not-left-adjoined.

   A first difference is that object shift is obligatory, while left-adjunction of a locative to VP is optional and even a marked option in many contexts. In (17) object shift is obligatory. An unstressed locative pronoun cannot occur to the right of the sentential negation as shown in (19a). Left-adjunction of a locative PP, however, is optional as shown in example (19b).

(19) a. Han sover ($_o$her) ikke (*$_o$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-adjoin 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-fritter.
        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

On this particular reading the locative can count as valency-bound.

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 $_o$her ikke (*$_o$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-adjoin 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 [$_o$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 & 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.

As a final remark concerning the shifted locative pronouns it has to be noted that the existence of shifted locative pronouns shows that the possibility to shift objects in the Scandinavian languages should not be related to case assignment (Engels & Vikner 2012: p. 18).

5.1.1.2 Object Shift out of PPs

There are further syntactic constraints on object shift: Object shift only applies to bare pronouns, a pronoun embedded in a PP does not shift, as (23b) shows:

(23)   a.   Vi venter ikke på dig.
              we wait   not for you
              'We are not waiting for you.'

        b.   * Vi venter på dig ikke.
              we wait   for you not

Also it is impossible to shift a bare pronoun out of a PP, stranding the preposition as in (24a). So while preposition stranding is possible in general (24b), preposition-stranding is incompatible with object shift.

(24)   a.   * Vi venter [dig] ikke [på].
              we wait   you   not   for
              Intended: 'We are not waiting for you.'

        b.   [Dig] venter vi ikke [på].
              you   wait   we not   for
              'We are not waiting for you.'

The generalization is that only pronouns which are dependent on the head verb of the clause (or which are selected by a degree-adverb, see example (14)) can shift. A pronoun dependent on a preposition as in (24a) is barred from shifting, even if the object of the preposition can be topicalized independently as in (24b).

5.1.1.3 Multiple Shifted Pronouns

Finally, several pronouns can shift simultaneously. In the ditransitive construction in (25a) two unstressed 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.

(25)   a.   Han fortalte [dem] [det] ikke.
              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 fortal$_o$te $_o$hende $_o$det $_o$der   ikke.
              he   told   her   it   there not
              'He didn't tell it to her there.'

        b.   Han fortalte ikke sin mor   sandheden ved familiefesten.
              he   told   not 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).

5.1.1.4 Long Object Shift

Swedish allows pronouns to be shifted over the subject (Engdahl, Andréasson & Börjars 2004: p. 5) as in (27), but such so-called long object shift is ungrammatical in Danish (28):

(27)   Då   gav   honom Eva inte några pengar.   (Swedish)
       then gave he.ACC Eva not   any   money
       'Then Eva didn't give him any money.'

(28)   *Så   gav   ham   Eva ikke nogen penge.   (Danish)
       then gave he.ACC Eva not   any   money

5.1.1.5 Emptying the VP: Holmberg's Generalization

A pervasive generalization on the constraints on object shift is *Holmberg's Generalization* (Holmberg 1999a; Vikner 2006): A pronoun can only shift if it is the left-most element in the VP. An unstressed pronoun can never "cross" another element within the VP. A number of interesting properties of object shift follows from this generalization: we will discuss the position of the finite verb in Section 5.1.1.5.1, the fronting of non-finite verbs in connection with object shift in Section 5.1.1.5.2, and frontings of indirect objects in structures with a shifted direct object in Section 5.1.1.5.3.

5.1.1.5.1 Constraints On the Order of the Finite Verb

First of all object shift is only possible if the clause has verb fronting. In (29) the verb is simplex (past tense) and fronted and so the pronoun must shift (29b):

(29)   a.   Han [fortalte] [dem] ikke sandheden.
           he   told   them not truth.DEF
           'He didn't tell them the truth.'

      b.   *Han [fortalte] ikke [dem] sandheden.
           he   told   not   them truth.DEF

Similarly, the examples in (30) contain a fronted, imperative verb and the pronoun must shift (30b):

(30)   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 (31) illustrates.

(31)   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'

5.1.1.5.2 Complex Tenses, Passive, AcI, Object Shift, and Partial VP-Fronting

In complex tenses the VP-initial embedded verb blocks object shift. For example, in (32) the participle *fortalt* ('told') is initial in the VP and therefore the object cannot be serialized to the left of the negation as (32b) demonstrates:

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

      b.   *Han har [dem] ikke [fortalt] sandheden.
           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 (33a) from Vikner (2006: p. 407) and in the corpus example in (33b).

(33)   a.   [Kysset] har   jeg [hende] ikke, bare holdt hendes hånd.
           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 hvad[16]
           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:

(34)   a.   Jens bliver ikke anbefalet   bogen.
           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.'

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[15] Holmberg (1999a: p. 7) provides a parallel example from Swedish which he attributes to Tarald Taraldsen.

[16] http://hope.pointblog.dk/svaert-at-vide-.html, [26/3 2012].

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 (33b) shows that infinitives that depend on modals can be fronted as well. Partial VP-topicalization is highly degraded with infinitives that depend on AcI verbs (35a) 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 *se* ('to see') in the example (35c), selecting a (non-thematic) object and a bare infinitive.

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

b. * [Set] har   jeg [hende] ikke [ryge].
seen have I   her   not smoke
Intended: 'I haven't seen her smoke but I have smelled her breath.'

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 (35b) would be grammatical. (35b) would be the result of fronting *set* in (36):

(36) Har jeg ikke set   hende ryge?
have I   not seen her   smoke
'Havn't I seen her smoke?'

It is possible to front the AcI verb together with the raised object and the depenend verb as in (37a) and interestingly it is also marginally possible to front the non-finite AcI verb together with its verbal complement as in (37b):

(37) a.   Set hende ryge   har jeg ikke (men …).
seen her   smoke have I   not but
'I have not seen her smoke but ….'

b. ? [Set] [ryge] har jeg [hende] ikke.
seen smoke have I   her   not

As Holmberg (1999a: p. 11) noted the fronting of the AcI verb without the dependent verb is ungrammatical independent of object shift.

(38)   * [Set] har jeg ikke Anne [ryge].
seen have I   not Anne smoke
Intended: 'I haven't seen Anne smoke but I have smelled her breath.'

The generalization seems to be that only verbs with all or without any complements can be fronted, but the fronting of partial VPs that include some of the complements is excluded. This is confirmed by partial frontings involving a ditransitive verb, which are marginally possible, but only if both objects are shifted out of the VP as in (39a) so that there is no material left in the VP. In example (39b) the VP contains a PP, which cannot shift, and so the example is considerably worse than (39a).

(39) a. ? [Foræret]   har Peter [hende] [den] ikke – kun lånt hende den.
given.as.a.present has Peter her   it   not   only lent her   it
'Peter hasn't given it to her, he only lent it to her.'

b. ?* [Foræret]   har Peter [den] ikke til Luise – kun lånt hende den.
given.as.a.present has Peter it   not to Luise only lent her   it
Intended: 'Peter hasn't given it to Luise, he only lent it to her.'

The fronting of the verb with only a subset of its complements is ungrammatical in Danish: The ditransitive verb cannot be fronted together with its direct object (40a,b) and fronting of the non-finite verb together with the indirect object is excluded as well, as the examples in (40c,d) show:

(40) a. * Foræret   bogen   har Peter hende ikke.
given.as.a.present book.DEF has Peter her   not
'Peter did not give her the book as a present.'

b. * Foræret   bogen   har Peter ikke Anne.
given.as.a.present book.DEF has Peter not Anne
'Peter did not give Anne the book as a present.'

c. * Foræret   Luise har Peter den ikke.
given.as.a.present Luise has Peter it not
'Peter did not give it to Luise as a present.'

d. * Foræret   Luise har Peter ikke bogen.
given.as.a.present Luise has Peter not book.DEF
'Peter did not give it to Luise as a present.'

As the examples in (40b,d) show, this is independent of object shift.

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 (41) below.

(41)   og før   hun fik [sig] tænkt ordentligt om, havde hun søgt   og fået
and before she got REFL thought carefully PART had   she applied and got
det[17]
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:

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[17] KorpusDK.

(42) ?* 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 (41) 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 (43) the object pronoun *den* ('it') appears to the left of the main verb *læst* ('read.PASTPART').

(43) Hav [den] 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 (43) 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.

(44) men jeg [måtte] [have] [den] 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 (45), even though this is only a tendency (Öhlschläger 1989: p. 245).

(45) Han [må] [have læst] den.
       he must have read it
       'It must be the case, that he has read it.'

The example in (44) only has a deontic reading. This is expected, if *have* ('to have') in example (44) 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 (46). Since only bare pronouns shift, example (46) can not be object shift.

(46) Hav [alt dit hjemmearbejde] lavet.[19]
       have all your home.work   done
       'Be sure do have done all your home work.'

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[18] KorpusDK.
[19] KorpusDK.

For these reasons we assume that (43) 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.

5.1.1.5.3 Object Shift in Double Object Constructions

Also other internal complements linearly preceding the unstressed pronoun block object shift (Vikner 2006: p. 400). As detailed in the discussion of the order of internal complements in Chapter 4, only the ditransitive construction allows a bare NP to be preceded by another complement within the VP (V NP NP).[20] It follows that object shift is blocked by an indirect object which is no unstressed pronoun as shown in (47).[21]

(47) a. Han skænkede ikke [biblioteket] [bogen].
           he donated not library.DEF book.DEF
           'He did not donate the book to the library

      b. ?* Han skænkede [den] ikke [biblioteket].
           he donated   it   not library.DEF
           'He didn't donate it to the library.'

If the indirect object is topicalized or if it is a shifted pronoun itself, the direct object is initial in the VP and can undergo object shift:

(48) a. ? [Maria] fortalte de [det] ikke.
           Maria told   they it   not
           'Maria they didn't tell.'

      b. ? Hvem frarådede   han det ikke?
           whom discouraged he it not
           'Whom didn't he advise against it?'

Erteschik-Shir (2005: p. 62, fn. 18) claims that the examples such as (48b) are ungrammatical in Danish. We haven't found real examples of fronted indirect objects with shifted direct objects and they do appear to be degraded, but not completely impossible.

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[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 inte [bort] [den]
           Peter threw not away it
           'Peter did not throw it away.'

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

[21] The example in (47b) is only possible on a reading where the shifted pronoun is the receiver-argument and the library is the theme-argument.

5.1.1.5.4 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:

(49) 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 ₀her   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

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. 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.

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 (50a) and (50b) 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.

(50) a. Mærkeligt også at   [tilsyneladende] [ingen] interesserer sig   for
          weird   also that apparently   noone cares   REFL about
          hvad der   er blevet af nødhjælpsforsyningerne.
          what there 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 undrer mig over, at   [ingen] [tilsyneladende] har set
          I   wonder REFL about that noone   apparently   has seen
          fordelen   ved en lille   bil
          advantage.DEF in 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.

(51) * Mærkeligt også at   [tilsyneladende] [regeringen]   interesserer sig   for
          weird   also that apparently   government.DEF cares   REFL about
          [...]

          'Weird also that the goverment 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.

(52) ? [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]

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[22] IQPs 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 [ingenting] [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?tid=568259&fid=11, [19/8 2011])

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

(ii) Og institutionen   – de   har fået [„ingenting"] 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])

Neg-shift is observed in both V_{FRONT}-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.

(53)   Det skal [ikke] være [nogen hemmelighed], […][23]
        it   shall not   be   any   secret
        'It shall be no secret […]'

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

5.1.2.1 Neg Shift out of PPs

Neg-shift is restricted to IQPs as bare objects, as (55a) demonstrates. Prepositional objects do not allow neg-shift, not even when the preposition is stranded as in (55b).[25]

(55)   a. * fordi regeringen   [imod ingen fare]$_i$ advarede _$_i$
              because government.DEF against no   danger warned
              'Because the government didn't warn against any danger,'

        b. ?* fordi regeringen   [ingen fare]$_i$ advarede imod   _$_i$
              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 5.1.1.2. However, there is a difference between object shift and neg shift: Object shift is blocked by intervening

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[23] KorpusDK.

[24] KorpusDK.

[25] Christensen (2005: p. 64–65) gives the following examples though.

(i)   a. Han kunne [ingen]$_i$ snakke med _$_i$.
           he could noone talk   to
           'He couldn't talk to anyone.'

       b. Det kan [af ingen arkivalier]$_i$ bevises   _$_i$.
           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-adjoin to the VP as discussed in Section 4.1.3.

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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 teh examples (56a) and (56b). Thus an existentially quantified indirect object can only be under the scope of negation in the split variant as in example (56c). 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 (56d). This only occurs in V_{FRONT}-clauses with a simplex verb.

(56)   a. * De   vil [ingen mennesker]$_i$ give _$_i$ en chance til
              they will no   people   give   a chance more
              Intended: 'They will give noone a second chance.'

        b. * fordi   de [ingen mennesker]$_i$ giver _$_i$ en chance til
              because they no   people   give   a chance more
              'because they give noone a second chance'

        c. De   giver [ikke] [nogen 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 (57).

(57)   a. ? Jeg har [ingen penge]$_i$ [lånt] min bror   _$_i$
              I   have no   money lend my brother
              'I have not lend my brother any money.'

        b. ? fordi   jeg [ingen penge]$_i$ [låner] min bror   _$_i$
              because I   no   money lend my brother
              'because I am not lending my brother any money'

        c. nej vores lærer   har intet   givet os.[26]
              no our   teacher has nothing given us
              'No, our teacher didn't give anything to us.'

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[26] http://www.studieportalen.dk/forums/Thread.aspx?id=724844, 8/4 2012

d.   Men den kommende viceborgmester i   Mariager Fjord Kommune   har
         but   the   future   vice.mayor   in Mariager Fjord municipality has
         [intet]   fortalt sin partiformand, der   nu   venter på en forklaring[27]
         nothing told   his party.leader   who now waits   for an explanation
         'But the future vice mayor in Mariager Fjord municipality has not told his
         leader in the party anything and he is now waiting for an explanation'

This differs from object shift where shift over the finite verb is impossible (see Section 5.1.1.5 on Holmberg's Generalization). Engels (2011: p. 140) calls this shifting over the finite verb the *Inverse Holmberg Effect*.

The DO can also neg-shift if it independently occurs in a position adjacent to the negation, because the indirect object has shifted to the position before the sentential adjuncts as in (58a) (Christensen 2005: p. 164). In this latter case the Neg-shift is string-vacuous: you cannot tell from the sequence of words whether the IQP is in the position of the negation or in complement position within the VP. However, since an IQP is impossible – or extremely marked – in complement position (see example (58b)), we have strong indications that the IQP *ingen penge* ('no money') in example (58a) has indeed undergone neg-shift.

(58)   a.   De   lånte [hende]$_i$ faktisk   [ingen penge$_j$] _$_i$ _$_j$
           they lend   her   actually   no   money
           'Actually they didn't lend her any money.'

      b. ?* Jeg låner min bror   [ingen penge]
           I   lend   my   brother   no   money
           '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 (59).

(59)   * 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 (60a) the object *ingen indflydelse* ('no influence') has shifted leaving the PP-modifier *på de beslutninger* ('on those decisions') within the VP. Example (60b) shows that the PP cannot shift along with the object and example (60c) shows, that post-nominal PPs cannot be stranded outside neg-shift, e. g. if the head-noun is topicalized.

(60)   a.   fordi   vi så   slet   [ingen indflydelse]$_i$ ville få   _$_i$ [på de
           because we then at.all no   influence   would have   on these
           beslutninger],[28]
           decisions
           'because we wouldn't have any influence on the decisions,'

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

      c.   ?? [Nogen inflydelse]$_i$ 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 (61a) or locational adjuncts as in (62a). 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.

(61)   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   at no   time
           'they weren't in danger at any time.'

(62)   a.   Da   den begyndte, stod   [ingen steder] skrevet, at   magten   ville
           when it   began   stood no   place   written that power.DEF would
           tilfalde   socialisterne[30]
           devolve.upon socialists.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

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[27] http://www.bt.dk/krimi/viceborgmester-i-slagsmaal-med-doermand, 8/4 2012

[28] KorpusDK.
[29] KorpusDK.
[30] KorpusDK.

(63a,c) are raising verbs and those in (63d,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 (63d,e) show, neg shift over such controlled verbs is not grammatical.[31]

(63) 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 (63c) 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 (64) in which a weather verb is embedded under *må*:

(64) Det må gerne sne
      it   may GERNE snow
      'It is all right if it snows'

5.1.2.4 Neg Shift and Partial Fronting

Neg shift differs from object shift in not allowing partial frontings:

(65) * Læst har he ingen eventyr,   men hørt   har han mange.
      read has he no   fairy.tales but heard has he   many
      'He did not read fairy tales, but he heard many.'

To sum up this section: Inherently negated quantifier objects are linearized as adjuncts but subject to constraints on their internal structure (no post-modification) and to the presence of other internal complements. An IQP as a direct object can only shift across a verb within the VP or if the direct object is initial in the VP.

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[31] Engels (2011: p. 144) reports that some varieties of Danish do allow neg-shift out of infinitival clauses and provides the following example:

   (i) Han har [ingen kager]$_i$ lovet   at købe _$_i$.
       he   has no   cookies promised to buy
       'He hasn't promised to buy any cookies.'

We have not found authentic examples of this, however, and consider the example very marginal. We would mark it with two question marks.

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 embedded head. The extraction of the prefield element was therefore modeled as non-local dependency in Section 4.2.3. The question now is whether reorderings of pronouns should be treated with the same mechanisms. There is evidence against analyses that treat shifting parallel to extractions of the prefield filling kind: For instance, Holmberg (1999a: p. 18) and Vikner (2006) discussed shifted pronouns and argued that they do not license parasitic gaps. Extracted elements like *hvad for en bog* ('which book') in (66a) licence a second gap in an adjunct as for instance the phrase *uden at læse først* ('without reading first') (see Vikner (2006: p. 11) for a discussion of the examples in (66)). In example (66a) the fronted *wh*-constituent *hvad 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 (66b) the shifted object *den* ('it') is co-indexed with the first gap, and here the second gap (the object of *læse* ('to read')) is not licensed.

(66) a. [Hvad for en bog]$_i$ stillede alle _$_i$ hen på reolen   uden   at læse _$_i$
         which   book put   all   onto bookcase.DEF without to read
         først?
         first
         'Which book did everyone put on the shelf without reading first?'

     b. * Alle stillede den$_i$ straks   _$_i$ hen på reolen   uden   at læse _$_i$
         all   put   it   immediately onto bookcase.DEF without to read
         først.
         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:

(67) Peter har [ingen bog]$_i$ stillet _$_i$ hen på reolen   uden   at læse _$_i$ 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]

(68) * fordi   han [ingen penge]$_i$ sagde, at   de havde _$_i$
      because he   no   money said   that they had
      'because he said that they had no money'

---

[32] That object shift is clause bound cannot be shown by parallel examples, since object shift does not cross verbs and hence there is no way for an object to be shifted to a higher clause.

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 (68) 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 such as sentences with the verbs *tro* ('to think') and *mene* ('to think). In the examples in (69) the IQPs appear in the matrix construction and not in their canonical position in the embedded clause.[33]

(69) a. og han mente [ingen hindring]$_i$ der var $\_i$ for en kassekredit.[34]
and he thought no hindrance there was for an overdraft.credit
'and he thought there was no hindrance for an overdraft credit.'

b. Jeg troede [ingen ende]$_i$ det ville få $\_i$.
I thought no end it would get
'I thought it would never stop.'

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:

---

[33] These examples are challenging for approaches to neg-raising, claiming that it is neither extraction nor raising, but rather a matter of interpretation as in Sailer (2006: p. 378–385). The Neg-QPs in (69a) and (69b) are not independently licensed by the matrix verb *tro* ('to think') the way the purely modificational *ikke* ('not') is. The matrix verb does not select a direct object in addition to a complement clause. There must be a syntactic dependence between the IQP in the matrix clause and the missing object of the embedded verb. This is not captured by a purely interpretational mechanism. We do not pursue this matter further here, but we suspect that this should be captured by a construction-specific rule for neg-raising as suggested for preposed negation in Chapter 10.

[34] http://www.amino.dk/forums/t/57572.aspx, [19/8 2011].

(70) Mapping from ARG-ST to valence features:

$$\left[\text{SYNSEM}|\text{LOC}|\text{CAT} \left[\begin{array}{ll} \text{SPR} & \boxed{1} \\ \text{COMPS} & \boxed{2} \\ \text{ARG-ST} & \boxed{1} \oplus \boxed{2} \end{array} \right] \right]$$

For Danish we assumed that the specifier list contains the subject, that is, $\boxed{1}$ 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:

(71) Mapping from ARG-ST to valence features with constraint for Danish:

$$\left[\text{SYNSEM}|\text{LOC}|\text{CAT} \left[\begin{array}{ll} \text{SPR} & \boxed{1} \\ \text{COMPS} & \boxed{2} \\ \text{ARG-ST} & \boxed{1} \oplus \boxed{2} \end{array} \right] \right] \wedge \boxed{1} = \langle \boxed{} \rangle \oplus \text{list of shifted elements}$$

If this constraint is applied to the lexical item for *læser* ('to read') that was given as (??) on page ?? and is repeated here as (72) one gets (73) in addition to the canonical mapping, in which the subject is mapped to SPR and the object to COMPS.
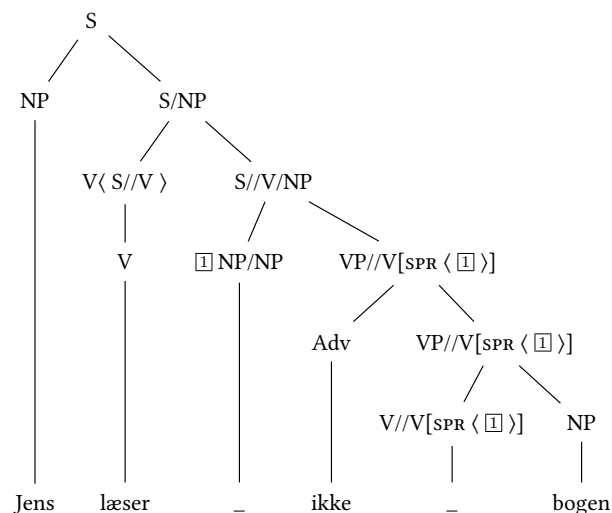
(72) CAT value for *læser* ('to read'):

$$\left[\text{ARG-ST} \langle \text{NP}, \text{NP} \rangle \right]$$

(73) CAT value for *læser* ('to read') with both arguments mapped to SPR:

$$\left[\begin{array}{ll} \text{SPR} & \boxed{1} \oplus \boxed{2} \\ \text{COMPS} & \langle \rangle \\ \text{ARG-ST} & \boxed{1} \langle \text{NP} \rangle \oplus \boxed{2} \langle \text{NP} \rangle \end{array} \right] \wedge \boxed{2} = \text{list of shifted elements}$$

(73) 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.*

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

Figure 5.3: A structure that is ruled out by the specification of the adverb

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 on the facing page. The fact that *læser* starts out as a VP may seem strange to some readers, but remember that VP is just a shorthand for a verbal object with an empty COMPS list. As was shown in (73), *læser* has both arguments in the SPR list. The V1 rule licences a verbal item that selects for a fully saturated clausal projection with a verbal trace that has the properties of *læser*, that is, a verbal trace with two elements in the SPR list and an empty COMPS list. Since the information about the missing verb is a head feature it is present at the verbal trace as well and it is ensured that the verbal trace has the right properties. The adverb *ikke* selects for a VP and the combination of adverb and verbal trace can be combined with the two specifiers. The first specifier is the shifted object and the second specifier is a trace of the subject, which is bound off later in a head-filler structure.

It remains to be explained why the adverb cannot combine with a projection that consists of the VP and one specifier as in Figure 5.3 on the next page. This structure is ruled out by the requirement of VP adjuncts that the projection they attach to has to have a COMPS list with realized arguments and a SPR list with unrealized arguments (see Section 4.2.4). Since the shifted pronoun is marked as realized in the SPR list already, the negation cannot combine with this projection.

As was noted in the data section, object shift is possible in V1 and V2 sentences only. This means that the finite verb has to be fronted in object shift constructions. We for-
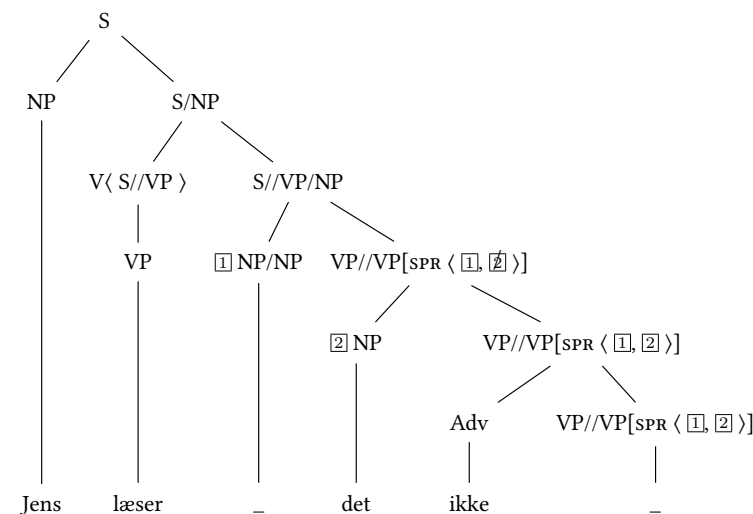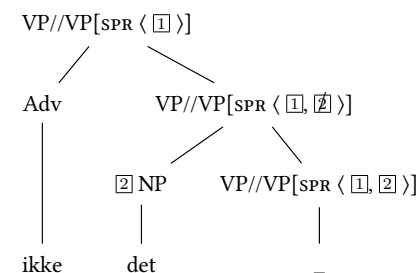
mulate this constraint as follows:[35]

(74)

Verb fronting in object shift constructions:
$$\begin{bmatrix} \text{SYNSEM|LOC|CAT|SPR } \textit{ne\_list} \oplus \langle \textit{pro} \rangle \\ \textit{head-specifier-phrase} \end{bmatrix} \Rightarrow$$

$$\begin{bmatrix} \text{SYNSEM|LOC|CAT|HEAD|DSL } \textit{local} \end{bmatrix}$$

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.

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 preceedes the direct one. This is directly accounted for by our proposal: For a ditransitive verb we have three possible mappings:

(75) a. *give* with canonical mapping:
$$\begin{bmatrix} \text{SPR} & \langle \text{NP}_{\boxed{1}} \rangle \\ \text{COMPS} & \langle \text{NP}_{\boxed{2}}, \text{NP}_{\boxed{3}} \rangle \\ \text{RELS} & \left\langle \begin{bmatrix} \text{AGENT} & \boxed{1} \\ \text{GOAL} & \boxed{2} \\ \text{THEME} & \boxed{3} \\ \textit{give} \end{bmatrix} \right\rangle \end{bmatrix}$$

b. *give* with shifted indirect object:
$$\begin{bmatrix} \text{SPR} & \langle \text{NP}_{\boxed{1}}, \text{NP}_{\boxed{2}} \rangle \\ \text{COMPS} & \langle \text{NP}_{\boxed{3}} \rangle \\ \text{RELS} & \left\langle \begin{bmatrix} \text{AGENT} & \boxed{1} \\ \text{GOAL} & \boxed{2} \\ \text{THEME} & \boxed{3} \\ \textit{give} \end{bmatrix} \right\rangle \end{bmatrix}$$

c. *give* with shifted indirect and direct object:
$$\begin{bmatrix} \text{SPR} & \langle \text{NP}_{\boxed{1}}, \text{NP}_{\boxed{2}}, \text{NP}_{\boxed{3}} \rangle \\ \text{COMPS} & \langle \, \rangle \\ \text{RELS} & \left\langle \begin{bmatrix} \text{AGENT} & \boxed{1} \\ \text{GOAL} & \boxed{2} \\ \text{THEME} & \boxed{3} \\ \textit{give} \end{bmatrix} \right\rangle \end{bmatrix}$$

Since the SPR list has to be a prefix of the ARG-ST list it is impossible to have a SPR list $\langle \text{NP}_{\boxed{1}}, \text{NP}_{\boxed{3}} \rangle$ and hence it is explained why the direct object cannot shift without the indirect object being shifted as well. The example (47b) repeated here as (76) is therefore correctly excluded.[36]

(76) ?* Han skænkede [den] ikke [biblioteket].
      he   donated   it   not library.DEF
      'He didn't donate it to the library.'

The lexical item in (75b) can be used in the analysis of (77a), which is given in Figure 5.4 on the following page. The lexical item in (75c) with the subject and both objects in the SPR list is used in the analysis of (77b), which is given in Figure 5.5 on page 141.

(77) a. Jens giver ham ikke bogen.
        Jens gives him not book.DEF
        'Jens is not giving him the book.'

---

[35] This corresponds to the surface filter that Holmberg (1999a: p. 8) discusses:

  (i)   * Obj Adv X° t_O, unless X° is phonologically empty.

  t_O stands for the object trace in the movement-based approaches that Holmberg discusses. Note that this filter does not ensure that frontings over non-finite verbs are ruled out. For such cases one would have to mention two empty elements, one for the finite and one for the non-finite verb. We will return to these cases on page 145.

[36] As Sten Vikner (p. c. 2012) pointed out the sentence can be repaired by inserting the preposition *til* before *biblioteket*.

  (i)   Han skænkede [den] ikke til [biblioteket].
         he   donated   it   not to library.DEF
         '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).

b. Jens giver ham den ikke.
Jens gives him it not
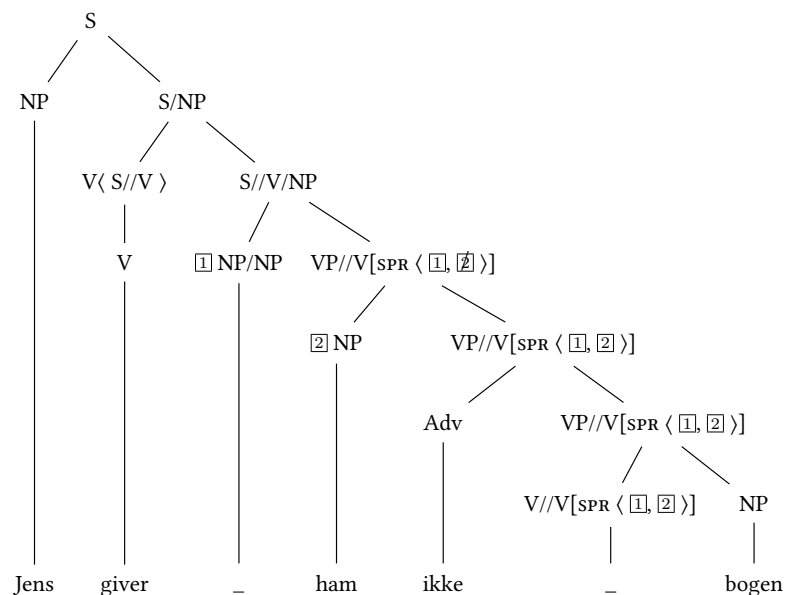'Jens is not giving it to him.'

Figure 5.4: Analysis of the sentence *Jens giver ham ikke bogen.* with object shift with a ditransitive verb and the indirect object shifted

The fact that the order in (78) 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.

(78) * 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 Head-Specifier 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 (79) so far:
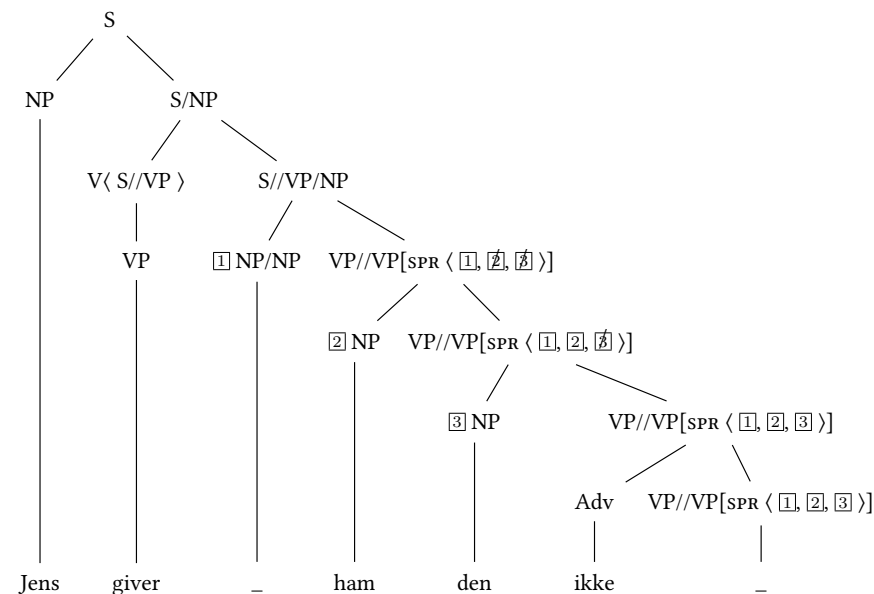

Figure 5.5: Analysis of the sentence *Jens giver ham den ikke.* with object shift with a ditransitive verb and both objects shifted

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

In (79) the indirect object is positioned in the prefield and the direct object is shifted. In order to analyse (79) 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 & 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 & 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. (80) shows the lexical item that is needed for the analysis of (79).

(80) *giver* with shifted direct object and extracted indirect object:

$$
\begin{bmatrix}
\text{SPR} & \langle\, \text{NP}_{\boxed{1}},\ \text{NP}_{\boxed{2}} \,\rangle \\[2pt]
\text{COMPS} & \langle\, \text{NP}[\text{LOC}\ \boxed{4},\ \text{SLASH}\ \boxed{4}]_{\boxed{3}} \,\rangle \\[6pt]
\text{RELS} & \left\langle\,
\begin{bmatrix}
\text{AGENT} & \boxed{1} \\
\text{GOAL} & \boxed{2} \\
\text{THEME} & \boxed{3} \\
\textit{give} &
\end{bmatrix}
\,\right\rangle
\end{bmatrix}
$$

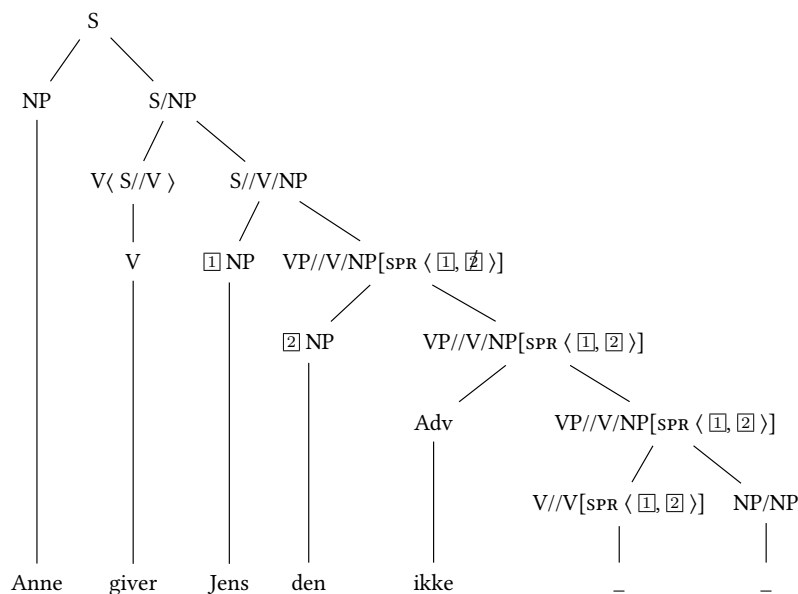The analysis of (79) is shown in Figure 5.6. The verbal trace combines with the trace of

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 extracted indirect object. 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).

5.2.3 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 appart from the subject only light pronominals can be mapped to the SPR list.[37] So for the verb *arbejder* ('to work') there is only one mapping possible:

(81)
$$
\begin{bmatrix}
\text{SPR} & \boxed{1}\,\langle\, \text{NP} \,\rangle \\
\text{COMPS} & \boxed{2}\,\langle\, \text{PP}[\textit{PÅ}] \,\rangle \\
\text{ARG-ST} & \boxed{1}\,\langle\, \text{NP} \,\rangle \oplus \boxed{2}\,\langle\, \text{PP}[\textit{PÅ}] \,\rangle
\end{bmatrix}
$$

Since complements have to be realized to the right of the verb (or verb trace), it is clear that full PPs cannot preceede the verb or the negation. This explains the ungrammaticality of (23b) which is repeated here as (82) for convenience:

(82) * Vi venter på dig ikke.
      we wait   for you not
      Intended: 'We are not waiting for you.'

For the same reasons sentences like (24a), repeated here as (83), 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.

(83) * Vi venter [dig] ikke [på].
      we wait   you not   for
      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:[38]

(84) argument structure of the passive and perfect auxiliaries:

---

[37] 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 & Vikner 2012: p. 19). Engels & 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.

[38] 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 AcI verbs. The version of (84) that incorporates the relational constraint is given in (i):

(i)
$$
\begin{bmatrix}
\text{ARG-ST} & \text{raise}(\boxed{1}) \oplus \langle\, \text{VP}[\text{SPR}\ \boxed{1}] \,\rangle
\end{bmatrix}
$$

$$\left[\text{ARG-ST } \boxed{1} \oplus \langle \, \text{VP[SPR } \boxed{1} \,] \, \rangle \right]$$

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

(85) argument structure and valence of the passive and perfect auxiliaries:

$$\begin{bmatrix} \text{SPR} & \boxed{1} \\ \text{COMPS} & \langle \, \text{VP[SPR } \boxed{1} \,] \, \rangle \\ \text{ARG-ST} & \boxed{1} \oplus \langle \, \text{VP[SPR } \boxed{1} \,] \, \rangle \end{bmatrix}$$

The example in (33a), which is repeated as (86) for convenience, can then be analyzed as shown in Figure 5.7 on the next page.

(86)   Kysset har   jeg hende ikke.
        kissed have I   her   not
        'I have not kissed her.'

In (86) the object of *kysset* ('kissed') is shifted. This means that the analysis of (86) involves a lexical item for the participle that has an empty COMPS list and two elements on the SPR list. As far as the valence features are concerned, this is parallel to the lexical item for *læser* with a shifted object that was given in (73) on page 135. The difference between *læser* and *kysset* ist that the former is a finite verb and hence has the VFORM value *finite*, while the latter is a perfect participle and therefore has the VFORM value *perf*. The respective specification of *kysset* is provided in (87):

(87) CAT value for perfect participle *kysset* ('kissed') with both arguments mapped to SPR:

$$\begin{bmatrix} \text{HEAD} & \begin{bmatrix} \text{VFORM} & \textit{perf} \\ \textit{verb} \end{bmatrix} \\ \text{SPR} & \boxed{1} \oplus \boxed{2} \\ \text{COMPS} & \langle \rangle \\ \text{ARG-ST} & \boxed{1} \langle \, \text{NP} \, \rangle \oplus \boxed{2} \langle \, \text{NP} \, \rangle \end{bmatrix} \quad \wedge \boxed{2} = \text{list of shifted elements}$$

The perfect auxiliary *have* ('to have') selects for a VP with the VFORM value *perf*.

Since the lexical item for *kysset* has no unrealized elements on its COMPS list, it can function as a filler in a filler-gap dependency and hence be realized in the prefield. The VP in the prefield is connected to an extraction trace that functions as the complement of the verb trace. The verb trace has the same syntactic properties as the auxiliary in initial position, that is, it selects for a VP and attracts the SPR list from this VP in the way that was depicted in (85). The result of combining the verb trace and the VP trace is a VP that has two elements in its SPR list. This VP is combined with the negation and after this the two specifiers are realized.

Note that the prefield is filled by a maximal projection. In theories that stick to $\overline{\text{X}}$ Theory this is required for fronted elements. We do not follow the assumtion that $\overline{\text{X}}$ Theory is universal. For instance, for German we allow for non-maximal projections to
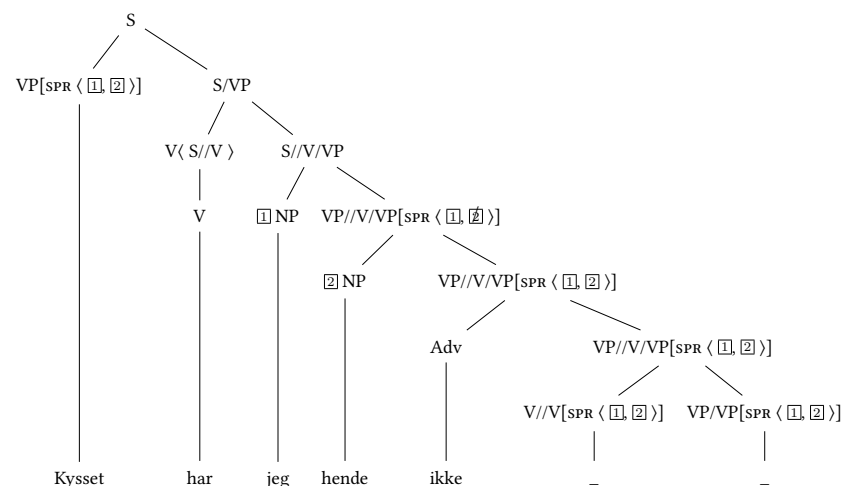

Figure 5.7: Object shift with perfect tense and partial VP fronting

be fronted (Müller 1996b; 2002; Meurers 2000; Kathol 2001). That the fronted element is a maximal projection is not enforced by constraints on head-filler structures but by selectional constraints on the governing head: In Danish the governing heads embed full phrases (heads with all members of their COMPS list realized) and in languages like German verbal complexes can be formed, which allows heads to combine with non-maximal projections.

On page 138 we discussed the constraint in (74) that ensures that the finite verb is fronted in object shift constructions. In order to ensure Holmberg's Generalization also for non-finite verbs, we need another constraint, since non-finite verbs are not affected so far, and without an explicit constraint, we would admit sentence like (88), in which the non-finite verb is realized to the right of the negation:

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

The constraint in (89) 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 (89) is to combine the verb with an extraction trace.

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

$$\begin{bmatrix} \text{SYNSEM|LOC|CAT} & \begin{bmatrix} \text{HEAD} & [\text{ AUX + }] \\ \text{SPR} & \textit{ne\_list} \oplus \langle \, \textit{pro} \, \rangle \\ \text{COMPS} & \langle \, \text{VP} \, \rangle \end{bmatrix} \\ \textit{head-argument-phrase} \end{bmatrix} \Rightarrow$$

$$\begin{bmatrix} \text{NON-HEAD-DTRS} \left\langle \begin{bmatrix} \text{SYNSEM} & \begin{bmatrix} \text{LOC } \boxed{1} \\ \text{NONLOC|INHER|SLASH } \langle \boxed{1} \rangle \end{bmatrix} \end{bmatrix} \right\rangle \end{bmatrix}$$

The restriction to auxiliary verbs in the antecedent of the implicational constraint in (89) 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.

The constraints in (74) and in (89) 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: (90b) shows the passive variant of the active sentence in (90a) and (90c) is the object shift version of this passive variant:

(90) a. Anne anbefaler ikke Jens bogen.
Anne recommended not Jens book.DEF
'Anne did not recommend the book to Jens.'

b. Jens bliver ikke anbefalet bogen.
Jens is not recommended book.DEF
'Jens was not recommend the book.'

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

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 (91):

(91)
$$\begin{bmatrix} \text{SYNSEM|LOC|CAT} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \text{VFORM } pass \\ verb \end{bmatrix} \\ \text{ARG-ST} & \langle \text{NP}_{\boxed{1}}, \text{NP}_{\boxed{2}} \rangle \end{bmatrix} \\ \text{RELS} & \left\langle \begin{bmatrix} \text{AGENT} & \boxed{} \\ \text{PATIENT} & \boxed{1} \\ \text{THEME} & \boxed{2} \\ recommend \end{bmatrix} \right\rangle \end{bmatrix}$$

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 (87), the only difference between the items is the value of the VFORM feature:

(92) CAT value for *anbefalet* ('recommended') with both remaining arguments mapped to SPR:

$$\begin{bmatrix} \text{HEAD} & \begin{bmatrix} \text{VFORM } pass \\ verb \end{bmatrix} \\ \text{SPR} & \boxed{1} \oplus \boxed{2} \\ \text{COMPS} & \langle \rangle \\ \text{ARG-ST} & \boxed{1} \langle \text{NP} \rangle \oplus \boxed{2} \langle \text{NP} \rangle \end{bmatrix} \wedge \boxed{2} = \text{list of shifted elements}$$

The analysis of (90c) 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.

5.2.5 AcI Verbs and Object Shift

As was discussed on page 115, the raised objects of AcI verbs also undergo object shift. This follows immedeatly from the analysis that is assumed here, if it is combined with the analysis of raising that is standardly assumed in HPSG (Pollard & Sag 1994: Section 3.5). Parts of the lexical item for the verb *se* ('to see') are provided in (93):

(93) Lexical item for *se* ('to see'):
$$\begin{bmatrix} \text{SYNSEM|LOC|CAT|ARG-ST} & \langle \text{NP}_{\boxed{1}}, \boxed{2}, \text{VP[SPR } \langle \boxed{2} \rangle \text{]:}\boxed{3} \rangle \\ \text{RELS} & \left\langle \begin{bmatrix} \text{EXPERIENCER} & \boxed{1} \\ \text{SITUATION} & \boxed{3} \\ see \end{bmatrix} \right\rangle \end{bmatrix}$$

The canonical mapping for this lexical item is shown in (94):

(94) CAT value for *se* ('to see') with canonical mapping:
$$\begin{bmatrix} \text{SPR} & \langle \text{NP} \rangle \\ \text{COMPS} & \langle \boxed{2}, \text{VP[SPR } \langle \boxed{2} \rangle \text{]} \rangle \\ \text{ARG-ST} & \langle \text{NP}, \boxed{2}, \text{VP[SPR } \langle \boxed{2} \rangle \text{]} \rangle \end{bmatrix}$$

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 (95) as in Figure 5.8 on the following page.

(95) at Jeg aldrig så manden le
that I never saw man.DEF laugh
'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 (2). It is combined with the object first and the resulting verbal projection is combined with the VP argument (3). 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 (1) and the result is a complete sentence which can function as the complement of the complementizer.
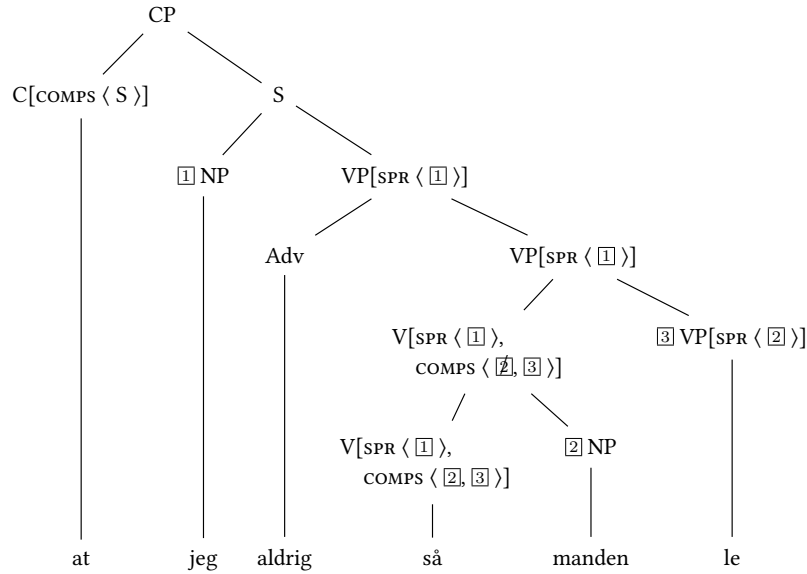
Figure 5.8: Analysis of a sentence with AcI verb

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 AcI verb, it can be mapped to the SPR list of *se*. The respective mapping is shown in (96):

(96) CAT value for *se* ('to see') with raised object mapped to specifier:

$$\begin{bmatrix} \text{SPR} & \boxed{1} \oplus \boxed{2} \\ \text{COMPS} & \boxed{3} \\ \text{ARG-ST} & \boxed{1} \langle \text{NP} \rangle \oplus \boxed{2} \langle \boxed{4} \rangle \oplus \boxed{3} \langle \text{VP}[\text{SPR} \langle \boxed{4} \rangle] \rangle \end{bmatrix} \wedge \boxed{2} = \text{list of shifted}$$
elements

The analysis of (97) is shown in Figure 5.9 on the next page.

(97) Jeg så dem aldrig le.
I   saw them never laugh
'I never saw them laugh.'

The verb *så* as used in the analysis of (97) 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
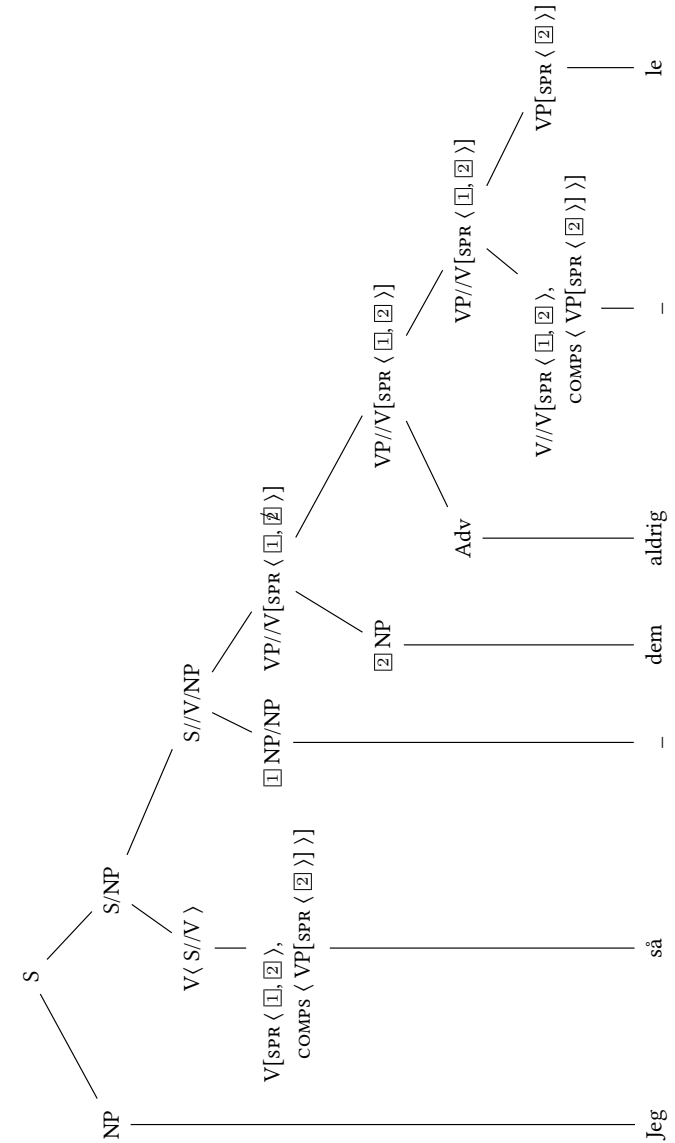

Figure 5.9: Object shift of the raised object of an AcI verb

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 (89) does not apply to AcI verbs. If it would apply, the sentence in (97) would be ruled out since the VP argument is not extracted.

The example in (35a), repeated here as (98), is ruled out because of the specification of the lexical entry for the AcI verb *så* in (93): the verb selects a VP with exactly one element in the SPR list. In order to analyze (98) *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.

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

Alternatively one could assume that AcI verbs pattern with auxiliaries in attracting arbitrarily many specifiers from the embedded verb and claim that (98) is excluded due to its high processing load. We decided however to incorporate a constraint into the grammar.

The sentence (37b), repeated here as (99) can be analyzed as shown in Figure 5.10 on the facing page.

(99)   ? 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* ist 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 (100), shifted pronouns do not licence parasitic gaps:

(100)   * Alle stillede den_i straks   _i hen på reolen   uden   at læse _i
           all put   it   immediately   onto   bookcase.DEF without to read
         først.
         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 & Sag (1994: Section 4.5) a string as the one in (100) 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 (100) 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
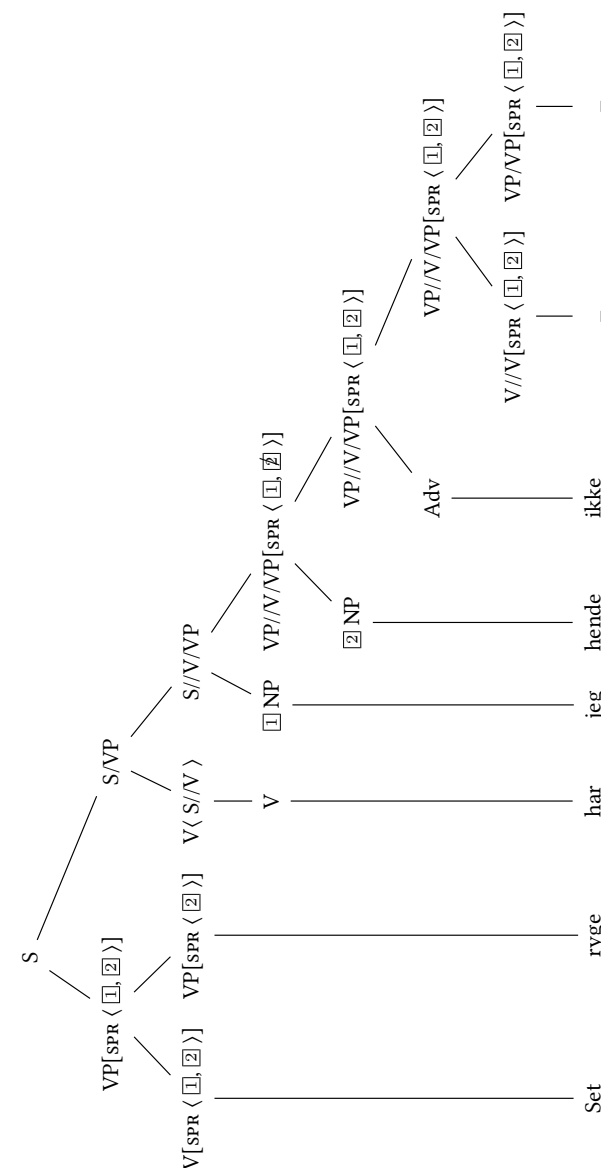

Figure 5.10: Object shift with AcI verb and partial VP fronting of a complex VP

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 (66b) 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 straight-forward 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 119). 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 clitizise. 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 (101a) should be good, but it is not. Example (101b) is a V1-clause and the shifted pronoun is separated from the verb by the subject.

(101) a.   * Kender [hende] Peter ikke?
             knows   her   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 (102) 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 (102).

(102)   * Peter læser ikke+den.
           Peter reads not+it
           'Peter doesn't read it.'

In example (103) 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')[39] prosodically incorporates into the cluster consisting of the verb and the weak pronoun.

(103)   Peter læser+den+ikke.
         Peter reads+it+not
         'Peter doesn't read it.'

In example (104) the weak pronoun *den* ('it') phonologically incorporates into the subject DP *Peter*, which acts as a host for the weak pronoun. The adverb *ikke* ('not') phonologically incorporates into the cluster consisting of the subject DP and the weak pronoun.

(104)   Læser Peter+den+ikke?
         reads Peter+it+not
         'Dosn't Peter read it?'

When no V2 applies, i.e. in V_{BASE}-clauses, the weak pronoun can prosodically incorporate into the verb (and the adverb *ikke* ('not') incorporates into the subject DP.)

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[39] A weak adverb is an adverb that cannot occur in the Prefield or clause-finally (Erteschik-Shir 2005: p. 57). Erteschik-Shir gives the example *ikke* ('not') and *ofte* ('often'). The latter, however, can both occur in the Prefield and clause finally.

(i) Ofte æder snegle og fugle de spirende   kimblade af ærter og bønner på friland,
     often eat snails and birds the geminating seed.leaves of peas and beans on open.land
                                                                                    (KorpusDK)

'Often snails and birds eat the geminating seed leaves of field-grown peas and beans'

(105)   fordi   han+ikke kender+hende
         because he+not   knows+her
         'because he doesn't know her'

The example in (106) 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 position (Erteschik-Shir 2005: p. 60–61). The first available position for the weak adverb is incorporation into the subject DP as in (105).

(106)   * 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 (107) and (108) 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 *stor sandsynlighed* ('great probability') or the V *at dømme* ('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.

(107)   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.'
         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.'
(108)   a.   Hun kender [ham] [efter 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 [efter 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 (107a) and (108a) allow for very complex internal modification as in (109), making an analysis as a reanalyzed adverb seem implausible.

(109)   Hun kender [ham] [efter alt   hvad hun har sagt på det sidste   at
         she knows   him   after everything what she has said in the last.time to
         dømme] ikke særlig godt.
         judge   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 *efter 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 (Erteschik-Shir 2005: p. 52). So if the DP *sandsynlighed* ('probability') and the verb *dømme* ('to judge') are hosts for the negation in (107a) and (108a), there is no reason why they should not also be able to act as hosts for the weak pronoun. And yet (107b) and (108b) 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 112. 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 fot the clitic analysis: it does not extend to object shift in Icelandic and Faroese that allow for complete NPs to undergo object shift.

5.3.2 Movement-Based Approaches to Object Shift

In this section, we discuss movement-based approaches to object shift. We start by discussing problems with the order of pronouns that arise in approaches that assume that the object moves to the left periphery of the projection under consideration (Section 5.3.2.1). The discussion of parasitic gaps in Section 5.2.6 shows that approaches that involve direct movement of pronouns are not empirically adequate. As Holmberg (1999b: p. 34) pointed out, the parasitic gap data 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 & 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 (110b) for convenience.

(110) a. De solgte [den] heldigvis ikke.
they sold it fortunately not
'Fortunately they did not sell it.'

b. * De solgte heldigvis [den] ikke.
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 (110b), 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 (110b) 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.

(111) a. Han forklarede [hende] [det] ikke.
he explained her 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 in Figure 5.11 on the next page. An object can only shift, if the object is initial in the VP. In Figure 5.11 the verb *forklarer* ('to explain') has moved to C leaving the trace _i. Next, the indirect object *hende* ('her') moves, adjoins to VP, and leaves the trace _j. Now the direct object pronoun *de* ('it') is initial in the VP and can move and adjoin to VP. But this gives the wrong ordering of the objects, since the direct object precedes the indirect object.

If one alternatively assumes that object shift is not adjunction but movement to a specifier position as was suggested by Johnson (1991: p. 607) and Collins & Thráinsson
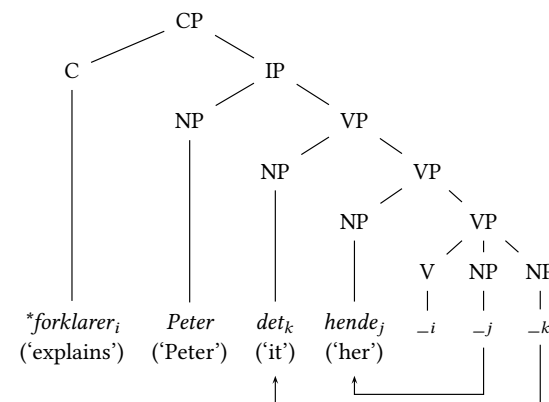

Figure 5.11: The movement-based analysis of object shift wrongly predicts an order in which the direct object *de* precedes the indirect object *hende*

(1996: p. 392) for Icelandic, one runs into similar problems. Vikner (2006) points out some problems in trying to give West Germanic Scrambling and Object Shift a uniform analysis as movement to a specifier position. In that case the specifier analysis must foresee up to three specifier positions for the case that three pronouns shift (see example (26a) on page 119). This is no problem if one assumes an appropriate number of functional projections, but again we have to make sure that the shifted pronouns observe the right order. This means that an indirect object must move to a higher projection than the direct object (thereby by-passing the specifier position of an intermediate projection), since the indirect object precedes the direct object. The question is what should motivate the existence of three possible landing sites for shifted pronouns outside the context of shifting pronouns and how the ordering restriction should be enforced.

5.3.2.2 Remnant Movement

As was discussed in Section 5.1.3, a further problem of analyses that assume movement of the shifted pronouns is that they predict that parasitic gaps are licenced. As Holmberg (1999b: p. 34) pointed out, the parasitic gap data would not be a problem for remnant movement analyses of the kind suggested by Kayne (1994). Holmberg discusses the derivation of object shift in Icelandic. In Iclandic it is possible to shift complete NPs, not just pronouns. Holmberg first discusses the analysis of sentences like (112) in which the object is not shifted:

(112) Ég les aldrei nyjar bækur.
I read never new books
'I never read new books.'

In a Kayne-style analysis the definite object is moved out of the VP (113a), then the adverb is combined with the resulting verbal projection (113b), 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:

(113) a. [[nyjar bækur]$_i$ [$_{VP}$ ég les t$_i$]]   (Move indefinite DP out of VP)
       b. [aldrei [[nyjar bækur]$_i$ [$_{VP}$ ég les t$_i$]]]   (Merge the adverb)
       c. [[$_{VP}$ ég les t$_i$]$_j$ [aldrei [[nyjar bækur]$_i$ t$_j$]]]   (Move VP)

If one assumes that the object does not have to move out of the VP as in (113a) then the analysis in (115) for the example in (114) becomes possible.

(114) 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:

(115) [[$_{VP}$ ég les þessar bækur]$_j$ [aldrei t$_j$]]

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 critizised 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 (33a), the VP has to be emptied by movement operations: First the pronoun moves out of the VP as in (116a) and then the VP remnant that contains only the bare verb can be fronted as in (116b):

(116) a. har jeg hende$_i$ ikke [$_{VP}$ kysset _$_i$],
           have I   her   not   kissed
           'I have not kissed her.'
       b. [$_{VP}$ Kysset _$_i$] har jeg hende$_i$ 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 (116a) for the VP to be ready for moving to the initial position in (116b). 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 & 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 & Webelhuth (1990) and G. Müller (1998). Haider (1993: p. 281), De Kuthy (2002: Chapter 4.2.5), De Kuthy & Meurers (2001: Section 2), and Fanselow (2002) argued against such remnant

movement 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:

(117) a. dass wer wen mit was traktiert hat
           that who whom with what maltreated has
           'that who maltreated whom with wat'
       b. *dass wer mit was wen traktiert hat
           that who with what whom maltreated has
           'that who maltreated whom with wat'

So, if there is a VP in (117a), there is no way to empty it by movement of the *w* elements, but nevertheless the following example with partial fronting is possible:

(118) 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 & 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 (2003a) for an extensive discussion of relevant data, Bildhauer (2011) on a large accessible data base of annotated corpus examples, and Bildhauer & Cook (2010a); Müller, Bildhauer & 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 (To appear(c)) 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 prefered 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. (119a) shows the basic structure of his Swedish example before movement. In (119b)

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 (119c) has shifted to the position preceeding the negation.

(119) a. Infl [inte har [$_{VP}$ jag [$_{V'}$ kysst henne]]]
           not have   I   kissed her

       b. [$_{CP}$ kysst$_V$ [$_{C'}$ har$_{aux}$ [$_{IP}$ jag$_s$ Infl inte t$_{aux}$ [$_{VP}$ t$_s$ [$_{V'}$ t$_V$ henne]]]]]

       c. [$_{CP}$ kysst$_V$ [$_{C'}$ har$_{aux}$ [$_{IP}$ jag$_s$ Infl henne$_o$ inte t$_{aux}$ [$_{VP}$ t$_s$ [$_{V'}$ t$_V$ t$_o$]]]]]]

This analysis avoids the problems of remnant movement-based approaches by building the complete structure first and applying 'normal' movments first and delaying object shift till the very end of the derivation. As Engels & 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 & Vikner (2012: p. 92) point out empirical problems of Holmberg's proposal: While object shift is optional in Swedish as is shown in (120), it is obligatory when the verb is fronted, as (121) shows:[40]

(120) a. Jag kysste inte henne.
           I   kissed not her
           'I did not kiss her.'

       b. Jag ksysste henne inte.
           I   kissed her   not

(121) a. * Kysst har   jag inte henne.
             kissed have I   not her

       b. Kysst har   jag henne inte.
           kissed have I   her   not

This is not predicted by Holmberg's analysis since V° topicalization 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 & Vikner (2012: p. 93) also point out simple V° topicalization would also allow the following frontings, which are ungrammatical:

(122) a. Jeg har   ikke smidt   den ud.
           I   have not thrown it   out

       b. * Smidt har   jeg den ikke ud.
             thrown have I   it   not out

---

[40] The examples in (120a,b) are due to Erteschik-Shir (2001: p. 59) and Holmberg (1999b: p. 7), respectively.

(123) a. Jeg har   ikke stillet det på bordet.
           I   have not put   it on table.DEF

       b. * Stillet har   jeg det ikke på bordet.
             thrown have I   it   not on table.DEF

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 they 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 (Tanenhaus et al. 1995, 1996). It is not easy to see how this can be reconciled with models that assume that a complete structure is build 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 & Wasow 2011). Since Holmberg emphazises 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 & Vikner (2006, 2012)

5.3.3 Linearization-Based Analyses

Bjerre (2006) presents an analysis of object shift in the frame-work of linerization-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 (124) which is given in Figure 5.12 on the following page:

(124) at   Jens læser bogen
       that Jens reads book.DEF
       'that Peter reads the book'

The domain objects are complex linguistic objects that are similar to the ones that we are using here. In the figure only the PHON values are given. Every lexical item comes with a domain object that represents its phonological, syntactic, and semantic properties. When a complex object is build, the domain objects of the daughters are inserted into the

CP[DOM ⟨ *at, Jens, læser, bogen* ⟩]

C[DOM ⟨ *at* ⟩]   S[DOM ⟨ *Jens, læser, bogen* ⟩]

NP[DOM ⟨ *Jens* ⟩]   VP[DOM ⟨ *læser, bogen* ⟩]

V[DOM ⟨ *læser* ⟩]   NP[DOM ⟨ *bogen* ⟩]
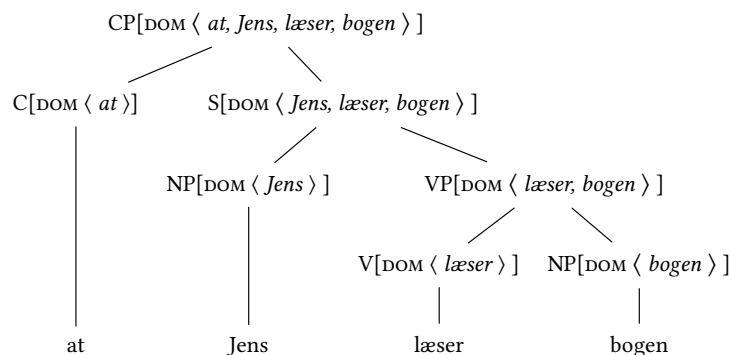
at   Jens   læser   bogen

Figure 5.12: Linearization-based analysis of Danish clauses

domain of the mother node. As Figure 5.12 shows, we end up with a flat representation of all constituents at the top-most node in the tree.

Bjerre (2006) suggests that syntactic functions are assigned to syntactic positions (by means of an appropriate type hierarchy) and that linear precedence is stated in terms of these syntactic positions. The type *verbal* is assigned to the position *m* (corresponding to the *fronted* position) and the position *V* (the *base* position within the VP). The syntactic function *object* is assigned to the positions I and N, saying that an object can occur in position I (the position for shifted objects) or in the position N (the position of full NP objects within the VP). *n* is the field for the subject and *a1* 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.

(125)   *F < m < n < I < a1 < V < N*

Figure 5.13 on the next page 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 as the non-shifted example but a different linearization. The analysis is given in Figure 5.14 on page 164.[41] The object pronoun is assigned to the field *I* rather than *N* and hence is linearized to the left of the adverb. Since the verb is assigned to the field *m* it precedes both the shifted pronoun and the adverb. It should be clear from the pictures that in linearization-based analyses the dominance structure is independent of the actual serialization of components. In particular discontinuous constituents are allowed in such models.

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[41] Bjerre 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.

CP[⟨ *m:at, n:Jens, a1:ikke, V:læser, N:bogen* ⟩]

C[⟨ *m:at* ⟩]   S[⟨ *n:Jens, a1:ikke, V:læser, N:bogen* ⟩]

NP[⟨ *n:Jens* ⟩]   VP[⟨ *a1:ikke, V:læser, N:bogen* ⟩]

Adv[⟨ *a1:ikke* ⟩]   VP[⟨ *V:læser, N:bogen* ⟩]

V[⟨ *V:læser* ⟩]   NP[⟨ *N:bogen* ⟩]
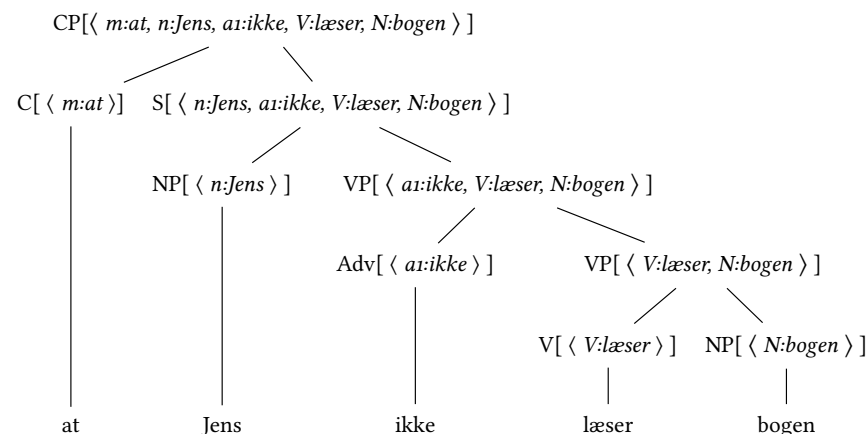
at   Jens   ikke   læser   bogen

Figure 5.13: Linearization-based analysis of Danish clauses with topological labels

In order to regulate the assignment of topological fields and to impose further restrictions, Bjerre formulates four constraints:

1. Full objects cannot occur in the position *I*

2. Objects cannot precede their verbal head

3. IO must precede DO independent of their appearance in the positions *I* and/or *N*

4. Unstressed pronominal objects cannot occur in position *N* unless preceded either by an instantiated V or a full NP in *N*

These constraints are implemented by the following principles:

1. No full object in the position I:

$$I \Rightarrow \begin{bmatrix} \text{PHON} \ \langle \ [\ \text{STRESSED} \ \textit{unstressed} \ ] \ \rangle \\ \text{SYNSEM}|\text{LOC}|\text{CAT}|\text{HEAD} \ \textit{pron} \end{bmatrix}$$

2. Indirect objects precede direct objects in I or in N:[42]

---

[42] It 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 (89) on page 145 for an implicational constraint with a complex antecedent.
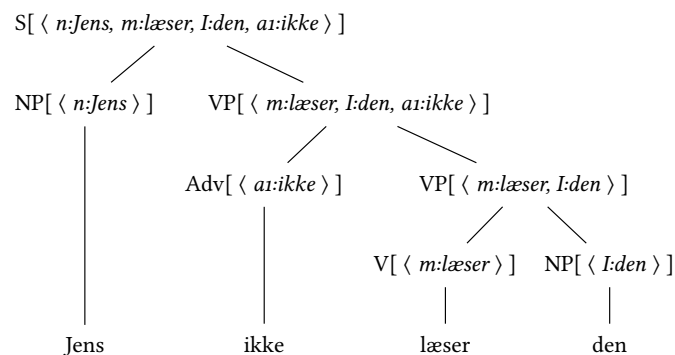
S[⟨ *n:Jens, m:læser, I:den, a1:ikke* ⟩]

NP[⟨ *n:Jens* ⟩]   VP[⟨ *m:læser, I:den, a1:ikke* ⟩]

Adv[⟨ *a1:ikke* ⟩]   VP[⟨ *m:læser, I:den* ⟩]

V[⟨ *m:læser* ⟩]   NP[⟨ *I:den* ⟩]

Jens   ikke   læser   den

Figure 5.14: Linearization-based analysis of object shift

head-complement-phrase ⇒

$$
\begin{bmatrix}
\text{SYNSEM}|\text{LOC}|\text{CAT} \begin{bmatrix} \text{SUBJ} & \boxed{1} \\ \text{COMPS} & \langle\rangle \end{bmatrix} \\
\text{HEAD-DTR}|\text{SYSNSEM}|\text{LOC}|\text{CAT} \begin{bmatrix} \text{SUBJ} & \boxed{1} \\ \text{COMPS} & \langle \boxed{2}, \boxed{3} \rangle \end{bmatrix} \\
\text{NON-HEAD-DTRS} \langle \boxed{4}\,[\,\text{SYNSEM}\,\boxed{2}\,],\,\boxed{5}\,[\,\text{SYNSEM}\,\boxed{3}\,] \rangle
\end{bmatrix}
\wedge
\begin{matrix}
\text{compaction}(\boxed{4},\boxed{6}\,\langle\,obj\,\rangle)\,\wedge \\
\text{compaction}(\boxed{5},\boxed{7}\,\langle\,obj\,\rangle)\,\wedge \\
\begin{bmatrix} \text{DOM} & \langle\,[\,V\,] < \boxed{6} < \boxed{7}\,\rangle \end{bmatrix}
\end{matrix}
$$

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

$$
\begin{bmatrix}
\text{DOM } list \bigcirc \left\langle \begin{bmatrix} \text{PHON } \langle [\text{STRESS } unstressed\,] \rangle \\ ...|\,\text{HEAD } PRON \\ N \end{bmatrix} \right\rangle
\end{bmatrix} \Rightarrow
$$

$$
\begin{bmatrix}
\text{DOM } list \bigcirc \left\langle \begin{bmatrix} ...|\,\text{HEAD } NOUN \\ N \end{bmatrix}, \begin{bmatrix} \text{PHON } \langle [\text{STRESS } unstressed\,] \rangle \\ ...|\,\text{HEAD } PRON \\ N \end{bmatrix} \right\rangle
\end{bmatrix} \vee
$$

$$
\begin{bmatrix}
\text{DOM } list \bigcirc \left\langle [\,V\,], \begin{bmatrix} \text{PHON } \langle [\text{STRESS } unstressed\,] \rangle \\ ...|\,\text{HEAD } PRON \\ N \end{bmatrix} \right\rangle
\end{bmatrix}
$$

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 *m* (the position of the verb in V_FRONT clauses) and *V* (the position of the verb in V_BASE-clauses). This would ensure that the order of IO 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).[43] Such a list is only licensed if the unstressed object is preceded by an NP in the canonical object position *N* or if it is preceded by a verb in the V position (inside the content field, that is, if the clause is a V_BASE-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 *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 113, 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 (33a), repeated here as (126a), 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 (126b):

(126) a. Kysset har   jeg hende ikke.
           kissed have I   her   not
           'I have not kissed her.'

       b. [Kysset hende] har   jeg ikke.
            kissed her   have I   not
            'I have not kissed her.'

It may be possible to come up with theories involving partial compaction as was suggested by Kathol & Pollard (1995) for extraposition. Such theories assume that a linguistic object contributes two or more objects to a linearization domain. But due to the contrast

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[43] The 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.

in (127) such a partial compaction would have to be specific to object shift, which makes such an approach rather stipulative and unattractive.

(127) a. Læst har Bjarne den ikke.
           read has Bjarne it   not
           'Bjarne did not read it.'
       b. * Læst har Bjarne ikke bogen
            read has Bjarne not   book.DEF
            'Bjarne did not read the book.'

The problem with (127) 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 (127a) is grammatical while (127b) 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 (122b) and (123b) on page 160.

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 (127a) and (127b) is that the prefield in (127a) 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 (127b), 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, (127b) 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 (128a) in Swedish (example from Fox & Pesetzky (2005: p. 25)):

(128) a. ? Get   henne har   jag den inte.
             given her   have I   it   not
       b. * Get   den har   jag henne inte.
            given it   have I   her   not

The fronting of a verb together with the indirect object is marginally possible, while the fronting together with the direct object as in (128b) 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 (128a) and (128b) are ungrammatical. However, if we transferred our analysis to Swedish, it would predict that (128a) is ungrammatical and (128b) 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 (128) 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 (129) in principle and would also admit sentences like (76) on page 139. 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 (129):

(129) 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'

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: equational, specificational and predicational 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. We show that all three languages have means to distinguish referential from predicational elements (question tags and/or left dislocation) and argue that there is no way to identify specificational structures in German. Section 6.1.3 discusses constraints on specificational constructions in Englisch and Danish. Section 6.1.4 provides an additional test for differentiating between referential and predicative NPs. Section 6.1.5 shows that one of the copula constructions is a raising construction and Section 6.1.6 discusses the formation of predicate complexes.

After the description of the phenomenon, we turn to the analysis in Section 6.2 and to the discussion of previous approaches in Section 6.3.

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 woman 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 $\overline{\text{N}}$ predicate (NP in her terminology), but the class of such predicates is smaller: It is basically nouns with their complements, but without modifiers:[1]

(3)   * He is new mayor of Seattle.

In English there seems to be a uniqueness restriction on determinerless predication. Sentences like those in (4) are ungrammatical:

(4)   * He is senator/teacher.

In comparison, the equivalents of (4) are possible in German:

(5)   Er ist Lehrer.
       he is teacher
       'He is a teacher.'

The modification by adjectives is ungrammatical in many cases, but examples like (iii) in footnote show that such cases cannot be ruled out by a general rule. (6a) provides an example that is unacceptable for me, but many examples of the type in (6b) can be found in which the predicational NP contains postnominal modifiers:

(6)   a.   * Er ist neuer Lehrer.
               he is new   teacher

       b.   In Hogwarts gibt es Neues. Der egozentrische Schönling Gilderoy
             in Hogwarts gives it new   the egocentric   beau   Gilderoy
             Lockhart (Kenneth Branagh) ist neuer Lehrer in „Verteidigung gegen
             Lockhart Kenneth Branagh is new   teacher in defense   against

---

[1] Examples like (i) can be constructed though.

(i)   He was elected president for over 20 years before having to resign due to misconduct.

Examples like (ii) can be easily found in corpora:

(ii)   Former Leftist Rebel Is Elected Mayor of Bogotá (WSJ, 30.10.2011)

However these examples have a reading in which *elected* is the passive participle rather than the adjectival participle modifying *mayor*. The example in (i) was handcrafted by Philippa Cook and its most plausible reading is the one in which *elected* modifies *president*. The situation is clearer for languages like German where constituent order is unambiguous and prenominal adjectives are inflected:

(iii)   Peter-André Alt ist gewählter Präsident (Tagesspiegel-Beilage vom 29.05.2010)
         http://www.fu-berlin.de/presse/publikationen/tsp/2010/ts_20100529/ts_20100529_12/. 20.12.2012.

See Section 6.2.2 for a suggestion how such cases can be accommodated.

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die dunklen Künste"[2]
the dark   arts
'There is news from Hogwarts. The egocentric beau Gilderoy Lockhart (Kenneth Branagh) is the new teacher in Defense Against the Dark Arts.'

As Mikkelsen (2005: p. 70–72) points out, question tags agree with the subject in predicational constructions in gender as they do in non-predicational structures:

(7)   a.   The guest of honor was happy, wasn't she/he/*it?

       b.   The guest of honor spoke after dinner, didn't she/he/*it?

Apart from equational and predicative constructions a third type is identified in the literature. Mikkelsen gives the following example for what she calls a specificational construction:

(8)   a.   The director of *Anatomy of a Murder* is Otto Preminger, isn't it?

       b.   The director of *Anatomy of a Murder*, that's Otto Preminger.

Here the post-copular NP is a proper name, that is, clearly referential. The pre-copular constituent contributes the predication. Interestingly, the pronoun *it* is used in question tags and the pronoun *that* in left dislocation structures.[3] This test shows that the subject in (8) is not referential, but rather predicational. Specificational structures can be regarded as a variant of predicational structures with the predicational NP realized in pre-copula position.

While predicational structures are possible with verbs like *consider*, specificational and equational structures require the copula to be present (Rothstein 1995: p. 32):

(9)   a.   I consider [Sylvia my best friend].   (predicational)

       b.   I consider [my best friend *(to be) Sylvia].   (specificational)

       c.   I believe [that/her *(to be) Sylvia].   (equational)

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

Evidence from question tags was used to argue for a special type of copula construction in English: Specificational constructions. The situation is more complicated in a language

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[2] http://www.mucke-und-mehr.de/kino/potter2.htm. 04.01.2013.

[3] That predicational elements require different pronouns than referential ones was also noted by Williams (1983: p. 426) with respect to the interrogative pronoun *what*. If *what* is used to refer to referential NPs it is restricted to inanimate ones (i.a), while it is not restricted when it refers to predicative NPs as in (i.b):

(i)   a.   ? What did John talk to?
             John talked to a doctor/?a rock

       b.   What did John become?
             John became a doctor/?a rock

See also Rieppel (2012: p. 3, 6) on using *what* and *who* to differentiate between predicational and equational constructions.

like Danish: Danish is a V2 language, so the orders with a predicative element in pre-copula position could be derived by fronting the predicate rather than the subject of a canonical predicational construction. However, there is a test that helps to identify which element is the subject (Jespersen (1924: p. 153, fn. 2), Mikkelsen 2002b, 2005): The negation attaches to the VP. For subordinate and main clauses we get the following structures:

(10) a. subject negation verb complements   (subordinate)
      b. verb subject negation complements   (main clause, V1)

A V2 clause is derived from (10b) 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 (11b) 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.

(11) a. Max$_i$ er _$_i$ ikke vinderen,   er han vel.   (Max= Subj, vinderen = Comp)
         Max is   not winner.DEF is he   not
         'Max is not the winner.'

      b. Vinderen$_i$ er _$_i$ ikke Max, er det vel.   (Max= Comp, vinderen = Subj)
         winner.DEF is   not Max is it   not

      c. Vinderen$_i$ er Max ikke _$_i$, er han vel.   (Max= Subj, vinderen = Comp)
         winner.DEF is Max not   is he   not

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, so a test like the position of negation cannot be used for German. However, predicative elements can still be distinguished from referential ones: In left dislocation structures *das* ('that') is used for predicational elements and the gender agreeing *der*/*die*/*das* for referential elements.

(12) a. Klug / ein Mörder, das / *der ist Peter.   (predicational element)
         smart a   murderer that   that is Peter
         'Peter is smart / a murderer.'

      b. Ja,   aber Peter, der ist ein Mörder,   nicht Klaus.   (referential element)
         Yes, but Peter that is a   murderer not Klaus
         'Yes, but Peter is a murderer, not Klaus.'

The discussion in this subsection shows that we have means to distinguish predicational and specificational structures in languages like Danish and English, which have a rather restricted constituent order otherwise. For German this distinction cannot be made, since the language allows for the reordering of subject and complements anyway. So, this leaves us with two types of copula constructions for languages like German: equational and predicational constructions.

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 (13): while the extraction of objects and predicates in postverbal position is possible in Danish (13a,b), the extraction of the post-copula element in specificational constructions like (13c) is ungrammatical (13d).

(13) a. Bogen$_i$ tror han, at Max læser _$_i$.
         book.DEF thinks he   that Max reads
         'He thinks that Max reads the book.'

      b. Klog$_i$ tror   han, at   Max er _$_i$.
         smart thinks he   that Max is
         'He thinks that Max is smart.'

      c. Han tror, at vinderen   er Max.
         he   thinks that winner.DEF is Max
         'He thinks that the winner is Max.'

      d. * Max$_i$ tror   han, at vinderen   er _$_i$.
         Max thinks he   that winner.DEF is
         'He thinks that the winner is Max.'

This has interesting consequences for V2 sentences, since it avoids spurious ambiguities: The prohibition of extraction out of and of the post-copular element ensures that there is just one structure for (14):

(14)   Max er vinderen.
        Max is winner.DEF
        'Max is the winner.'

Without this constraint (14) could be a specificational construction with the structure in (15):

(15)   Max$_i$ [er$_j$ [$_S$ vinderen [$_{VP}$ _$_j$ _$_i$]]].

Max would be the extracted complement of the (moved) copula (_$_j$) and *vinderen* would be the specifier. Since the extraction of the underlying subject is prohibited, (15) is ruled out and the only legitimite structure for (14) is the predicational one in (16):

(16)   Max$_i$ [er$_j$ [$_S$ _$_i$ [$_{VP}$ _$_j$ vinderen]]].

In addition there are constraints on the kind of predicational elements that can be placed in pre-copula positions. While NPs are possible there (17a), adjectives and PPs are out (17b,c):

(17) a. at vinderen   er Max
         that winner.DEF is Max
         'that the winner is Max'

b. * at   klog   er Max
   that smart is Max
   Intended: 'that Max is smart'

c. * at   i teltet   er Max
   that in tent.DEF is Max
   Intended: 'that Max is in the tent'

If one thinks about English, one possible reason for this asymmetry immediately comes to mind: In English, pre-copular NPs have to agree with the copula, as (18) shows.

(18) a.   that these men are the winner
      b.   * that the winner are these men
      c.   that the winner is these men

The explanation for the ungrammaticality of (17b,c) could be that APs and PPs cannot agree with the copula and is therefore excluded in the pre-copula position.

However, English allows for clausal subjects as is demonstrated by (19). The verb is in 3rd person singular, showing default agreement.

(19)

This could be an option for adjectives as well and it remains unclear why this option is excluded.

In any case an agreement-based explanation would not extend to Danish, since there is no subject verb agreement in Danish.

6.1.4 Predicative vs. Referential NPs

Some authors (Quine 1960; Montague 1974: p. 261; Van Eynde 2008, 2009, 2013) argue that the copula relates two referential NPs. We already saw in Section 6.1.2 that predicational NPs require different pronouns in question tags, left dislocation structures, and questions. Rieppel (2012) found another test that makes it possible to differentiate between predicative and non-predicative NPs. Predicative elements can be coordinated as (20a) and (20b) show. *the greatest French soldier* in (20b) is a predicative element just like the adjective *vindicitive* in (20a). However, (20c) is ungrammatical and this is due to the difference in function: *Napoleon* is a referential NP rather than a predicative one and cannot be coordinated with the predicative phrases.

(20) a.   He is clever, audacious, and [vindictive].
      b.   He is clever, audacious, and [the greatest French soldier].
      c.   * He is clever, audacious, and [Napoleon].

6.1.5 Raising

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 (Frege 1892: p. 194; Paul 1919: p. 41; Higginbotham 2005: p. 355).[4] One property of raising verbs is that they are not sensitive to the kind and/or number 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'):

(21)   In der Mensa   ist es   laut.
       in the commons is it.EXPL loud
       'It is loud in the commons.'

The adjective *laut* also has a non-expletive version, and (21) is actually ambiguous between the expletive and the non-expletive reading. With the expletive predicate, (21) 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:[5]

(22) a.   weil   schulfrei   ist
           because school.free is
           'because there is no school'
      b.   weil   ihm   schlecht ist
           because him.DAT bad   is
           'because he is sick'
      c.   Für dich ist immer offen.
           for you is always open
           '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.

6.1.6 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

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[4] For a discussion of alternative proposals by Quine, Montague, and Van Eynde see Section 6.3.2.
[5] (22c) is quoted from Haider (1986a: p. 18).

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 for instance in Evers (1975), Haider (1993: Chapter 9), G. Müller (1998) and HPSG analyses can be found in Hinrichs & Nakazawa (1989, 1994), Kiss (1995), Meurers (2000), Kathol (2000), and Müller 1999a: Chapter 14, 17, 18, and 2002: Chapter 2 for German, in Rentier (1994) and Bouma & van Noord (1998) for Dutch, Chung (1993) for Korean, and Müller (2010b: Section 5.4) for Persian. 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:

(23)   weil   ihr   der Mann   immer treu   sein wollte
       because her.DAT the man.NOM always faithful be   wanted.to
       'because the man always wanted to be faithful to her'
       'because the man wanted to be always faithful to her'

The sentence in (23) 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 (24) where the adjective is fronted together with the adverbial.

(24)   Immer treu   wollte   er   ihr   sein.
       always faithful wanted.to he.NOM her.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 (24) 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 (23) are due to the attachment of the adverbial to the two verbs rather than to the adjective and the modal, it is clear that the phrase *ihr immer treu* in (23) and (25) 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.

(25)   weil   der Mann   ihr   immer treu   sein wollte
       because the man.NOM her.DAT always faithful be   wanted.to
       'because the man always wanted to be faithful to her'
       'because the man wanted to be faithful to her forever'

The example in (23) also shows that the subject of the adjective, which is also the subject of the modal, can appear between the adjective and its complement (*ihr* ('her')). The alternative order in (25) 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 (26) the adjectives are not adjacent to the copula but intraposed in the Mittelfeld:

(26)   a.   Sie   wuchsen in einem gesellschaftlichen Klima   auf,   das *freier* in
            they grew   in a   social   climate PART(up) that freer in
            Deutschland nie   *war*.[6]
            Germany   never was
            'They grew up in a social climate that was freer than ever in Germany.'
       b.   daß *ausschlaggebend für die Interpretation abgeleiteter Verben*
            that decisive   for the interpretation derived   verbs
            bestimmte   semantische Interpretationsmuster *sind*, die   sich [...][7]
            certain   semantic   interpretation.models are   which self
            'that certain semantic interpretation models that are [...] 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. 92); Müller (1999a: p. 173)):

(27)   a.   Auch bei Newton war der entscheidende Schritt die Erkenntnis gewesen,
            also at Newton was the deceicive   step   the insight   been
            daß ...[8]
            that
            'The insight that [...] was the deceicive step for Newton too.'
       b.   wiegen wir uns heute in dem Glauben, daß das Happening wir sind.[9]
            rock   we us today in the believe   that the happening we are
            'we lull ourself into believing today that we are the happening'

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.

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[6] taz, 01.07.1995, p. 10.
[7] In the main text of Kaufmann, 1995, *Konzeptuelle Grundlagen semantischer Dekompositionsstrukturen*, p. 162.

[8] Hoberg (1981: p. 92).
[9] taz berlin, 10.07.98, p. 26.

6.2 The Analysis

6.2.1 The Copula as Raising Verb

We start the part that deals with copula constructions by explaining the lexical entry of the copula that is traditionally assumed. (28) shows the lexical entry for the copula that is analogous to the ones assumed by Pollard & Sag (1994: p. 147) and Bender (2000: p. 48):[10]

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

$$
\begin{bmatrix}
\text{ARG-ST} \quad \boxed{1} \oplus \left\langle
\begin{bmatrix}
\text{HEAD} & \begin{bmatrix} \text{PRD} & + \\ \text{SUBJ} & \boxed{1} \end{bmatrix} \\
\text{SPR} & \langle \rangle \\
\text{COMPS} & \langle \rangle \\
\text{CONT} & \begin{bmatrix} \text{IND} & \boxed{3} \\ \text{LTOP} & \boxed{4} \end{bmatrix}
\end{bmatrix}
\right\rangle \\
\text{CONT} \quad \begin{bmatrix} \text{IND} & \boxed{3} \\ \text{LTOP} & \boxed{4} \end{bmatrix} \\
\text{RELS} \quad \langle \rangle \\
\text{HCONS} \quad \langle \rangle
\end{bmatrix}
$$

The copula selects a predicative phrase (PRD +) and takes over the referential index ($\boxed{3}$) and the LTOP value ($\boxed{4}$) from the embedded predicative phrase. The copula does not contribute semantically, hence the RELS list is empty.

We follow Maienborn (2005: p. 301) in assuming that copula constructions involve a variable that can be modified by temporal adjuncts. This element is of type *state*. (29a) shows one of the examples that Maienborn used to argue for such an referential argument. However, modifications by adjuncts like *seit dem Morgen* are also possible in attributive constructions, in which the copula is not present, as is demonstrated by (29b) (see also Engelberg (2005: p. 344)):

(29) a. Carol war seit dem Morgen wütend.
         Carol was since the   morning angry
         'Carol was angry since the morning.'

      b. der seit   dem Morgen wütende Mann
         the since the   morning angry   man
         'the man who is angry since the morning'

We therefore do not assume that a state variable is introduced by the copula but rather by the predicate that is embedded under the copula. The respective value of the predicate is taken over by the copula, which is enforced by the structure sharing $\boxed{3}$ in (28).

---

[10] We omitted the SYNSEM and CAT features in order to keep things readable. See page 194 for the final version of the copula with full feature specification.

Returning to the lexical entry in (28), the copula enters inflectional lexical rules and these rules introduce relations that provide information about tense. The IND value of the copula functions as the argument of a tense relation. The argument of the respective relation is required to be of type *eventuality*, that is, it is a subtype of *eventuality*.[11] Therefore, the INDEX value of the copula in (28) is specified by the inflectional rule to be of type *eventuality* and hence the INDEX value of the embedded predicate has to be compatible with the type *eventuality* as well. This excludes phrases with referential indices as for instance referential NPs in this position.

The SUBJ value of the predicative phrase ($\boxed{1}$) is raised to the ARG-ST of the copula. We assume that SUBJ is not a valence feature (Pollard 1996b; Kiss 1992). In configurational languages like Danish and English the subject of verbs is mapped to SPR. For non-configurational languages the subject of finite verbs is mapped to the COMPS list and the one of non-finite verbs is mapped to SUBJ, since it is never combined with the verb directly. The subject of the predicative APs, NPs, and PPs is represented under SUBJ.

The actual length of the SUBJ list is not specified in (29), so in principle the value of SUBJ could be the empty list. However, in Danish and English all predicates have to have a subject, so it follows from the specification of other lexical items that the SUBJ list always contains at least one element. For a one-element SUBJ list we get the following mapping from ARG-ST to SPR and COMPS:
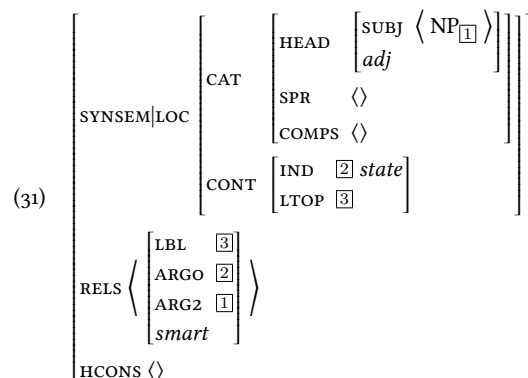
(30) The mapping to SPR and COMPS of a predicative copula with a subject:

$$
\begin{bmatrix}
\text{SPR} & \boxed{1} \\
\text{COMPS} & \boxed{2} \\
\text{ARG-ST} & \boxed{1} \oplus \boxed{2} \left\langle
\begin{bmatrix}
\text{HEAD} & \begin{bmatrix} \text{PRD} & + \\ \text{SUBJ} & \boxed{1} \end{bmatrix} \\
\text{SPR} & \langle \rangle \\
\text{COMPS} & \langle \rangle
\end{bmatrix}
\right\rangle
\end{bmatrix}
$$

The predicative argument is mapped to COMPS and its subject to SPR.

(31) shows the lexical item for the predicative adjective *klog* ('smart'):

---

[11] *eventuality* is to be understood as the most general type referring to situations. *state* is a subtype of *eventuality*. The only thing that is important here is that the type *eventuality* differs from the type used to refer to objects (*index*).

(31)

$$
\left[
\begin{array}{l}
\text{SYNSEM|LOC}
\left[
\begin{array}{l}
\text{CAT}
\left[
\begin{array}{l}
\text{HEAD}
\left[
\begin{array}{l}
\text{SUBJ } \langle \text{ NP}_{\boxed{1}} \rangle \\
adj
\end{array}
\right] \\
\text{SPR} \quad \langle \rangle \\
\text{COMPS } \langle \rangle
\end{array}
\right] \\
\text{CONT}
\left[
\begin{array}{ll}
\text{IND} & \boxed{2}\ state \\
\text{LTOP} & \boxed{3}
\end{array}
\right]
\end{array}
\right] \\
\text{RELS }
\left\langle
\left[
\begin{array}{ll}
\text{LBL} & \boxed{3} \\
\text{ARG0} & \boxed{2} \\
\text{ARG2} & \boxed{1} \\
smart
\end{array}
\right]
\right\rangle \\
\text{HCONS } \langle \rangle
\end{array}
\right]
$$

The subject of the adjective is represented under SUBJ and the referential index of the subject ($\boxed{1}$) 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 on the next page, which shows the analysis of (32).

(32) Han er klog.
  he is smart

The subject of the adjective is NP$_x$. It is linked to smart(k,x) in the lexical item for *klog*. The linking is expressed by the structure sharing $\boxed{1}$ in (31) and k stands for the state. The copula selects for the adjective ($\boxed{2}$) 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 ($\boxed{1}$ in Figure 6.1) by the Specifier-Head 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 on page 182, which licences a predicative NP from a non-predicative one.[12] This unary projection applies to a full NP and licenses the predicative NP (PRD+) with an appropriate SUBJ value. The variable of the licenced predicative NP is the value under SYNSEM|CONT|IND. This value is coindexed with the eventuality variable of the *eqaual-rel'* relation and is of type *state*. The referential index of the subject NP ($\boxed{1}$) and the referential index of the daughter NP ($\boxed{2}$) 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
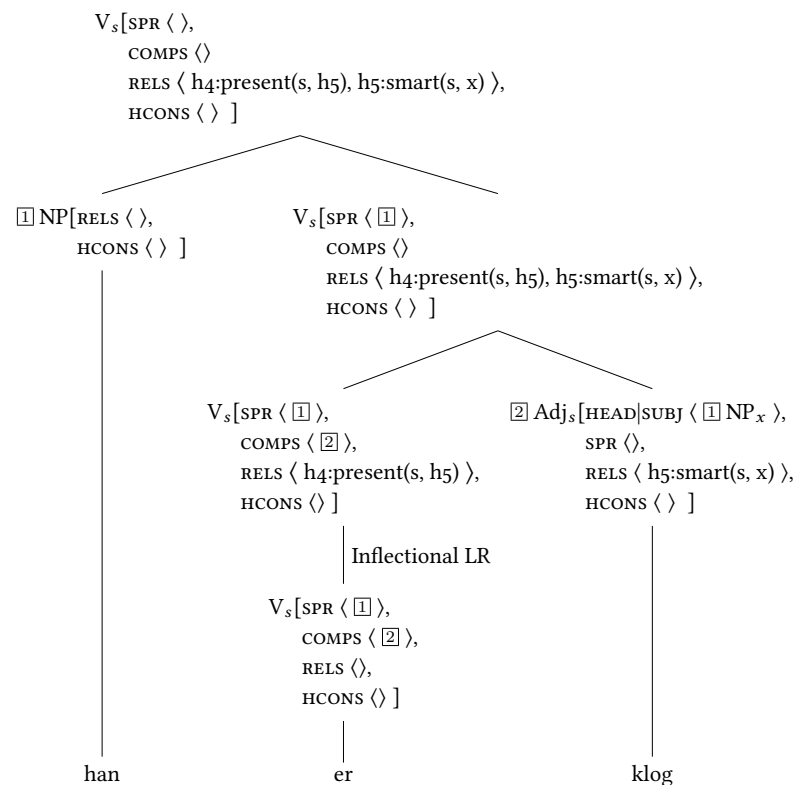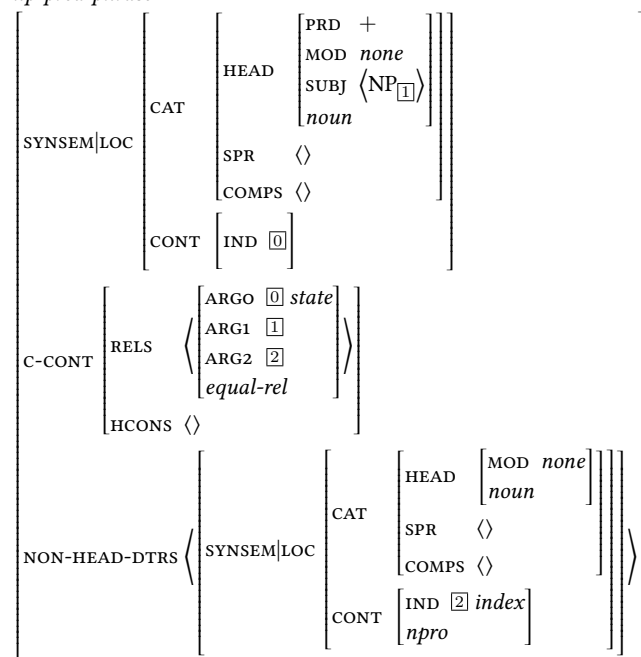
---

[12] Gerbl (2007: p. 241–242) independently suggested a similar solution. See also Partee (1987).

Figure 6.1: Analysis of *Han er klog.* 'He is smart.'

Schema 4 (Predicative NP Projection Schema)

np-pred-phrase ⇒

$$
\begin{bmatrix}
\text{SYNSEM}|\text{LOC} \begin{bmatrix}
\text{CAT} \begin{bmatrix}
\text{HEAD} \begin{bmatrix}
\text{PRD} & + \\
\text{MOD} & none \\
\text{SUBJ} & \langle \text{NP}_{\boxed{1}} \rangle \\
noun
\end{bmatrix} \\
\text{SPR} & \langle \rangle \\
\text{COMPS} & \langle \rangle
\end{bmatrix} \\
\text{CONT} \begin{bmatrix} \text{IND} & \boxed{0} \end{bmatrix}
\end{bmatrix} \\[2em]
\text{C-CONT} \begin{bmatrix}
\text{RELS} \left\langle \begin{bmatrix}
\text{ARG0} & \boxed{0}\ state \\
\text{ARG1} & \boxed{1} \\
\text{ARG2} & \boxed{2} \\
equal\text{-}rel
\end{bmatrix} \right\rangle \\
\text{HCONS} \langle \rangle
\end{bmatrix} \\[2em]
\text{NON-HEAD-DTRS} \left\langle \begin{bmatrix}
\text{SYNSEM}|\text{LOC} \begin{bmatrix}
\text{CAT} \begin{bmatrix}
\text{HEAD} \begin{bmatrix} \text{MOD} & none \\ noun \end{bmatrix} \\
\text{SPR} & \langle \rangle \\
\text{COMPS} & \langle \rangle
\end{bmatrix} \\
\text{CONT} \begin{bmatrix} \text{IND} & \boxed{2}\ index \\ npro \end{bmatrix}
\end{bmatrix}
\end{bmatrix} \right\rangle
\end{bmatrix}
$$

since the daughter NP has to have an IND value of type *index* and the resulting sign has an IND value of type *state*.

Note that this schema avoids the coindexing of the referential index of the embedded noun phrase with the index of the subject. This is important since the index values contain information about person, number, and gender, since these features play a role in Binding Theory (Pollard & Sag 1992). As was pointed out by Duden (1966: § 6920), Jung (1967: p. 138), Reis (1982: p. 197), and Müller (1999a: p. 273) the subject does not necessarily agree with the predicative noun in gender and number.

(33)   a. Das Kind   ist ein Dieb.[13]
            the child.N is a   thief.M

        b. Ich finde das   eine gute Sache.[14]
            I   find   this.N a   good thing.F
            'I think this is a good thing.'

---

[13] Duden (1966: p. 624).

[14] http://www.tegernseerstimme.de/der-ubermasigen-bauwut-einhalt-gebieten/60271.html. 14.11.2012.

This leads to incompatible indices (Müller 1999a: p. 273; Van Eynde 2013) and hence, the analysis proposed here does not enforce any coindexing constraints on predicative noun phrases and their subjects. This probably admits ungrammatical structures, but on the other hand it does not rule out grammatical structures like (33) as an analysis with identification of the indices does. We leave the work on additional constraints for agreement to further research.

Having introduced the Predicative NP Projection Scheme, we now can analyze (34) as is shown in Figure 6.2 on the next page.

(34)   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 $\overline{\text{N}}$, 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_y into a predicative phrase. 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 state variable that belongs to the relation *equal_rel′*. As was specified in (28), the index of the embedded predicate is identified with the index of the copula. The item in (28) is the specification of a root. Roots have to be inflected before beeing usable in syntax. Inflectional lexical rules that apply to verbs add tense information. In the case of *er* ('is') 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 (30), this prefix 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_x. 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_y to NP_{k1}, where h5:equal_rel(k1, x, y) is contributed by the C-CONT of Schema 4.
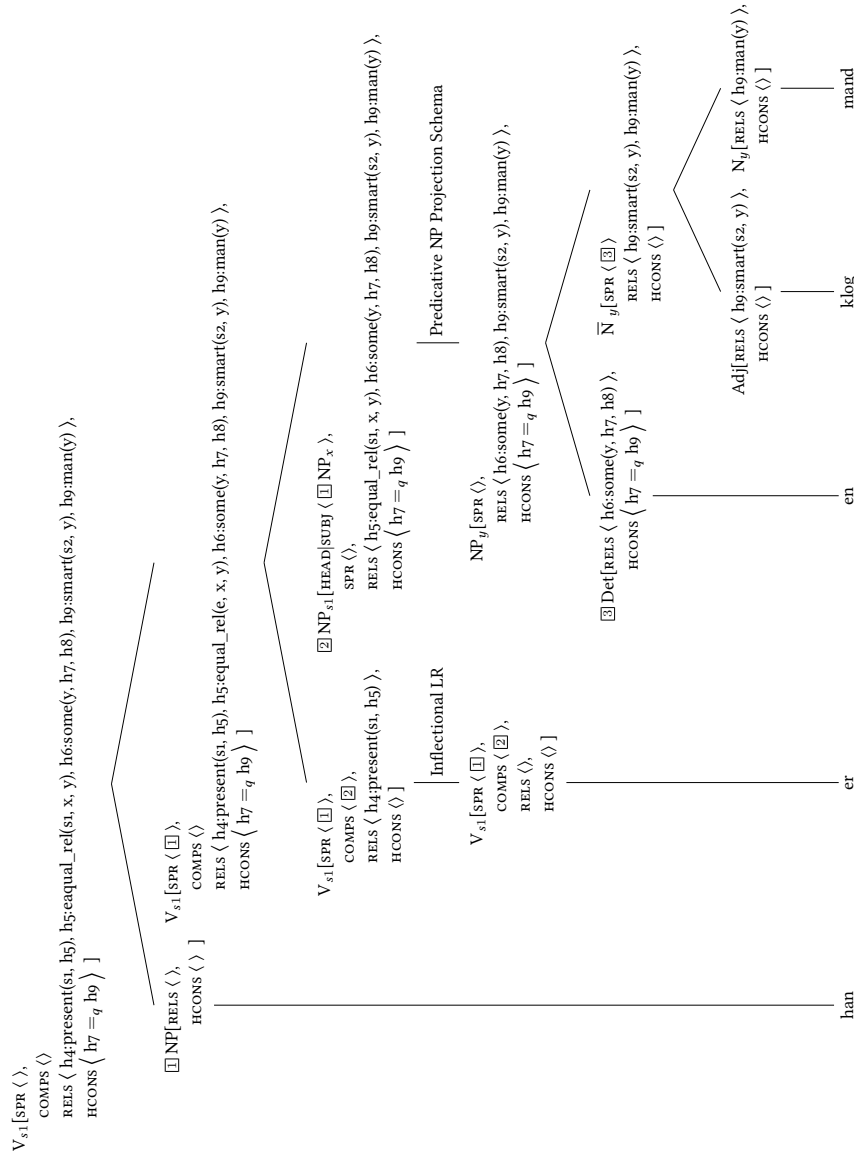
The schema as given above would overgenerate since it also applies to proper names. Rieppel (2012) argued that such overgeneration cannot be ruled out by requiring that the schema applies to NPs with definite determiners only since there are German dialects in which proper names are used with a determiner. Furthermore he pointed out interesting cases in English that involve proper names in complex NPs. (35) provides an example of such an identificational definite:

(35)   the city of Oakland

As Rieppel showed such NPs cannot be used predicatively:

(36)   a.   ? I considered [that the City of Oakland]

        b.   * It is lively, energetic, and the City of Oakland.

(36b) would be expected to be grammatical if *the City of Oakland* could be a predicate like *lively* and *energetic*. However, the application of Schmea 4 to proper names and

V_{s1}[SPR ⟨⟩,
COMPS ⟨⟩
RELS ⟨ h4:present(s1, h5), h5:eequal_rel(s1, x, y), h6:some(y, h7, h8), h9:smart(s2, y), h9:man(y) ⟩,
HCONS ⟨ h7 =_q h9 ⟩]

V_{s1}[SPR ⟨1⟩,
COMPS ⟨⟩
RELS ⟨ h4:present(s1, h5) ⟩,
HCONS ⟨ h7 =_q h9 ⟩]

1 NP[RELS ⟨⟩,
HCONS ⟨⟩]

V_{s1}[SPR ⟨1⟩,
COMPS ⟨2⟩,
RELS ⟨ h4:present(s1, h5) ⟩,
HCONS ⟨⟩]

Inflectional LR

V_{s1}[SPR ⟨1⟩,
COMPS ⟨2⟩,
RELS ⟨⟩,
HCONS ⟨⟩]

2 NP_{s1}[HEAD|SUBJ ⟨1 NP_x⟩,
SPR ⟨⟩,
RELS ⟨ h5:equal_rel(s1, x, y), h6:some(y, h7, h8) ⟩,
HCONS ⟨ h7 =_q h9 ⟩]

Predicative NP Projection Schema

NP_y[SPR ⟨⟩,
RELS ⟨ h6:some(y, h7, h8), h9:smart(s2, y), h9:man(y) ⟩,
HCONS ⟨ h7 =_q h9 ⟩]

3 Det[RELS ⟨ h6:some(y, h7, h8) ⟩,
HCONS ⟨ h7 =_q h9 ⟩]

$\overline{N}_y$[SPR ⟨3⟩,
RELS ⟨ h9:smart(s2, y), h9:man(y) ⟩,
HCONS ⟨⟩]

Adj[RELS ⟨ h9:smart(s2, y) ⟩,
HCONS ⟨⟩]

N_y[RELS ⟨ h9:man(y) ⟩,
HCONS ⟨⟩]

han er en klog mand

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

NPs like (35) can be excluded by requiring that the main relation of the NP daughter is not *named_rel′*. We follow Pollard & Sag (1994: p. 340) in assuming that proper names introduce such a relation. The framework of Minimal Recursion Semantics as described in Copestake et al. (2005b) makes use of a feature KEY that points to the main semantic contribution of a phrase. As was argued by Rieppel, the noun *city* does not contribute the main semantic relation of the expression *the City of Oakland*. We therefore assume that the main contribution is the relation *named_rel′*, which has *Oakland* as one of its arguments. Therefore it is possible to rule out the application of Schema 4 to (35) by requiring that the KEY value of the daughter must be different from *named_rel′*.

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 (37) shows.

(37) a. Kim disappears those days.

   b. Kim disappears some of those days.

Therefore a treatment in which the time noun is lexically specified as a modifier is not appropriate. One could claim that 'some of' just takes over the modifier function from the embedded NP, but this would not extend to the following German examples:

(38) 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.'

   c. *Er arbeitete der   halben Nacht.
      he worked   the.DAT half.DAT night

In (38a) 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 (38a) that an analysis like the one suggested by Müller (2007b: p. 226) that assigns both function (i. e. the MOD value, which contains a description of a linguistic object that can be modified by a certain linguistic sign) and case lexically cannot explain the data in (38a). 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 (39).

(39)   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 (40) is excluded:

(40) * Sylvia is new mayor of Seattle.

If one wants to admit the *elected major* examples from Footnote 1, one could assume a version of our predication schema that maps an $\overline{\text{N}}$ onto a predicative NP rather than mapping a referential N to a predicative one. This schema would introduce the semantic content of the missing determiner and appart from this be parallel to Schema 4.

6.2.3 Generalizing the Copula for German

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 6.1.6, 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 & Nakazawa (1989, 1994), Kiss (1995), Müller (1996b, 1999a, 2002), and Meurers (1999a, 2000). The respective authors 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 (28) is given in (41):

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

$$
\begin{bmatrix}
\text{ARG-ST} & \boxed{1} \oplus \boxed{2} \oplus \left\langle \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \text{PRD} & + \\ \text{SUBJ} & \boxed{1} \end{bmatrix} \\ \text{COMPS} & \boxed{2} \\ \text{CONT} & \begin{bmatrix} \text{IND} & \boxed{3} \\ \text{LTOP} & \boxed{4} \end{bmatrix} \end{bmatrix} \right\rangle \\
\text{CONT} & \begin{bmatrix} \text{IND} & \boxed{3} \\ \text{LTOP} & \boxed{4} \end{bmatrix} \\
\text{RELS} & \langle \rangle \\
\text{HCONS} & \langle \rangle
\end{bmatrix}
$$

The difference between (41) 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 Müller'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 (42) as well as the subjectless examples that were given in (22).

(42) 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 (42a), $\boxed{1}$ contains the subject (*er* ('he')) and $\boxed{2}$ the PP (*auf seinen Sohn* 'of his son'). In the analysis of (42b), $\boxed{1}$ contains the subject (*er*) and $\boxed{2}$ is the empty list. In the analysis of (22b) – repeated here as (43a) –, $\boxed{1}$ is the empty list and $\boxed{2}$ contains the dative object *ihm* ('him').

(43) a. weil ihm   schlecht ist
        weil him.DAT bad   is
        'because he is sick'

     b. weil   schulfrei ist
        because school.free is
        'because there is no school'

In the analysis of (22a) – repeated here as (43b) –, both $\boxed{1}$ and $\boxed{2}$ are the empty list. It is important to note that the lexical item of the copula does not contain any statements regarding the syntactic or semantic arity of the embedded predicate. Approaches that treat the semantics of the copula parallel to an intransitive verb (Engelberg 2005: p. 345) or a transitive verb (Montague 1974: p. 261; Van Eynde 2008: p. 264–265) cannot explain sentences like (43b). See Section 6.3.2 for further discussion.

As was discussed in Section 1.2.4, we assume that all arguments of finite verbs are mapped to the COMPS list in German. The analysis of (42a) is depicted in Figure 6.3 on the following page. The adjective and the copula are combined with the Schema 5:

Schema 5 (Predicate Complex Schema)
head-cluster-phrase ⇒

$$
\begin{bmatrix}
\text{SYNSEM} & \begin{bmatrix} \text{LOC|CAT|COMPS} & \boxed{1} \end{bmatrix} \\
\text{HEAD-DTR} & \begin{bmatrix} \text{SYNSEM|LOC|CAT|COMPS} & \boxed{1} \oplus \langle \boxed{2} \rangle \end{bmatrix} \\
\text{NON-HEAD-DTRS} & \langle \, [\, \text{SYNSEM} \, \boxed{2} \, [\, \text{LEX} + \,] \,] \, \rangle
\end{bmatrix}
$$

This schema differs from the Head-Complement Schema in allowing unsaturated signs that are compatible with the LEX+ requirement to be combined with their selecting head. Schemata like the Specifier-Head Schema, the Head-Complement Schema, the Head-Adjunct Schema, and the Head-Filler Schema licence signs that have the LEX value '−' and hence would not qualify as daughters in the predicate complex.[15]

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[15] 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.
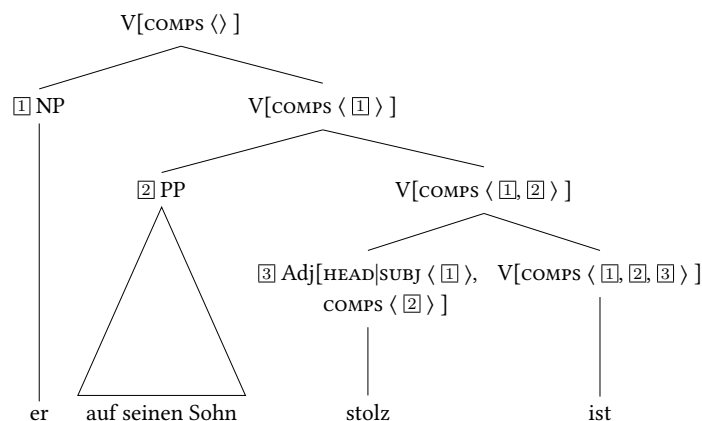
Figure 6.3: Analysis of *er stolz auf seinen Sohn ist* 'He is proud of his son.'

Since the adjective *stolz* ('proud') selects for a PP via COMPS and has an NP on its SUBJ list, the ARG-ST of the copula is instantiated to a list that contains the subject NP of *stolz*, the PP object of *stolz* and a description of the adjective *stolz* itself. All arguments are mapped to the COMPS list of the copula (see Section 1.2.4). Copula and adjective are combined via the Predicate Complex Schema and the resulting complex is combined with the remaining arguments via the Head-Complement Schema. Since German is a language with rather free constituent order, the Head-Complement Schema allows the combination of the head with any of its arguments and hence orders in which the PP is placed before the subject as in (44) are accounted for:

(44) weil   auf solche Kinder   niemand stolz   ist
      because on such   children nobody   proud is
      'because nobody is proud of such children'

The lexical item in (41) can also be used for Danish and English since it is assumed that head-complement phrases require their non-head daughter to be saturated. It follows from this assumption that the COMPS list of the predicative argument (②in (41)) has to be the empty list if this argument is the non-head daughter 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, ②in (41) 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 (41) 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 (45a) and examples like (45b) with so-called intraposition:

(45) a. Karl hat das Buch nicht [zu lesen versucht].   (Predicate Complex S.)
          Karl has the book not   to read tried
          'Karl did not try to read the book.'
      b. Karl hat [das Buch zu lesen] nicht versucht.   (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 (45a) is licensed by the Predicate Complex Schema and the combination of *das Buch zu lesen* with *versucht* in (45b) is licensed by the Head-Complement Schema.

In contrast to the optionally coherent verb *versuchen* ('to try'), verbs like *scheinen* ('to seem') or modals, which 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.

Müller (2002: p. 112) criticized Kiss's analysis of optional coherence because it also licences unwanted structures like (46) and hence results in spurious ambiguities.

(46) 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 (46) *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 +.[16]

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

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[16] This is a simplification as was already noted in footnote 15.

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 adjective and copula. Since coherence is optional we can explain so-called focus movement of adjectives as in (26) – repeated here as (47) –, something that was noted by Müller (2002: p. 69) but not treated in his analysis.

(47)　a.　Sie　wuchsen in einem gesellschaftlichen Klima　auf,　　das　*freier* in
　　　　　they　grew　in a　　social　　　　　climate PART(up) that freer　in
　　　　　Deutschland nie　　*war*.[17]
　　　　　Germany　　never was
　　　　　'They grew up in a social climate that was freer than ever in Germany.'

　　　b.　daß *ausschlaggebend für die Interpretation abgeleiteter Verben*
　　　　　that decisive　　　　for the interpretation derived　　　verbs
　　　　　bestimmte　　　　semantische Interpretationsmuster *sind*, […][18]
　　　　　certain　　　　　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 (⊕) to concatenate two lists as in (41), the more general version of the copula uses the shuffle operator (○):

(48)　ARG-ST value for the predicational and specificational copula:

$$\left[\text{ARG-ST} \;\; (\boxed{1} \oplus \boxed{2}) \bigcirc \left\langle \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \text{PRD} + \\ \text{SUBJ} \boxed{1} \end{bmatrix} \\ \text{COMPS} \boxed{2} \end{bmatrix} \right\rangle \right]$$

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

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[17] taz, 01.07.1995, p. 10.

[18] In the main text of Kaufmann, 1995, *Konzeptuelle Grundlagen semantischer Dekompositionsstrukturen*, p. 162.

⟨ 1, 2, 3 ⟩ and ⟨ 4, 5 ⟩, for instance, we get all lists in which 1 is before 2 and 2 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 positioned in the ARG-ST list 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 Specifier-Head Schema and the Head-Complement Schema, which require arguments to be fully saturated. Hence ② is instantiated as the empty list when the copula is part of larger structures. ① is a list containing exactly one element, since neither English nor Danish allows for subjectless constructions. So for English and Danish we have a trivial case of the application of shuffle: 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 (28) with a mapping to SPR and COMPS as in (30). 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 (49).[19]

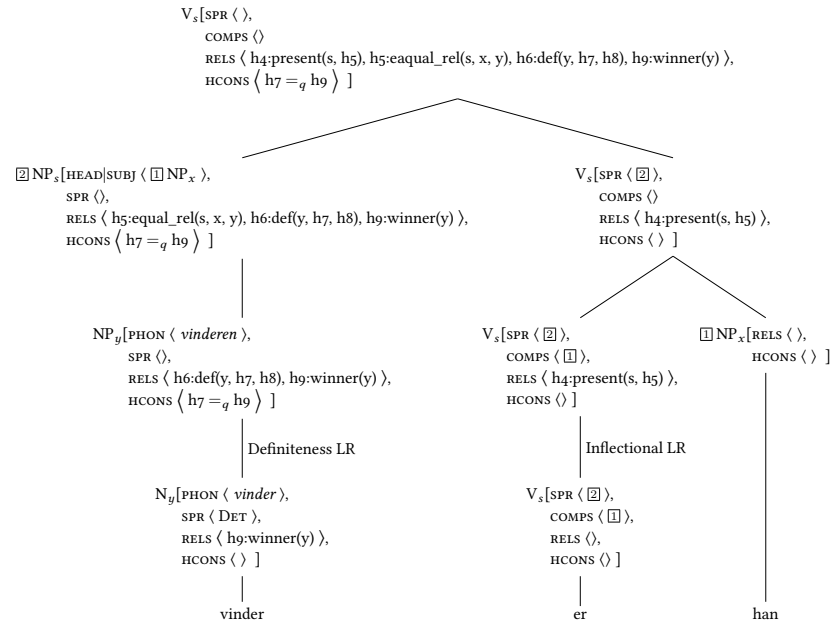(49)　The copula with the specificational mapping to SPR and COMPS:

$$\begin{bmatrix} \text{SPR} & \boxed{2} \\ \text{COMPS} & \boxed{1} \\ \text{ARG-ST} & \boxed{2} \left\langle \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \text{PRD} & + \\ \text{SUBJ} & \boxed{1} \end{bmatrix} \\ \text{COMPS} & \langle \rangle \\ \text{CONT} & \begin{bmatrix} \text{IND} & \boxed{3} \\ \text{LTOP} & \boxed{4} \end{bmatrix} \end{bmatrix} \right\rangle \oplus \boxed{1} \\ \text{CONT} & \begin{bmatrix} \text{IND} & \boxed{3} \\ \text{LTOP} & \boxed{4} \end{bmatrix} \\ \text{RELS} & \langle \rangle \\ \text{HCONS} & \langle \rangle \end{bmatrix}$$

The analysis of (50) is given in Figure 6.4 on the next page.

(50)　at　vinderen er han
　　　that winner　is he
　　　'that the winner is he'

The analysis is similar to the one in Figure 6.2, the only difference is that the predicative noun phrase is realized preverbally and the pronoun postverbally. At first glance it might

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[19] An alternative would be to keep a strictly ordered ARG-ST list and allow for a non-canonical mapping of the elements to SPR and COMPS. So instead of mapping the first element to SPR and the second to COMPS, the second element would be mapped to SPR and the first one to COMPS. Such non-canonical mappings would be restricted to the copula lexemes.

V_s[SPR ⟨ ⟩,
    COMPS ⟨⟩
    RELS ⟨ h4:present(s, h5), h5:eaqual_rel(s, x, y), h6:def(y, h7, h8), h9:winner(y) ⟩,
    HCONS ⟨ h7 =_q h9 ⟩]

②NP_s[HEAD|SUBJ ⟨ ①NP_x ⟩,
    SPR ⟨⟩,
    RELS ⟨ h5:equal_rel(s, x, y), h6:def(y, h7, h8), h9:winner(y) ⟩,
    HCONS ⟨ h7 =_q h9 ⟩]

V_s[SPR ⟨ ② ⟩,
    COMPS ⟨⟩
    RELS ⟨ h4:present(s, h5) ⟩,
    HCONS ⟨⟩]

NP_y[PHON ⟨ vinderen ⟩,
    SPR ⟨⟩,
    RELS ⟨ h6:def(y, h7, h8), h9:winner(y) ⟩,
    HCONS ⟨ h7 =_q h9 ⟩]

V_s[SPR ⟨ ② ⟩,
    COMPS ⟨ ① ⟩,
    RELS ⟨ h4:present(s, h5) ⟩,
    HCONS ⟨⟩]

①NP_x[RELS ⟨ ⟩,
    HCONS ⟨ ⟩]

Definiteness LR

Inflectional LR

N_y[PHON ⟨ vinder ⟩,
    SPR ⟨ DET ⟩,
    RELS ⟨ h9:winner(y) ⟩,
    HCONS ⟨ ⟩]

V_s[SPR ⟨ ② ⟩,
    COMPS ⟨ ① ⟩,
    RELS ⟨⟩,
    HCONS ⟨⟩]

vinder

er

han

Figure 6.4: Analysis of *vinderen er han* 'The winner is he' in an embedded clause

seem strange that the VP contains a tense predication without containing the relation that is specified by the tense relation namely *equal_rel′*. But note that this relation is accessible in the lexical item of the copula, since the copula selects the predicative phrase (② in Figure 6.4). As was shown in (49), the LTOP of the copula is identified with the LTOP of the embedded predicate (h5 in Figure 6.4). This handle is then the argument of the tense relation.

6.2.6 Constraints on Extraction

Gerbl (2007: p. 102, 190–191) pointed out that there are additional constraints regarding extraction of or extraction out of the post-copular phrase in specificational structures. These can be formalized by the following implicational constraint with a complex antecedent:

(51)
$$\left[\text{ARG-ST } \langle \, [\, \text{PRD } + \,] \, \rangle \oplus \square \right] \Rightarrow$$

$$\left[\text{ARG-ST } \langle \, [\,], [\, \text{NONLOC|INHER|SLASH } \langle \rangle] \, \rangle \right]$$

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 the 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 (51) ensures that the example in (13d) – repeated here as (52a) is excluded. In addition it avoids spurious ambiguities for sentences like (52b).

(52) a. * Max_i tror   han, at vinderen er _i.
          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 (51) the sentence in (52b) could have the structure in (53):

(53) Max_i [er_j [_S vinderen [_VP _j _i]]].

Max would be the extracted complement of the (moved) copula (_j) and *vinderen* would be the specifier. Since the extraction of the underlying subject is prohibited by (51), (53) is ruled out and the only legitimite structure for (52b) is the one in (54):

(54) Max_i [er_j [_S _i [_VP _j vinderen]]].

Note that these restrictions cannot easily be captured by a surface-oriented linearization constraint that requires the element that is predicated over has to stay after the copula, since this constraint is not violated in (55):
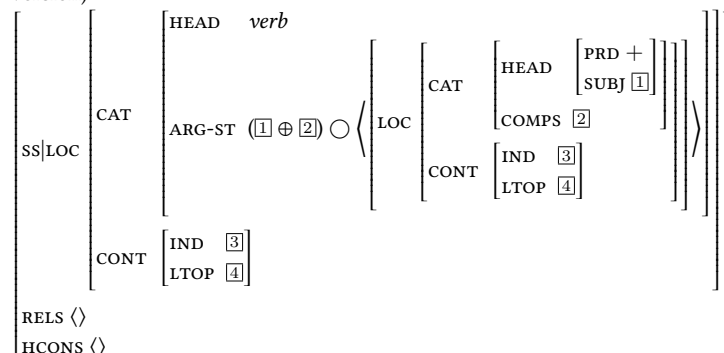
(55) Er Max vinderen?

Rather one would need a set of constraints that requires the predicate to be serialized before its subject, but only if the structure is specificational. 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 specificational/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 specificational structures as a fixed construction are problematic (Müller (2006); Müller & 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:

(56)   Constraint on the entry for the Danish, English, and German copula (final version):

$$\begin{bmatrix} \text{SS|LOC} \begin{bmatrix} \text{CAT} \begin{bmatrix} \text{HEAD} \quad verb \\ \\ \text{ARG-ST} \ (\boxed{1} \oplus \boxed{2}) \bigcirc \left\langle \begin{bmatrix} \text{LOC} \begin{bmatrix} \text{CAT} \begin{bmatrix} \text{HEAD} \begin{bmatrix} \text{PRD} + \\ \text{SUBJ} \ \boxed{1} \end{bmatrix} \\ \text{COMPS} \ \boxed{2} \end{bmatrix} \\ \text{CONT} \begin{bmatrix} \text{IND} \quad \boxed{3} \\ \text{LTOP} \ \boxed{4} \end{bmatrix} \end{bmatrix} \end{bmatrix} \right\rangle \end{bmatrix} \\ \\ \text{CONT} \begin{bmatrix} \text{IND} \quad \boxed{3} \\ \text{LTOP} \ \boxed{4} \end{bmatrix} \end{bmatrix} \\ \text{RELS} \ \langle \rangle \\ \text{HCONS} \ \langle \rangle \end{bmatrix}$$

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 (56) to (41).

6.2.7 Raising and Nonlocal Dependencies

The treatment of raising in the lexical entry for the copula in (56) differs in an interesting way from the characterization of raising as it is given in Ginzburg & Sag (2000: p. 22). Ginzburg and Sag assume the following constraint:

(57)   [ARG-ST ⟨ [LOC $\boxed{1}$], [SUBJ ⟨ [LOC $\boxed{1}$]⟩] ⟩]

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 & Sag 2000: p. 21, fn. 8). The problem with (57) 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 (58):

(58)   [ARG-ST ⟨ [LOC $\boxed{1}$], [SUBJ ⟨ [LOC $\boxed{1}$]⟩] ⟩] ∨ [ARG-ST ⟨ [SUBJ ⟨ ⟩] ⟩]

Apart from missing a generalization, such a disjunction is not sufficient for German since complements are raised as well and the number of elements on the COMPS 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:

(59)   ARG-ST list for German with SUBJ and COMPS raised with a special relational constraint:
[ARG-ST raise($\boxed{1}$) ⊕ raise($\boxed{2}$) ⊕ ⟨ [SUBJ $\boxed{1}$, COMPS $\boxed{2}$] ⟩]

Where *raise* is defined as follows:

(60)   raise(⟨⟩) := ⟨⟩.
raise(⟨ [LOC $\boxed{1}$] | Rest ⟩) := ⟨ [LOC $\boxed{1}$] | raise(Rest) ⟩

Note that this is only part of what would be neccessary. 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 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.[20] As Bouma, Malouf & 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 & Hukari (2006a: Chapter 3.7.2)), a pathway marking element can attach to the head and check its SLASH value and the SLASH values that are contributed by the elements in the COMPS list and the SLASH values of the registered adjuncts.

6.2.8 Predicative Raising-Nouns and *tough* Movement

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

(61)   a.   He is a dead cert/a certainty to win.
       b.   This is a cinch to prise off.

---

[20] See Bender (2000), Müller (To appear(a)), and Sag, Wasow & Bender (2003: p. 463–464) for arguments that empty elements actually simplify grammatical descriptions.

These nouns are raising nouns[21] and they can only be used predicatively:

(62) a. * A dead cert/a certainty to win came into the room.

b. * A cinch to prise off came into the room.

We assume the lexical entry in (63) for a noun like *cert*.

(63) Lexical entry for the raising noun *cert*:

$$
\begin{bmatrix}
\text{SYNSEM|LOC} & \begin{bmatrix}
\text{CAT} & \begin{bmatrix}
\text{HEAD} & \begin{bmatrix} \text{PRD} & + \\ \text{SUBJ} & \langle \boxed{1} \rangle \\ \textit{noun} \end{bmatrix} \\
\text{SPR} & \langle \textsc{Det} \rangle \\
\text{COMPS} & \langle \text{VP[SPR} \langle \boxed{1} \rangle \text{]}{:}\boxed{2} \rangle
\end{bmatrix} \\
\text{CONT} & \begin{bmatrix} \text{IND} & \boxed{4} \begin{bmatrix} \text{PER} & 3 \\ \text{NUM} & sg \\ \textit{index} \end{bmatrix} \end{bmatrix}
\end{bmatrix} \\
\text{RELS} & \left\langle \begin{bmatrix} \text{ARG0} & \boxed{4} \\ \text{ARG1} & \boxed{2} \\ \textit{cert} \end{bmatrix} \right\rangle
\end{bmatrix}
$$

This noun is similar to normal nouns in that its semantic contribution is a referential index that provides a variable that has to be bound by the quantifier in the NP. A further similarity is that it takes a determiner as specifier. 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 ($\boxed{2}$) 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 (62) are ruled out.

After combination of the lexical item in (63) with the VP complement, the determiner, and possibly some adjuncts, the resulting phrase can function as the daughter in the Predicative NP Projection Schema that was given on page 182. It is then projected to an NP that has an index of type *state*. The resulting NP is compatible with the requirement of the (inflection of the) copula that the predicative argument has to have an index of type *eventuality*.

One thing is missing to make the analysis of sentence like (61) 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:

---

[21] This falsifies William's claim (1983: p. 441) that raising nouns do not exist.

(64) $\begin{bmatrix} \text{NON-HEAD-DTRS} \langle [\text{ SYNSEM|LOC|CAT|HEAD|PRD} +] \rangle \\ \textit{np-pred-phrase} \end{bmatrix} \Rightarrow$

$\begin{bmatrix} \text{SYNSEM|LOC|CAT|HEAD|SUBJ} \boxed{1} \\ \text{NON-HEAD-DTRS} \langle [\text{ SYNSEM|LOC|CAT|HEAD|SUBJ} \boxed{1}] \rangle \end{bmatrix}$

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.

The constraint in (64) is the only stipulative part of the analysis, but we see no other way to acount for this data without employing several semantic features for external and internal content of phrases as was done by Kasper (1997).

Figure 6.5 on the following page shows the analysis of (61a).

Williams (1983: p. 441) discusses *though* constructions with predicative nouns that are parallel to (65):

(65) a. That word is a bitch to spell.[22]

b. Hair glue is a real bitch to get out of your hair.[23]

Pollard & Sag (1994: Section 4.3) suggest an analysis for *tough* movement that can be combined with the analysis of predicative NPs presented here: *bitch* selects for a VP that contains an extracted object, that is, a VP with an element in SLASH. The object in the SLASH list is coindexed with an NP in the SUBJ list of *bitch*. Apart from this the analysis is parallel to the on of the sentence with *cert*.

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.
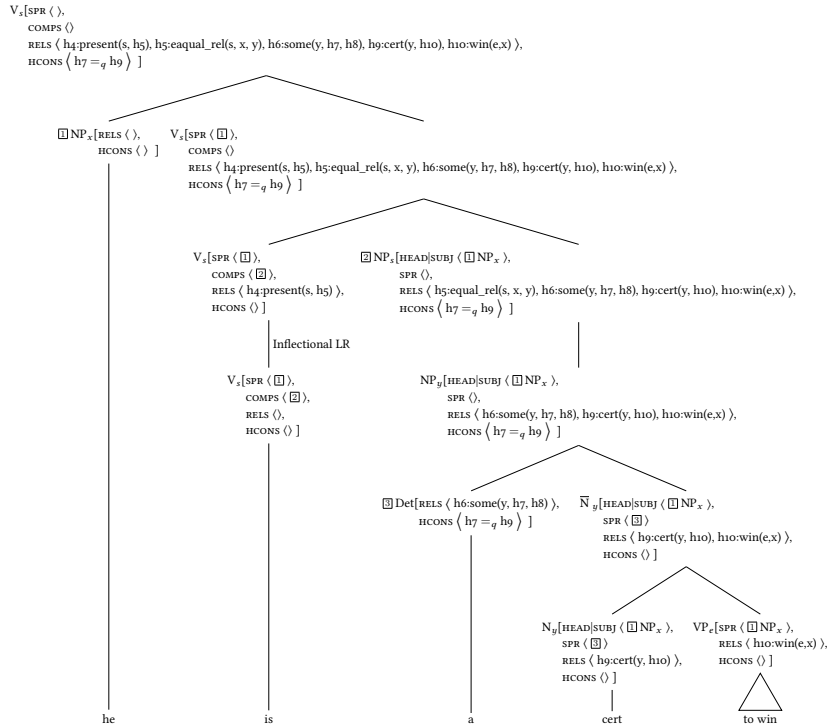
6.3.1 Lexical Rules for Predicative Nouns

Pollard & Sag (1994: p. 360) sketch the lexical rule in (66) that takes nouns as used in normal referential NPs like *a teacher* in (67a) and maps them onto another lexical item that can be used predicatively like in (67b).

(66) N[−PRD, SUBJ $\langle \rangle$]:[RESTRICTION $\boxed{2}$]$_{\boxed{1}} \mapsto$ N[+PRD, SUBJ $\langle$ XP$_{\boxed{1}} \rangle$]:$\boxed{2}$

(67) a. A teacher laughs.

b. John is a teacher.

---

[22] http://www.merriam-webster.com/dictionary/bitch. 07.01.2012.

[23] http://www.myspace.com/laura_galore/photos/36374368. 07.01.2012.

Draft of October 10, 2013, 10:54

Draft of October 10, 2013, 10:54

V$_x$[SPR ⟨ ⟩,
COMPS ⟨⟩
RELS ⟨ h4:present(s, h5), h5:eaqual_rel(s, x, y), h6:some(y, h7, h8), h9:cert(y, h10), h10:win(e,x) ⟩,
HCONS ⟨ h7 =$_q$ h9 ⟩]

⟦1⟧ NP$_x$[RELS ⟨ ⟩,
HCONS ⟨ ⟩]

V$_x$[SPR ⟨ ⟦1⟧ ⟩,
COMPS ⟨⟩
RELS ⟨ h4:present(s, h5), h5:equal_rel(s, x, y), h6:some(y, h7, h8), h9:cert(y, h10), h10:win(e,x) ⟩,
HCONS ⟨ h7 =$_q$ h9 ⟩]

V$_x$[SPR ⟨ ⟦1⟧ ⟩,
COMPS ⟨ ⟦2⟧ ⟩,
RELS ⟨ h4:present(s, h5) ⟩,
HCONS ⟨⟩]

⟦2⟧ NP$_x$[HEAD|SUBJ ⟨ ⟦1⟧ NP$_x$ ⟩,
SPR ⟨⟩,
RELS ⟨ h5:equal_rel(s, x, y), h6:some(y, h7, h8), h9:cert(y, h10), h10:win(e,x) ⟩,
HCONS ⟨ h7 =$_q$ h9 ⟩]

Inflectional LR

V$_x$[SPR ⟨ ⟦1⟧ ⟩,
COMPS ⟨ ⟦2⟧ ⟩,
RELS ⟨⟩,
HCONS ⟨⟩]

NP$_y$[HEAD|SUBJ ⟨ ⟦1⟧ NP$_x$ ⟩,
SPR ⟨⟩,
RELS ⟨ h6:some(y, h7, h8), h9:cert(y, h10), h10:win(e,x) ⟩,
HCONS ⟨ h7 =$_q$ h9 ⟩]

⟦3⟧ Det[RELS ⟨ h6:some(y, h7, h8) ⟩,
HCONS ⟨ h7 =$_q$ h9 ⟩]

N̄$_y$[HEAD|SUBJ ⟨ ⟦1⟧ NP$_x$ ⟩,
SPR ⟨ ⟦3⟧ ⟩
RELS ⟨ h9:cert(y, h10), h10:win(e,x) ⟩,
HCONS ⟨⟩]

N$_y$[HEAD|SUBJ ⟨ ⟦1⟧ NP$_x$ ⟩,
SPR ⟨ ⟦3⟧ ⟩
RELS ⟨ h9:cert(y, h10) ⟩,
HCONS ⟨⟩]

VP$_e$[SPR ⟨ ⟦1⟧ NP$_x$ ⟩,
RELS ⟨ h10:win(e,x) ⟩,
HCONS ⟨⟩]

he   is   a   cert   to win

Figure 6.5: Analysis of *He is a cert to win.*

Ginzburg & Sag (2000: p. 409) give the following variant of the rule in (66):

(68)   Singular Predicative Noun Lexical Rule:

$$
\begin{bmatrix} \text{SS|LOC|CAT|HEAD } n \\ \text{ARG-ST } ⟨ ⟦1⟧ ⟩ ⊕ ⟦A⟧ \\ lx \end{bmatrix} \Longrightarrow_{LR} \begin{bmatrix} \text{SS|LOC|CAT} \begin{bmatrix} \text{HEAD} \begin{bmatrix} \text{AGR|NUM } sg \\ \text{PRED +} \end{bmatrix} \\ \text{SPR } ⟨ ⟦1⟧ ⟩ \\ \text{SUBJ } ⟨ ⟦2⟧ ⟩ \end{bmatrix} \\ \text{ARG-ST } ⟨ ⟦2⟧, ⟦1⟧ ⟩ ⊕ ⟦A⟧ \\ word \end{bmatrix}
$$

The lexical rule in (66) 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 set of restrictions of the noun in the input of the rule is represented as the main semantic contribution of the resulting noun.[24] So the contribution of *teacher* in (67b) is *teacher′*(⟦1⟧), while it is ⟦1⟧{*teacher′*(⟦1⟧)} for (67a). As Pollard and Sag point out, this analysis does not extend to proper nouns like those in (1a) – repeated here as (69) – for semantic reasons.

(69)   Cicero is Tully.

Like most researchers Pollard & 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 (1997) pointed out in unpublished work[25], the lexical rule-based analysis fails for examples that contain modifiers in the predicative phrase:

(70)   He is a good candidate.

The classical analysis of adjuncts assumes that nominal modifiers attach to an N̄ 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.[26] 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 The Identity Analysis of Predicative Constructions

Van Eynde (2008, 2009, 2013) follows Quine (1960) and Montague (1974: p. 261) in assuming that the copula always contributes the identity relation. Van Eynde calls his proposal the identity analysis, while he calls the analysis of Pollard & Sag (1994) the raising analysis.

Van Eynde compares Frege's approach (1892) with Montague's (1974: p. 261). While Frege assumed that the copula does not contribute semanticly apart from tense information, Montague assumed the representation in (71a):

(71)   a. $\lambda P \lambda x P\{\hat{y}[^\vee x = ^\vee y]\}$ (copula according to Montague)
        b. $\lambda x \exists y[woman(y) \& ^\vee x = ^\vee y]$ (contribution of the VP *is a woman*)

---

[24] Note that this is incompatible with the assumptions made in Pollard & Sag (1994), since it is assumed that the value of RESTRICTIONS is a set of elements of type *psoa* (p. 399), while the nucleus of a predication is of type *psoa*. However, if one assumes a conjunction-based approach for the representation of restrictions (Pollard & Sag 1994: p. 330–331, fn. 4), the formulation of the lexical rule can be maintained. So rather than having { red(x), bicycle(x) } as the restriction for *red bicycle* one would assume red(x) & bicycle(x). See Kasper (1997: p. 6) and Kolliakou (1999: p. 771) for explicit proposals along these lines.

[25] See also Gerbl (2007: p. 241).

[26] Assuming an MRS version of Pollard and Sag's Lexical Rule would not help, since one would be forced to assume that the type of the index of *candidate* is not changed by the predication lexical rule. If the type of predicative nouns is indistinguishable from referential nouns, one cannot account for the question tag formation and the pronouns in left dislocation structures that were discussed in Section 6.1.2.

The Fregean way to represent the semantics of predicative structures is usually assumed in HPSG (Pollard & Sag 1994; Müller 2002; this paper), but as we have shown in the preceeding section the selection of one of the two semantic representations for predicative NPs is independent of the raising analysis: We suggested a treatment of predicative NPs that results in a formula that is parallel to the VP representation given in (71b) while keeping the Fregian approach to the copula. Therefore the analysis suggested here has none of the problems that Van Eynde discussed in connection with the traditional HPSG approaches.

In what follows, we want to look at Van Eynde's analysis in detail. Van Eynde (2008: p. 264–265) suggests the following alternative to the raising analysis: Lexical items for *seems* as in (72a) are constrained by (73) and items like the one that is needed for *consider* in (72b) are constrained by (74).[27]

(72)   a.   John seems a nice guy.

      b.   Bob considers his brother a genius.

(73)   a1-pred-lex ⇒

$$\begin{bmatrix} \text{ARG-ST} \left\langle \text{NP}_{\boxed{1}}\, (,\, \text{PP}_{\boxed{2}}\,),\, \text{Z}_{\boxed{3}} \right\rangle \\ \text{SS|LOC|CONT|NUCL} \begin{bmatrix} \text{EXPERIENCER} \quad \boxed{2} \\ \text{SOA-ARG|NUCL} \begin{bmatrix} \text{INST} \quad \boxed{3}\ index \\ \text{THEME} \ \boxed{1}\ index \\ coref\text{-}rel \end{bmatrix} \\ exp\text{-}soa\text{-}rel \end{bmatrix} \end{bmatrix}$$

(74)   a2-pred-lex ⇒

$$\begin{bmatrix} \text{ARG-ST} \left\langle \text{NP},\, \text{NP}_{\boxed{2}},\, \text{Z}_{\boxed{3}} \right\rangle \\ \text{SS|LOC|CONT|NUCL} \begin{bmatrix} \text{SOA-ARG|NUCL} \begin{bmatrix} \text{INST} \quad \boxed{3}\ index \\ \text{THEME} \ \boxed{2}\ index \\ coref\text{-}rel \end{bmatrix} \\ soa\text{-}rel \end{bmatrix} \end{bmatrix}$$

By assuming these constraints on lexical entries Van Eynde can analyze the sentences in (72) 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 $Z_{\boxed{3}}$ and the referential index of the NP will be linked to the theme role of the *coref-rel'* 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:

(75)   Es   ist   mir   zu kalt.
      it   is   me.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[28] and there is evidence that casts doubts on Van Eyndes analysis. In the following examples we have *mir zu warme* and *mir zu kalte*, with *zu* present but in a prenominal context in which copulas are hardly ever present:

(76)   a.   bis   auf das mir   zu kalte Ziel Spitzbergen[29]
          until on the me.DAT too cold goal Spitsbergen
          'except for the goal Spitsbergen, which is too cold for me'

      b.   die   mir   zu warme Book-Unterseite[30]
          the   me.DAT too warm   bottom.of.the.Book
          '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 (77b).

(77)   a.   ?* ein klug   seiender Mann
          a   smart being   man

      b.   * ein kluger seiender Mann
          a   smart being   man

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:

(78)   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 (73). But the respective semantic representation is the

---

[27] See also Van Eynde (2009: p. 369, 372) and Van Eynde (2013: p. 363) for similar suggestions.

[28] How this is captured in HPSG is a different question. The analysis is not trivial since dative and *zu* can be discontinuous as in (i):

   (i)   Das Bier ist den Gästen   oft   zu warm.
      the beer is the guests.DAT often too warm
      'Often the beer is too warm for the guests.'

We suggest an analysis in which *zu* and *warm* form a complex predicate. *zu* attracts the arguments of the adjective it attaches to and adds the dative. *zu warm* then behaves like *treu* ('faithful') in governing a dative NP.

[29] http://agora2.arte.tv/forum/showthread.php?t=7286. 07.10.2012.

[30] http://www.macuser.de/forum/f10/coolbook-220786/index6.html. 07.10.2012.

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 (79):

(79) Er   war dem König   ein treuer Diener.
     he.NOM was the king.DAT a   faithful servant
     'He was a loyal servant of the king.'

We would argue that such datives are adjuncts as well. They are of the type we see in (80):

(80) Er   bemalt dem König   den Tisch.
     he.NOM paints the king.DAT the table.ACC
     'He paints the table for the king.'

The verb *bemalen* ('paint') is a transitive verb and the dative is a modifier that can be used to express the benefactive/malefactive of the event (Wegener 1985a).[31]

Van Eynde's analysis works for the examples he discusses in his paper, but the argumentation against the raising analysis is not convincing. In addition, the copula-based analysis faces several problems.

The first problem is that pronouns and proper names cannot be used as predicates in such constructions:[32]

(81) a. * He seems him.
     b. * He seems John Malkovich.

Here the copula has to be used:

(82) a. He seems to be him.
     b. He seems to be John Malkovich.

---

[31] Since such datives interact with the dative passive (Müller 2006: p. 860), they are probably licensed by a lexical rule that adds the dative to the argument list of a verb.

[32] Frank Van Eynde (p. c. 2012) pointed out to me that it is possible to have pronouns as complements of *seem*. (i) is an attested example:

   (i)   When she meets Carmilla, she seems somebody that she could be friends with
         (http://www.examiner.com/review/theatrical-review-of-wildclaw-theatre-s-carmilla, 08.01.2013)

   However, the phrase *somebody that she could be friends with* is an internally complex phrase that can be turned into a predicate just like *a man* or *a man she could be friends with*. This is different from personal pronouns like *him*, which just point to a referent without providing any quantificational or relational information.
   Frank Van Eynde provides the example in (ii) that is supposed to show that proper names can be used in predicate positions:

   (ii) I call him George.

   We would argue that this *call* differs from the one in *I call him a liar*. The *call* in (ii) just mentions the name, it does not establish a predicative relation between *him* and *George*.

The same is true for gerunds and infinitives if the subject of the infinitive is not realized as the subject of *seems*:

(83) a. * The greatest pleasure on earth seems eating oysters ….
     b. * His main worry now seems to get rid of his detractors.
     c. The greatest pleasure on earth seems to be 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 *eventuality* as complement, non-predicative NPs like *eating oysters* are excluded as non-subject argument of the copula. Infinitival constructions like (83b) are ruled out by our analysis since *his main worry* is incompatible with the subject requirement of *to get rid of his detractors*. (83c,d) are accepted as well-formed, since the identity copula can be combined with gerunds and infinitives. So, while the contrasts in (83) follow from the raising analysis, it is unclear how they can be explained in Van Eynde's analysis.

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 Subsection 6.1.1. In the type shifting analysis we have predicative NPs and they combine with the pronoun *it*/*det*/*das* in question tags or left dislocation structures rather than with *he*/*han*/*er*, *she*/*hun*/*sie*. But in Van Eyndes analysis the work is done by the copula and there are no different NP and AP 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 (21) – repeated here as (84a) – or predicates that do not have a subject at all as for instance the examples in (22) – (22a) is repeated here as (84b).

(84) a. In der Mensa   ist es   laut.
         in the commons is it.EXPL loud
         'It is loud in the commons.'

     b. weil   schulfrei ist
         because school.free is
         'because there is no school'

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-rel′* 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 (85):

(85) a. He eats pizza.
     b. He eats.

In (85b) 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 (22b) with a subject:

(86) * weil   der Mann   ihm   schlecht ist
        because the man.NOM him.DAT sick   is

Similarly, expletives are impossible in normal prediative constructions:

(87) Es ist klug.
       it is smart
       'He/she is smart.'

(87) 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 *Bürschlein* ('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 predicate does not require a subject. This is best captured by a raising analysis.

6.3.3 Special Valence Features for Predicate Selection

Some authors have suggested using a special valence feature called XCOMP or VCOMP for the selection of an argument that enters 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:

(88) *sein* (predicative copula, according to Müller (2002: p. 103)):
$$\begin{bmatrix} \text{SUBCAT} \; \boxed{1} \oplus \boxed{2} \\ \text{XCOMP} \; \left\langle \begin{array}{l} \text{ADJ[MOD } \textit{none}, \text{ PRD } +, \text{ SUBJ } \boxed{1}, \text{ SUBCAT } \boxed{2}, \\ \text{XCOMP } \langle \rangle, \text{ LEX } +] \end{array} \right\rangle \end{bmatrix}$$

The copula raises both the subject, if there is one ($\boxed{1}$), and other arguments of the embedded adjective ($\boxed{2}$). 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 (89) is (90).

(89) Er schneidet die Zwiebel klein / in   Stücke.
       he cuts   the onions   small into pieces

(90) ARG-ST for *schneid-/cut-* as used in the resultative construction:
$$\begin{bmatrix} \text{ARG-ST} \; \langle \text{NP} \rangle \oplus \boxed{1} \oplus \left\langle \; [\text{PRD+, SUBJ } \boxed{1} \langle \text{NP}_{ref} \rangle, \text{ COMPS } \langle \rangle] \; \right\rangle \end{bmatrix}$$

This lexical item is not special to German. It is the same for English and Danish (and other languages, see Verspoor (1997), Wechsler (1997), and Wechsler & 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 Open Issues

It is currently unclear why only NPs can function as pre-copular elements in specificational structures. The constraint can be stipulated but it would be preferable to have this fact follow from something in the rest of the grammar.

6.5 Conclusion

This chapter provides the basic building blocks for predicational and specificational 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.

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 predication 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 and to account for intraposed APs.

8 Passive

The discussion of passive in Danish is divided into two chapters. This chapter is devoted to "canonical passives", i. e. passives where a complement of the verb is promoted to subject or where the passive verb has an expletive subject because no complement is promoted to subject. Chapter 9 is devoted to "non-canonical passives", namely raising passives where the subject of the passive verb (whether referential or expletive) is syntactically dependent on an embedded verb (the subject has been "raised"). However, it should be born in mind that many of the basic properties of canonical passives discussed in this chapter carry over to the non-canonical raising passives discussed in the subsequent chapter.

8.1 The Phenomenon

Passivization is illustrated in (1). Example (1a) shows an active construction and (1b) the corresponding passive construction.

(1) a. Peter læser avisen.
         Peter reads newspaper.DEF
         'Peter is reading the newspaper.'

     b. Avisen   bliver læst af Peter.
         newspaper.DEF is   read by Peter
         'The newspaper is read by Peter.'

Passivization suppresses the most prominent argument of a verb. The most prominent argument is usually an AGENT but also other semantic roles qualify as the most prominent argument as we will see below. The suppressed argument can be omitted or realized as a PP-adjunct usually headed by the preposition *af* ('by'). In the example in (1b) the most prominent argument of the verb *læse* ('to read') has been suppressed and it surfaces as an optional PP *af Peter* ('by Peter'). When the most prominent argument is suppressed, another complement of the active verb is realized as the subject or the expletive *der* ('there') surfaces as a subject. In the canonical case the direct object of the active verb is realized as the subject of the passive as in (1b) where the THEME argument (*avisen*, 'the newspaper') surfaces as the subject. But also the object of a preposition (the so-called *pseudo-passive*) or the second object of a ditransitive verb can be realized as the subject of a passive (subject to certain constraints). However, as we will see in the Sections 8.1.6 and 8.1.7 the argument that is realized as the subject of a passive does not have to be a semantic argument of the verb itself, i.e. also non-thematic objects participate in personal passives.

The passive constructions that are illustrated in (2) will be discussed in this chapter. The example in (2a) exemplifies the so-called personal passive with a referential subject NP (the argument of the passive subject is the argument mapping to the direct object of the active construction). Example (2b) illustrates the impersonal passive with the (locative) expletive *der* ('there') as the subject. Example (2c) illustrates the pseudo-passive where the object of the preposition *for* ('of') is promoted to subject and the examples (2d) and (2e) illustrate the promotion of the first and second object of a ditransitive verb to subject.The examples in (2a) through (2e) all illustrate the analytical passive consisting of an auxiliary and a past participle, while the example in (2f), finally, illustrates the morphological *s*-passive with a passive inflectional ending *-s*. The distinction between the analytical and the morphological passive cuts across the distinction between personal and impersonal passives. Also it is independent of the syntactic source of the subject, that is whether the subject corresponds to a direct object, an indirect object or the object of a preposition. All the passives in (2a) through (2e) could be formed with the morphological passive also.

(2) a. Brevene   bliver læst af skuespiller Jesper Christensen.[1]
         letters.DEF are   read by actor   Jesper Christensen
         'The letters are read by the actor Jesper Christensen.'

     b. Der blev stemt om   sagen[2]
         EXPL was voted about matter.DEF
         'There was a voting about the matter.'

     c. vi bliver sørget   for,[3]
         we are   taken.care of
         'we are taken care of.'

     d. Ved overvægt vil vægttab   samt fysisk   træning blive
         by overweight will weight.loss and physical exercise be
         anbefalet   patienten.
         recommended patient.DEF
         'In case of overweight weight loss as well as exercise will be
         recommended to the patient.'

     e. Ved overvægt vil patienten blive anbefalet   vægttab   samt
         by overweight will patient.DEF be   recommended weight.loss and
         fysisk   træning,[4]
         physical exercise
         'In case of overweight the patient will be recommended weight loss as
         well as exercise'

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[1] KorpusDK.
[2] KorpusDK.
[3] KorpusDK.
[4] KorpusDK.

f. Teksten   læses   fra   en maskine foran   kameraet,[5]
    text.DEF read.PRES.PASS from a   machine in.front.of camera.DEF
    'The text is read from a machine in front of the camera'

We will also devote some discussion to the verb *få* ('to get') followed by a past participle as in (3). We will show that this construction has three different uses and that only one of them can be called a passive construction (the one shown in example (3)). This *få* ('get')-passive is formed by the verb *få* ('to become') and the subject corresponds to the indirect object of a ditransitive verb. The other uses will be shown to be a special kind of complex predicate formation.

(3) Piloten   fik frataget   sit certifikat[6]
     pilot.DEF got deprived.of his license
     'The pilot was deprived of his license to fly.'

The so-called state passive is composed of the copula verb *være* ('to be') and a past participle as exemplified in (4) below, will not be discussed here.

(4) Peer Hultberg [er indstillet] for sin store roman, "Byen   og   verden",[7]
     Peer Hultberg is nominated for his big   novel   City.DEF and world.DEF
     'Peer Hultberg is nominated for his big novel "The city and the world"'.

Some authors assume that such constructions are copula constructions with an adjectival participle (Maienborn 2007; Schlücker 2009). We will not disucss the state passive here since the differences between this construction and the canonical (dynamic) passive have not been looked into.

The remaining part of the phenomenon section is organized as follows: After some general remarks about Danish passives, Section 8.1.1 discusses which verbs passivize in Danish. Sections 8.1.2 and 8.1.3 are devoted to a discussion of impersonal and personal passives. Section 8.1.4 discusses the promotion of objects of ditransitive verbs, Section 8.1.5 discusses prepositional passives, the Sections 8.1.6 and 8.1.7 the passivization of resultative and AcI constructions. Section 8.1.8 deals with the distinction between the morphological and the analytical passive. We discuss the *få* ('get')-passive in Section 8.1.9.

8.1.1 Passivizable verbs

The ability to passivize cuts across the distinction between verbs with and without objects that could be promoted to subject. Certain verbs without an object can form impersonal passives. Whether verbs allow passivization depends on syntactic and semantic factors. In this section, we will concentrate on verbs that do not passivize, i. e. that neither form the analytical nor the morphological passive.

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[5] KorpusDK.
[6] KorpusDK.
[7] KorpusDK.

8.1.1.1 Unaccusativity

Intransitive, unaccusative verbs (Perlmutter 1978; Levin & Hovav 1995) such as *størkne* ('to coagulate') and *opstå* ('to emerge'/'to appear') are impossible or highly marked in the passive as shown in (5):

(5) a. ?* Der   størknes.
         there solidify.PRES.PASS
         'There is being solidified.'

     b. ?* Der   opstås.
         there emerge.PRES.PASS
         'There is being emerged.'

These verbs are also remarkable in that they select the auxiliary *være* ('to be') and in that they can occur prenominally as shown in the examples (6a) and (6b) (see also the discussion in Bjerre & Bjerre (2007)).

(6) a. Blodet   er størknet.
         blood.DEF is coagulated
         'The blood has coagulated.'

     b. det størknede blod
         the coagulated blood
         'the coagulated blood'

The subjects of unaccusatives share many properties with the objects of transitive verbs. They are THEME-like and they typically undergo a change-of-state. This is also the reason why unaccusative verbs allow resultative constructions where a resultant state is predicated of the subject. In resultative constructions with transitive verbs the resultant state is predicated of the object (Bresnan & Zaenen 1990; Müller 2002: Chapter 5). The example in (7a) contains the unaccusative verb *falde* ('to fall') and the PP *i søvn* ('to sleep') where the PP predicates a resultant state of the subject *Peter*. The example in (7b) contains the transitive verb *vugge* ('to rock') and here the PP *i søvn* ('to sleep') predicates a resultant state of the direct object *barnet* ('the child).

(7) a. Peter faldt i   søvn
         Peter fell   to sleep
         'Peter fell asleep'

     b. Peter vuggede barnet   i   søvn
         Peter rocked   child.DEF to sleep
         'Peter rocked the child to sleep'

Several different tests have been proposed in the literature to identify unaccusative verbs (Grewendorf 1989; Fanselow 1992), but most of them pick out different classes of verbs (Levin & Hovav 1995). In Danish a defining characteristic seems to be the selection of the perfect auxiliary *være* ('to be') (contrary to German where passivizable motion

verbs select *sein* ('to be') (Müller 2002: p. 121–124; 2007b: p. 287–289) and the ability to occur prenominally as a participle as in (6b).

If the subjects of unaccusatives are indeed objects underlyingly, the lack of passivization follows straightforwardly, since passivization is the suppression of the subject. But the impossability of the passive cannot be a necessary condition for unaccusativity since occasionally unaccusative verbs do passivize as shown for the verb *ankomme* ('to arrive') in (8).[8]

(8) og efter endnu ca. en times   vandring [ankommes]   der til
     and after another app. one hour.GEN walking   arrive.PRES.PASS there to
     nattens   lejr   ved flodbredden   i 3.700 meters højde[9]
     night.GEN camp at   river bank.DEF in 3.700 meters altitude
     'and after another hour of walking we arrive at the river bank in 3.700 meters altitude'

Růžička (1989) suggests that passives of unaccusatives are subject to specific pragmatic or rhetoric constraints. Such passives are felicitous as directives or situational descriptions. Hundt (2002: p. 128), however, suggests that passivization of unaccusatives is possible for verbs with a human AGENT or for verbs for which a human AGENT is imaginable. The verb *ankomme* ('to arrive') in (8) is such a verb, while *størkne* ('to coagulate') is not. In any case, an account of passivizability in terms of unaccusativity does not explain why some verbs with accusative objects do not passivize as noted by Lødrup (2000: p. 39). The transitive verbs *påhvile* ('is the responsibility of') and *tilstøde* ('happen') do not passivize.

(9) a. En stor opgave påhviler kandidatlandene.[10]
         a huge task   rests.on member.states.DEF
         'A huge task is facing the member states.'

     b. * Kandidatlandene   påhviles   af en stor opgave.
         member.states.DEF rest.on.PRES.PASS by a huge task
         Intended: 'The member states are faced with a huge task.'

In order to account for such cases Lødrup (2000) assumes that only verbs with a subject argument higher than a THEME, i. e. AGENT, BENEFICIARY or EXPERIENCER passivize. This explains the ungrammaticality of (9b), since the subject of *påhvile* ('is the responsibility of') is a THEME.[11] But this generalization is not exceptionless, perhaps

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[8] See also Müller (1999a: p. 290) and Müller (2007b: Section 17.1.7) for German corpus examples with *sterben* ('die') and *ankommen* ('arrive').

[9] http://www.jespercom.dk/bolivia/byer_i_bolivia/la_paz/trekking/takesi/inca_trail, [6/5 2010].

[10] KorpusDK.

[11] These verbs also allow the presentational construction despite being transitive verbs (Bjerre & Bjerre 2008) as shown in example (i).

  (i) Derfor   påhviler der   også EF et specielt ansvar,   (KorpusDK)
       therefore rests   there also EEC a particular responsibility
       'For that reason the EEC has a particular responsibility'

due to the fact that the exact definition of the individual semantic roles is not clear-cut. Bivalent verbs such as *eje* ('to possess'), *vide* ('to know') and *have* ('to have') do passivize in Danish as shown for *eje* ('to possess') in (10). These verbs would thus have to be construed as having EXPERIENCER subjects, while the subject of *påhvile* ('is the responsibility of') is a THEME. It is not immediately clear why the semantic role of the subject of the verb *påhvile* ('is the responsibility of') is different from the semantic role of the subject of *eje* ('to possess').

(10) hvis de   pludselig bliver ejet   og styret   fra centralt hold[12]
      if   they suddenly are   owned and managed from central part
      'if they are all of a sudden centrally owned and managed'

Examples such as (10) are also problematic for the account of passivizability in Bjerre & Bjerre (2007). They assume that passivization is sensitive to the event-structure of the verbs (rather than the semantic role of the subject). According to them verbs passivize if they denote processes or if they contain a process as one of their subevents (p. 47). Since *størkne* ('to coagulate') does not denote a process, it fails to passivize. The constraint is stated in the lexical entry for *blive* ('to become') which selects a verb with an event structure containing a *process* as one of its subevents. On this account verbs such as *have* ('to have'), *eje* ('to possess'), *beundre* ('to admire') and *præge* ('to dominate in a characteristic fashion') must be construed as containing event-structures with processes rather than states, since they all passivize and form their passives with the auxiliary *blive* ('to become') as example (11) with the non-eventive verb *præge* ('to dominate in a characteristic fashion') shows. This is not obvious.

(11) Foråret [bliver præget]   af udstillinger og koncerter.[13]
      spring is   characterized by exhibitions and concerts
      'Spring will be dominated by exhibitions and concerts.'

8.1.1.2 Verbs with Expletive Subjects and Raising Verbs

Moreover, also the referential status of the subject has an impact on passivization. Only verbs selecting referential subjects to which they assign a semantic role, passivize. Athematic verbs and raising verbs do not passivize since their subjects are no semantic arguments of the verb (Åfarli 1992: p. 18; Müller 2007b: p. 291). This is demonstrated by the respective examples in (12):

(12) a. * Der snes   / blev sneet   hele natten
          EXPL snow.PRES.PASS was snowed whole night.DEF
          'there was snowing the whole night.'

      b. * Han lades   / bliver ladet   til   at være bortrejst
          he seem.PRES.PASS is   seemed PREP to be   on.vacation
          'he was seemed to be on vacation.'

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[12] KorpusDK.

[13] KorpusDK.

It is important to note that neither the morphological, nor the analytical passive is possible in (12b). The impossibility of the analytical passive does not in itself show that passivization is excluded. There are independent reasons why the analytical passive is impossible with raising verbs. Raising verbs are very reluctant to form past participles (see the discussion in Section 9.1.2.1). It follows that they cannot form an analytical passive. If passivization is seen as the suppression of an argument that gets a role assigned, it follows that the passivization of raising verbs is excluded, since raising verbs do not assign a semantic role to their subjects.

8.1.1.3 Reflexive Verbs

Also reflexive verbs are marginal in the passive (see also Müller (1999a: Section 15.3.4) on reflexive passives in German). Here we have to distinguish three kinds of reflexive verbs: inherently reflexive verbs such as *skynde sig* ('to hurry'), naturally inherent reflexive verbs such as *barbere sig* ('to shave') and naturally disjoint reflexive verbs such as *hade sig selv* ('he hates himself') (Kemmer 1993) . In Danish this distinction correlates with the possibility of adding the emphasizing *selv* ('self'). The emphasizer is impossible with inherently reflexive verbs, highly marked with naturally inherent verbs and obligatory with naturally disjoint reflexive verbs. Lødrup (2010: p. 101) observes that the intensifying particle is preferred when the role of the reflexive argument is very unnatural, that is, it is conceived of as natural to shave oneself (13b) but not to hate oneself (13c).[14]

(13) a. Han skynder sig (*selv).
he hurries REFL self
'He is hurrying.'

b. Han barberer sig (??selv).
he shaves REFL self
'He is shaving himself.'

c. Han hader sig *(selv).
he hates REFL self
'He hates himself.'

Only inherently reflexive verbs and naturally reflexive verbs allow passivization, but passivization of reflexive verbs appears to be highly marked in Danish. The acceptability is also questionable in other languages. Schäfer (2010) notes for Norwegian that passives of reflexives are impossible, while Åfarli (1992: p. 128) accepts passives of naturally reflexive verbs as marginal. As shown in example (14a) and (14b), occasional examples of passives of reflexive verbs can be found in Danish, even though Hansen & Heltoft (2011: p. 1293) claim that they are impossible. A prerequisite for passivization is that the

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[14] The example in (13b) is only possible on a reading where *self* ('self') is an emphasizer of the subject, in which case there is an intonational break between the reflexive and the emphasizer. This reading can be paraphrased as *He shaves on his own* as opposed to the reading where the emphasizer is associated with the reflexive: *He shaves himself.*

reflexive verb has an animate AGENT (as also noted for German in Hundt (2002)). The passive in (14c) is bad since the verb *opløse sig* ('to dissolve') does not have an animate AGENT as its subject.

(14) a. Jeg blev meget forskrækket, men der [blev jo   taget sig] bedst
I was very frightened but there was PART taken REFL best
muligt af hende vidste jeg.[15]
possible of her   knew I
'I was very frightened but there was taken best possible care of her, I knew.'

b. Så skal der [skyndes sig][16]
then must there hurry   REFL
'Then one must hurry.'

c. *Der opløses   sig
there dissolve.PRES.PASS REFL
Intended: 'There is dissolving.'

Passivization is much better if the reflexive is embedded in a PP.

(15) Efter sådanne fysiske anstrengelser meldte sulten sig, så der [blev taget
after such   physical efforts   came hunger REFL so there was taken
godt for sig] af de sydafrikanske retter i buffeten ude i haven.[17]
good for REFL of the South.African dishes in buffet.DEF out in garden.DEF
'After such physical efforts everyone got very hungry, so everyone had their share of the South African dishes out in the garden.'

These data suggest that passives with reflexive objects are marginal, since a reflexive pronoun cannot be promoted to subject. Reflexive pronouns do not have nominative counterparts (Pollard & Sag 1994: p. 262).[18] On the other hand, it is marked for a passive

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[15] KorpusDK.

[16] http://www.amino.dk/forums/t/98349.aspx?PageIndex=2, [21/2 2011].

[17] KorpusDK.

[18] Hundt (2002: p. 133) suggests for German, that lexical reflexives (as part of inherently reflexive verbs) are part of the verb and that verbs with anaphoric reflexives that allow passivization, have been re-analyzed into inherently reflexive verbs. In Danish there is no evidence that the reflexive has been incorporated into the verb. On the contrary: incorporated objects are always assigned stress, while the verb is destressed. In (i.a) the verb *læser* ('reads') is destressed, while the incorporated object *avis* ('newspaper') carries stress. Note also that the incorporated object follows sentential negation. Inherently reflexive verbs have stress on the verb and not on the reflexive pronoun. Moreover, the reflexive pronoun participates in object-shift *preceding* sentential negation as expected, since it is an unstressed object pronoun and not an incorporated object as *avis* ('newspaper') in (i.b).

(i) a. Peter ₀læser ikke 'avis
Peter reads not newspaper
'Peter is reading the newspaper.'

verb to have an accusative object.[19] Therefore an impersonal passive with a reflexive verb is marginal at best and only possible if the subject referent is an animate AGENT. The impersonal passive of a verb with a reflexive embedded in a PP is impeccable, since there is no accusative object.[20]

8.1.1.4 Cross-Linguistic Variation

As already hinted at a couple of times, there is cross-linguistic variation in the possibility of passivization. We saw examples of this above with the verbs *eje* ('to possess') and *vide* ('to know') which passivize in Danish, but not in German. Another case in point is Visser's Generalization (Pollard & Sag 1994: p. 304–308) which states that subject control verbs do not passivize. This is not true for Danish (and German, see Müller, 2002: p. 129;

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b. Peter 'skynder $_0$sig ikke
Peter hurries REFL not
'Peter is not hurrying.'

[19] This can also explain that passives of ditransitives with the *blive* ('to become')-passive is more marked than with the verb *få*. Passives with objects are marked. See also Abraham (1986: p. 8), Plank (1993), Vater (1995), and Meurers (1999b: p. 186–187) for German passives with accusative objects.

[20] If reflexive verbs cannot occur as passives because the reflexive pronoun does not have an nominative form, we should actually expect these verbs to be able to occur as passives in a configuration where the (reflexive) subject of a passive verb is extracted into a main clause. A pronominal subject extracted into a higher clause is obligatorily in the accusative case as detailed in Chapter 12.

(i) Ham$_i$ tror alle ___$_i$ vinder
him.ACC thinks everyone wins
'Everyone thinks he is going to win.'

Thus, we should expect to find examples as the one in (ii).

(ii) *Sig selv$_i$ tror eleverne ___$_i$ skyndes.
REFL self think pupils.DEF hurry.PRES.PASS
Intended: 'As for themselves the pupils think that there is hurrying by them (that they are hurrying.)'

Such examples are definitely ungrammatical, but it cannot be due to a violation of binding constraints. As noted in Chapter 12, footnote 27, reflexive subjects in the accusative are sometimes found in non-local extraction as in example (iii).

(iii) Mig selv$_i$, mener jeg ___$_i$ er blevet godt og vel OND
me self think I has become good and well cruel
'As for myself, I think I have become cruel all the way through.'
(http://www.hardstylersunited.dk/forum/viewtopic.php?f=103&t=1851&start=120, [15/9 2011])

(iv) ?Mig selv$_i$ tror jeg ___$_i$ bliver fyret
me self think I is fired
'As for myself I think I am going to be fired.'

So the ungrammaticality of (ii) requires an additional explanation. Not only do the reflexives lack a nominative form, it is also inappropriate to suppress an AGENT argument and promote a co-referential argument to subject. This would account for the ungrammaticality of (ii).

2007b: p. 293) where subject control verbs such as *forsøge* ('to try') as in (16) do passivize (we will return to that in Chapter 9, Section 9.1.3.1).

(16) og der vil igen blive forsøgt at indgå en afvikling af gælden.[21]
and there will again be tried to establish a paying of debt.DEF
'and another attempt will be made to decide on how to pay back the debt.'

To sum up: Unaccusative verbs cannot be passivized except when forced into the passive construction, which results in pragmatic effects. The passive is impossible with verbs that do not assign a thematic role to their subject (weather verbs and raising verbs). While the semantic role that is assigned to the subject and the event structure of verbs play some role, there are remaining idiosyncrasies that cannot be explained. This does argue for a lexical treatment of passivization, allowing gross generalizations and lexical idiosyncrasies.

8.1.2 The Impersonal Passive

Danish passives can be classified according to whether they have a referential or an expletive subject. We discuss the impersonal passive in this subsection and turn to the personal passive in Section 8.1.3.

The impersonal passive has a non-referential (expletive) subject and no direct object (cf. however, the discussion of passivization of reflexive verbs above where an impersonal passive does have a direct object, namely the reflexive). Canonically the subject of an impersonal passive is the locative expletive *der* ('there') as in (17a), but in some cases also *her* ('here') occurs.[22]

(17) a. Hvis [der] aldrig [bliver talt] om, at det foregår, trapper volden
if there never is talked about that it happens escalates violence.DEF
op.[23]
PART
'If it is never discussed, that it happens, the violence escalates.'

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[21] KorpusDK.

[22] Subjectless impersonal passives are marginally possible in clauses with verb fronting, but they are impossible in clauses without verb-fronting. In V$_{BASE}$-clauses the subject position must be filled. This point will assume some importance in the discussion of *wh*-extraction in Chapter 13.

(i) a. I kontorerne arbejdes ?(der).
in offices.DEF work.PRES.PASS there
'In the offices there is working.'

b. De fortæller, at *(der) arbejdes i kontorerne
they tell that there work.PRES.PASS in offices.DEF
'They are telling that there is working in the offices.'

c. De fortæller, at i kontorerne arbejdes *(der)
they tell that in offices.DEF work.PRES.PASS there
'They are telling that there is working in the offices.'

[23] KorpusDK.

b. at [her] [snakkes],   [hygges]   og [hjælpes]   i et miljø,
    that here talk.PRES.PASS enjoy.PRES.PASS and help.PRES.PASS in a surrounding
    hvor tidpres   er et ukendt   begreb[24]
    where time.pressure is an unknown concept
    'that there was talking, enjoying yourself and helping in a surrounding
    where lack of time was an unknown concept'

The impersonal passive is formed from verbs without NP or verbal objects (VP, S or
CP), i. e. canonically from mono-valent (unergative) verbs and verbs with prepositional
complements as in (18).

(18) a. Der passes   på børnene.
          EXPL take.care.of.PRES.PASS on children.DEF
          'Somebody takes care of the children.'
      b. Der bliver passet   på børnene.
          EXPL is   taken.care.of on children.DEF
          'Somebody takes care of the children.'

Impersonal passives are restricted to verbs with animate AGENTs (Paul 1919: p. 40; Jung
1967: § 429; Siewierska 1984: p. 100; Zaenen 1988: p. 12). Note that also bi-valent verbs
with an optional direct object, (19a, b), or with Unspecified Object Deletion of the second
object of a three-valent verb as in example (19c) form impersonal passives.[25]

(19) a. Der skrives   og tales   i Føderationen på 50
          there write.PRES.PASS and speak.PRES.PASS in federation.DEF in 50
          forskellige sprog[26]
          different   languages
          'In the federation 50 different languages are written and spoken.'
      b. Efter plantning skal der   vandes   grundigt.[27]
          after planting must there water.PRES.PASS thoroughly
          'After planting it is important to water thoroughly.'
      c. Der bydes   på både solister og bands,[28]
          there offer.PRES.PASS on both solists and bands
          'Both solists and bands are offered.'

The impersonal passive is also observed with apparently transitive verbs, where the
object has undergone phonological incorporation (Asudeh & Mikkelsen 2000). The object

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[24] KorpusDK.
[25] We will argue in Section 8.1.10 for the lexical status of the passive. Interestingly it follows from the presence
    of the expletive pronoun that the information that there is no object available for promotion to subject has
    to be present when passive is applied and hence it follows that object deletion must be a lexical process
    too.
[26] KorpusDK.
[27] KorpusDK.
[28] KorpusDK.

is always indefinite and the verb is destressed. Moreover, the verb and the incorporated
object denote a generic, institutionalized event (Asudeh & Mikkelsen 2000).

(20) a. der $_0$blev $_0$spillet 'hits fra "de gamle dage".[29]
          there was played hits from the old   days
          'they played hits from the old days.'
      b. mens der   [bliver skrevet opgave], [forhandlet job, løn] etc. etc.[30]
          while there is   written exercise negotiated job wage etc. etc.
          'while exercises are written, job and wage is negotiated etc. etc.'

These examples are not instances of presentational *there*-sentences where a subject is
demoted to an object. The nouns in (20b) *opgave* ('exercise'), *job* ('job') and *løn* ('wage')
are singular count nouns, but they occur without a determiner. In presentational con-
structions a post-verbal singular count noun must contain a determiner as shown in
(21).

(21) a. der venter [en ny omgang] for domstolene.[31]
          there waits a new turn   for courts.DEF
          'the courts are in for a new turn.'
      b. * og der venter [ny omgang] for domstolene.
          and there waits   new turn   for courts.DEF
          'and the courts are in for a new turn.'

The verb *at skrive opgave* ('to write an exercise') in (20b) (with an incorporated object)
is intransitive and forms an impersonal passive with an expletive subject (as all intransi-
tive verbs). An impersonal passive can, however, contain an indirect object, if the verb is
ditransitive and the direct object has undergone phonological incorporation. In the im-
personal passive in (22) the direct object *fradragsret* ('tax reduction') is phonologically
incorporated: the verb is destressed and the object is obligatorily indefinite. However, it
still occurs with the indirect object *selskaber* ('companies').

(22) Der $_0$gives   selskaber 'fradragsret /*fradragsretten   for gaver
      there give.PRES.PASS companies tax.reduction tax.reduction.DEF for donations
      til godkendte private og offentlige forskningsinstitutioner[32]
      to allowed   private and public   research.institutions
      'Companies are granted tax reduction for donations to allowed private and
      public research institutions.'

The impersonal passive must be distinguished from passive raising constructions with
a raised expletive as in (23):

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[29] KorpusDK.
[30] http://www.motion-online.dk/fora/index.php?showtopic=23457&st=300, [14/9 2011].
[31] KorpusDK.
[32] KorpusDK.

(23) Der hævdes   at bo en bjørn i skoven
      EXPL claim.PRES.PASS to live a   bear in forest.DEF
      'A bear is claimed to live in the forest.'

Example (23) has the expletive *der* ('there') as a subject but still it is no impersonal passive. This expletive can only occur because the embedded (active) verb *bo* ('to live') allows the expletive *der* ('there').

(24) Der bor   en bjørn i skoven.
      EXPL lives a   bear in forest.DEF
      'A bear is living in the forest.'

The expletive is impossible if the embedded verb does not allow it:

(25) *Der hævdes   at spise meget honning.
       EXPL claim.PRES.PASS to eat   much honey
       'There is claimed to eat much honey.'

The expletive in (23) is selected by the embedded verb and raised by the passive matrix verbs *hævdes* ('is claimed'). In impersonal passives the expletive subject is selected by the passive verb itself and not by an embedded predicate. The example in (23) is therefore not an impersonal passive.

In a similar vein, the impersonal passive must be distinguished from presentational *there*-sentences with passive matrix verbs as in (26).

(26) Rundt   om på egnen   siges   [der] [at der ikke
      here.and.there PREP in neighbourhood say.PRES.PASS there that there was
      var nogle   der ville   overtage gården   [...]]33
      not anyone who would inherit   farm.DEF
      'Here and there in the neighbourhood there were rumours that noone wanted
      to inherit the farm [...]'

Example (26) contains the passive verb *siges* ('say.PRES.PASS') which selects a clausal subject. In (26) the clausal subject has been demoted to object and the verb selects the expletive subject *der* ('there') as in presentational sentences with NP-subjects:

(27) En mand går   forbi. → Der går   en mand forbi.
      a man walks by   there walks a man by

The example in (26) contains a direct object, namely the clause *at der ikke var nogle der ville overtage gården ...* ('that noone wanted to inherit the farm ...'), and therefore is not an instance of an impersonal passive (see also the discussion of *der* ('there') in conjunction with extraposed clauses in Chapter 7.1.4.1).

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33 KorpusDK.

8.1.3 The Personal Passive

The personal passive has a referential subject as illustrated in (28).

(28) Udstillingen   blev åbnet forleden   af programchef   Samuel Rachlin,34
      exhibition.DEF was opened the.other.day by programme.director Samuel Rachlin
      'The exhibition was opened the other day by the programme director Samuel
      Rachlin,'

The personal passive is primarily formed from transitive verbs with NP objects as in (28) with the verb *åbne* ('to open'). But it is also found with verbs taking sentential objects as in (29a) where the sentential object of *afsløre* ('to reveal') has been promoted to subject and fronted. Of course a sentential subject of a passive verb can also be extraposed and anticipated with pronoun *det* ('it') as in (29b) (see also the discussion of extraposition in Chapter 7).

(29) a. men [om   drømmen går   i opfyldelse], afsløres   først
          but whether dream.DEF comes into reality   reveal.PRES.PASS not.until
          søndag eftermiddag35
          sunday afternoon
          'but whether the dream comes true will not be revealed until sunday after-
          noon'
      b. Det afsløres   først   søndag eftermiddag, om   drømmen går
          it reveal.PRES.PASS not.until sunday afternoon   whether dream.DEF comes
          i   opfyldelse.
          into reality
          'It will not be revealed until sunday afternoon whether the dream comes true.'

8.1.4 Passivization of Ditransitive Verbs: Promotion of Direct and Indirect Objects

Danish differs from both English and German (see Section 8.3) in allowing both objects of ditransitive verbs to be realized as the subject in passive constructions:

(30) a. fordi   manden giver drengen bolden
          because man.DEF gives boy.DEF ball.DEF
          'because the man gives the boy the ball'
      b. fordi   drengen bliver givet bolden
          because boy.DEF is   given ball.DEF
          'because the boy is given the ball'
      c. fordi   bolden bliver givet drengen
          because ball.DEF is   given boy.DEF
          'because the boy is given the ball to'

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34 KorpusDK.
35 KorpusDK.

Example (31) provides a corpus example that shows the promotion of the indirect object of the active verb. The pronoun *hun* ('she') corresponds to the indirect object of the ditransitive verb *anbefale* ('to recommend').

(31) men det kursus [hun] blev anbefalet,   var umuligt at få støtte til[36]
      but the course she   was recommended was impossible to get funding for
      'but it was impossible to get funding for the course that she was recommended'

Although such passives are possible in principle, there is a very strong tendency to use a construction with the verb *få* ('to get') in order to make an indirect object the subject of a passive (the so-called *recipient passive* or *dative passive*). This type of passive will be be discussed in Section 8.1.9.2.

8.1.5 The Prepositional Passive

In the so-called *pseudo-passive* the complement of a subcategorized prepositional phrase is promoted to subject in the personal passive (see Bresnan (1982: p. 50–62) on English and Lødrup (1991) on Norwegian).

(32) a. Politiet   passer   på dronningen.
         police.DEF takes.care of queen.DEF
         'The police takes care of the queen.'

      b. Dronningen bliver passet   på.
         queen   is   taken.care of
         'The queen is taken care of.'

Pseudo-passives must be distinguished from impersonal passives, where the object of the preposition is topicalized:

(33) a. Hun   bliver passet   på.   (pseudo passive)
         she.NOM is   taken.care of
         'She is taken care of.'

      b. Hende bliver der passet   på.   (impersonal passive)
         her.ACC is   there taken.care of
         'There is taken care of her.'

In the pseudopassive in (33a) the object of the preposition *på* ('on') is promoted to subject and surfaces in the nominative case. In (33b) the object of the preposition has been topicalized, stranding the preposition *på* ('of'). The topicalized constituent is in the accusative case and the subject is the expletive *der* ('there').

Some analyses of the prepositional passive in English assume that the prepositional passive is formed from verbs where the preposition has been reanalyzed as part of the verb. If the preposition forms part of the verb, the complement of the preposition is a direct object of this complex verb (Bresnan 1982: p. 51–52). Two arguments speak in favour

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[36] KorpusDK.

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of this analysis for Danish. The first one is that the verb can also occur intransitively with only the incorporated preposition, while the object (the former object of the preposition) is omitted as shown in (34). The second argument is that the verb *passe* ('take care') is destressed, which is a sign of phonological incorporation (Nedergaard-Thomsen 1991: among others).

(34)   Der er enighed   om, at der skal $_0$passes   'PÅ.[37]
          there is agreement PREP that there must take.care.PRES.PASS PREP
          'Everyone agrees that care must be taken.'

However, the intransitive use exemplified in (34) is not a common feature of the verbs forming the prepositional passive, nor is the destressing of the verb. The verb *sørge for* ('to take care of') allows the prepositional passive, but it does not allow omission of the object of the preposition, as shown in (35a). Nor does the verb show any signs of incorporation of the preposition: the verb is not destressed as shown in (35b). Omission of the object of the preposition and incorporation of the preposition appear to be an idiosyncratic property of some verbs with prepositional complements such as *passe på* ('take care of').

(35) a. * Der 'sørges   godt for.
           there take.care.PRES.PASS good of
           'There is taken good care of.'

      b. * Der $_0$sørges   FOR os.
           there take.care.PRES.PASS of us
           'There is taken care of us.'

Moreover, preposition and verb never behave as a syntactic unit. The individual parts can be separated by intervening adjuncts as the following example shows (this was also noted for Norwegian in Christensen (1986: p. 156)):

(36)   Der bliver passet   [gevaldigt] på
          there gets   care.taken immense   PREP
          'Immense care is taken.'

Lødrup (1991) also discusses pseudo-passives in Norwegian formed from verbs selecting an NP and a PP as in (37).[38]

(37)   Barna   ble skiftet bleier / bukser / klær   på.
          children were changed dypers trousers clothes on
          'The children were changed dypers / trousers / clothes on.'

We have not found any authentic examples of this kind in Danish, and they appear to be marginal in Danish as shown in (38).

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[37] KorpusDK.
[38] Lødrup (1991: p. 126) also notes that there is a Definiteness Effect in these examples. The direct object has to be indefinite in Norwegian.

(38) ?? Bilen   blev skiftet   olie på.
      car.DEF was changed oil on
      'Oil was changed on the car.'

Probably the presence of a direct object make these clauses marginal as passives, as also noted for passivization of reflexive verbs above. For Danish, we assume that the prepositional passive is formed of verbs selecting only a PP complement.

8.1.6 Passivization of Resultative Constructions

In the examples of personal passives we have seen until now, the referential subject is another argument of the verb. But the referential subject is not always a *semantic* argument of the verb. Some verbs select a non-thematic object in the active, i. e. a raised object which is a semantic argument of an embedded predicate. This raised object, in turn, can be promoted to subject in the passive. The raised object can be part of a resultative construction or part of an AcI-construction. The verb *spille* ('to play') in (39a) does not usually select a human object. The object *Bo Hansen* is the argument of the resultative predicate *fri* ('clear') and this argument is raised to the object of *spille* ('to play'). Under passivization the object is promoted to subject as shown in (39b).

(39) a.   da   Ebbe Sand elegant   spillede [Bo Hansen] [fri]   til scoring.[39]
           when Ebbe Sand elegantly played   Bo Hansen   clear to score
           'when Ebbe Sand elegantly broke Bo Hansen clear to score.'
      b.   På en forsvarsfejl   blev [Balakov] spillet [fri],[40]
           on a   defense.mistake was Balakov   played free
           'Due to a mistake in the defence, Balakov was broken clear'

This can straightforwardly be accounted for on the assumption that the verb in a resultative construction selects both a resultative predicate and the subject of the resultative predicate (Simpson 1983; Wunderlich 1992: p. 45; Verspoor 1997; Wechsler 1997; Wechsler & Noh 2001; Müller 2002: Chapter 5; Kay 2005; Jacobs 2009: p. 512; Welke 2009: p. 520–521).

8.1.7 Passivization of AcIs

The examples in (40) illustrate passivization of AcI-constructions. In AcI-constructions the subject of a bare infinitive surfaces as the non-thematic object of the matrix verb. In (40a) the object *mange kolleger* ('many collegues') is understood as the subject of *bukke under* ('give up'). Under passivization the object is promoted to subject of the passive verb as shown in (40b).

(40) a.   Jeg så   drengene løbe ind på kirkegården
           I   saw boys.DEF run in to cemetery.DEF
           'I saw the boys run into the cemetery.'
      b.   [Drengene] blev set   [løbe ind på kirkegården],[41]
            boys.DEF   were seen run in   to cemetery.DEF
           'The boys were seen as they ran into the cemetery.'

The passivization of AcI-constructions is discussed in Section 9.1.4 in conjunction with the raising passives. The AcI-verbs share with the verbs forming raising passives that they embed a propositional complement.

To sum up this section: The personal passive has a referential subject and the argument assigned to the referential subject is an argument assigned to a complement of the verb in its active use. However, the argument does not have to be a logical argument of the passivized verb itself.

8.1.8 The analytical and the morphological passive

As previously mentioned, Danish has two passive forms: an analytical passive formed with the auxiliary *blive* ('to get') in combination with a past participle and a morphological passive formed with the suffix *-s* (used for present tense and infinitives) or *-edes* (used for past tense). This is shown for the verb *beskytte* ('to protect') in (41a), (41b) and (41c).

(41) a.   Min far blev beskyttet.[42]
           my dad was protected
           'My dad was protected.'
      b.   og morderen beskyttes   af bandens   sammenhold.[43]
           and killer.DEF protect.PRES.PASS by gang.DEF.GEN solidarity
           'and the killer is protected by the solidarity of the gang.'
      c.   og morderen beskyttedes   af politiet
           and killer.DEF protect.PAST.PASS by police.DEF
           'and the killer was protected by the police.'

The verb *blive* ('to become') in the analytical passive is traditionally analyzed as an auxiliary verb. However, the status of *blive* ('to become') as an auxiliary is not entirely clear. A diagnostic for auxiliaries (and auxiliary-like verbs such as modals) is that they occur in tags to form tag-questions. In a tag-question, a declarative host clause is turned into a question by adding a tag consisting of a verb, a subject and a negation (depending on the polarity of the host clause). If the host clause contains a functional predicate such as an auxiliary, a copula or a modal, the functional predicate is replicated in the tag, otherwise the dummy verb *gøre* ('do') is used. Cf.

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[39] KorpusDK.
[40] KorpusDK.

[41] KorpusDK.
[42] KorpusDK.
[43] KorpusDK.
[43] KorpusDK.

(42) a. Han har arbejdet, har / * gør han ikke?
he has worked has does he not?
'He has been working, hasn't he?'

b. Han arbejder, * har / gør han ikke?
he works has does he not?
'He is working, isn't he?'

The analytical passive allows both the replication of the auxiliary *blive* ('to become') as well as the verb *gøre* ('to do') as shown in (43), with a clear preference for the last option.[44]

(43) Vi bliver hentet, ? bliver / gør vi ikke?
we become picked.up become do we not
'We will be picked up, won't we?'

The same pattern is observed in disjunctive polar questions differing only in the polarity of the two disjuncts. If the first disjunct contains a functional predicate, it is replicated in the second disjunct, while a lexical predicate in the first conjunct is resumed with the dummy-verb *gøre* ('to do'). If the first conjunct contains an analytical passive, *gøre* ('to do') as in (44b) is preferred even though also the auxiliary *blive* ('to become') can be replicated.

(44) a. Blev Galilei udsat for en uretfærdig dom fra den katolske inkvision
was Galilei subject to an unjust sentence from the Catholic inquisition
– eller blev han ikke?
or was he not
'Was Galilei the victim of an unfair sentence from the Catholic inquisition
– or wasn't he?'

b. Blev Galilei udsat for en uretfærdig dom fra den katolske inkvision
was Galilei subject to an unjust sentence from the Catholic inquisition
– eller gjorde han ikke?[45]
or did he not
'Was Galilei the victim of an unfair sentence from the Catholic inquisition
– or wasn't he?'

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[44] Also as a copula verb, the verb *blive* ('to become') selects *gøre* ('to do') for its tag as shown in (i.a).

(i) a. Det blev da lidt bedre, gjorde det ikke? (KorpusDK)
it became then a.little better did it not
'But it did improve a bit, didn't it?'

b. Du kan tro, vi bliver lykkelige, gør vi ikke, Bjørn? (KorpusDK)
you can think we become happy do we not Bjørn
'You bet we will happy, won't we, Bjørn?'

Also as a copula-verb *blive* ('to become') syntactically behaves as a lexical verb and not as a functional predicate.

[45] http://filmogtro.dk/index.php?siteid=194&link=stlink, [20/7 2011].

On the other hand *blive* ('to become') does behave as an auxiliary in other respects: it occurs with past participles that cannot be classified as adjectives, since they are excluded from the prenominal position[46] (45) and do not allow *un*-prefixation (46).

(45) a. som da jeg blev kysset af en pige for første gang.[47]
like when I was kissed by a girl for first time
'like when I was kissed by a girl for the first time.'

b. ?* en kysset brud
a kissed bride
'a kissed bride'

(46) a. Det er meget velfortjent at Sonja Mikkelsen bliver forfremmet,[48]
it is very well-deserved that Sonja Mikkelsen is promoted
'It is very well-deserved that Sonja Mikkelsen is promoted'

b. * en uforfremmet medarbejder
an unpromoted employee
Intended: 'an unpromoted employee'

Also *blive* ('to become') can be shown not to assign a semantic role to its subject – as expected if it is an auxiliary (see e.g. the discussion of Possessor Raising in Section 8.1.9.1, especially example (78)).

These data suggest that the verb *blive* ('to become') is not a fully functional predicate, but rather at an intermediate stage between a functional predicate and a lexical verb. However, we will treat *blive* ('to become') as an auxiliary and not as a lexical verb, despite the fact that it behaves as a lexical verb in some respects. In Section **??** we will return to a discussion of the past participle and address the question whether a past participle can be treated as unspecified for voice or whether we need separate past participles for the active and the passive use.

The analytical and the morphological passive differ in their morpho-syntactic distribution, their semantics and in the kind of verbs they allow. Lødrup (2000) claims for Norwegian that the morphological passive is the most productive and Hansen & Heltoft (2011: p. 742) also describe the morphological passive in Danish as the unmarked form. But at the same time the morphological passive is the most restricted in its use. The morphological passive is only productive in the present tense (Engdahl 1999: p. 5) and as a bare infinitive. It is very marked in the past tense (and impossible with irregular verbs) and it is highly marked in the full infinitive with *at* ('to').[49] Example (47a) shows an example of a morphological passive in the past tense and example (47b) shows that

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[46] These are the non-result participles of Bjerre & Bjerre (2007).

[47] KorpusDK.

[48] KorpusDK.

[49] Authentic examples of morphological passives in full infinitives can be found as shown in (i).

(i) Mange fortjener at nævnes: (KorpusDK)
many deserve to mention.PRES.PASS
'Many deserve to be mentioned:'

morphological passives are highly marked, if not impossible in full infinitives. No such restrictions are observed for the analytical passive.

(47) a. Strandinger har der været mange af, indtil det første fyr
       beachings has there been many of until the first light.hose
       byggedes i 1836[50]
       built.PAST.PASS in 1836
       'There were many beachings until the first light house was built in 1836.'

   b. ?* At behandles på et privathospital, er dyrt.
       to treat.INF.PASS in a private.hospital is expensive
       Intended: 'To be treated in a private hospital is expensive.'

The analytical and the synthetic passives are associated with distinct semantic and pragmatic properties. The basic generalization is that the *s*-passive denotes objectively anchored, generic events while the analytical passive denotes subjectively anchored, singular events (Engdahl 1999, 2000; Heltoft & Jakobsen 1996). In Hansen & Heltoft (2011) the opposition is described as an opposition between *subjective* (the analytical passive) and *non-subjective* (the morphological passive) mode. In example (48a) the analytical passive is *subjective* and understood as referring to one particular event, a particular election (reinforced by the occurrence of a proper noun). In example (48b) the morphological passive is *non-subjective* and it describes a procedure for electing the member of a board.

(48) a. Der er næppe tvivl om, at Schröder bliver valgt som formand.[51]
       there is hardly doubt about that Schröder is elected as leader
       'There is hardly any doubt that Schröder will be elected as leader.'

Most informants, however, prefer the analytical passive, also for the example in (i). A corpus search in KorpusDK reveals a clear preference for the analytical passive in combination with the verb *fortjene* ('to deserve'). There are 129 occurrences of the verb *fortjene* ('to deserve') followed by a passive infinitival complement. A total of 115 occurrences have the analytical passive and only 14 the morphological passive. Morphological passives in full infinitives primarily occur as the object of prepositions as in (ii):

(ii) a. Problemer er til for at løses.   (KorpusDK)
       problems are there for to solve.INF.PASS
       'Problems are there to be solved.'

   b. Suppen fra kogningen var for salt til at bruges til
       soup.DEF from boiling was too salty PREP to use.INF.PASS to
       saucen.   (KorpusDK)
       sauce.DEF
       'The soup from the boiling was too salty to be used for the sauce.'

The reason for this restriction is unclear to us.
[50] KorpusDK.
[51] KorpusDK.

   b. Det sjette medlem vælges blandt teatrets medarbejdere,
       the sixth member elect.PRES.PASS among theater.DEF.GEN employees
       ud fra regler fastsat af kulturministeren.[52]
       according to rules made by minister.of.culture.DEF
       'The sixth member is elected among the employees of the theater accoring to rules made by the minister of culture.'

As opposed to the analytical passive, the morphological passive invites an interpretation of the verb as a stative predicate. This is the reason why morphological passives readily occur with universally quantified adverbs such as *overalt* ('everywhere') (English: *universally* and *widely*). Universally quantified adverbs identify suppressed AGENTs to yield the interpretation *by everyone* and they occur with (passive) stative predicates (Grimshaw 1990: p. 145–147). Compare the example in (49).

(49) og det påstås [overalt], at der overhovedet ikke kan
       and it claim.PRES.PASS everywhere that there at.all not can
       opnås en så god Spillemåde med Pianino som med
       achieve.PRES.PASS a so good playing.technique with pianino as with
       Flygelmekanik.[53]
       grand.piano.mechanics
       'and it is claimed everywhere, that it is impossible to achieve so good a playing technique with pianino as compared to the mechanics of a grand piano.'

When a passive verb is embedded under a modal verb with a circumstantial reading, the distinction between subjective and non-subjective anchoring shows particularly clearly. The example in (50a) describes a situation where the deontic force is anchored in an objective obligation. The example in (50b) is used in a situation where the deontic force is anchored in a subjective obligation, namely the speaker. Example (50b) is a promise on part of the speaker to make the proposition *p* come true.

(50) a. Præsidenten skal vælges.
       president.DEF must elect.INF.PASS
       'The president has to be elected.'

   b. Præsidenten skal blive valgt.
       president.DEF must be elected
       'I assure that the president will be elected.'

Not all verbs allow both the analytical and the morphological passive. There are semantic restrictions on the formation of the two passives. The morphological passive is formed from all verbs selecting a subject with a semantic role higher than THEME, i. e. AGENT, BENEFACTIVE or EXPERIENCER. The analytical passive is more restricted. It

[52] KorpusDK.
[53] http://www.pianomagasinet.dk/vorm.htm, [29/7 2011].

is primarily formed from verbs with agentive subjects, while it is rare with verbs taking BENEFACTIVE or EXPERIENCER subjects. Examples are the verbs *behøve* ('to need'), *mangle* ('to lack') and *besidde* ('to possess') selecting EXPERIENCER subjects. These verbs only allow the morphological passive.[54]

(51) a. Kaviaren behøves ikke,[55]
caviar.DEF need.PRES.PASS not
'The caviar isn't needed.'

b. * Kaviaren bliver ikke behøvet.
caviar.DEF is not needed
Intended: 'The caviar isn't needed.'

The choice of passive is thus sensitive to different readings of verbs. The verb *føle* ('to feel') has two readings: In the first reading it selects an EXPERIENCER subject and a direct object (*to feel sth.*). In the second reading it selects an AGENT subject and a PP-object (*to touch at sth.*). The analytical passive of the verb *føle* ('to feel') forces the second reading as in example (52).

(52) Ligulf stod lamslået og kiggede på skuespillet, mens han selv [blev]
Ligulf stood paralyzed and looked at spectacle.DEF while he himself was
overbegloet og [følt på].[56]
gazed.at and touched at
'Ligulf was standing as paralyzed wathing the spectacle, while he was gazed at and touched at.'

A corollary of the fact that the analytical passive invites an agentive reading is that the *blive*-passive is preferred for controlled actions. In the example in (53) a morphological passive is used instead of an analytical passive to avoid a reading as a controlled action.

(53) Ialt 40–50 forskellige proteiner […] menes at eksporteres
in.total 40–50 different proteins assume.PRES.PASS to export.INF.PASS
til periplasmaet.[57]
to periphlasma.DEF
'In total 40–50 different proteins […] are assumed to be exported to the periphlasma.'

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[54] Counter-examples are, however, perception verbs such as *se* ('to see') and *høre* ('to hear') which do allow the analytical passive.

(i) Han blev set i nærheden af hotellet (KorpusDK)
he was seen in vicinity of hotel.DEF
'He was seen close to the hotel.'

[55] KorpusDK.
[56] KorpusDK.
[57] KorpusDK.

In example (53) the analytical passive would be strange, since it invites a reading of someone deliberately exporting proteins to the periphlasma:

(54) # Ialt 40–50 forskellige proteiner menes at [blive eksporteret] til
in.total 40–50 different proteins assume.PRES.PASS to be exported to
periplasmaet.
periphlasma.DEF
'In total 40–50 different proteins are assumed to be exported to the periphlasma.'

Lødrup (2000) assumes additional aspectual constraints on the formation of the analytical and the morphological passive. He assumes that verbs taking BENEFACTIVE and EXPERIENCER subjects are canonically stative verbs. The passive participle prefers a perfective interpretation which is incompatible with stative verbs and therefore passives with BENEFACTIVE and EXPERIENCER subjects prefer the morphological passive. This aspectual constraint explains why negative polarity verbs (which often select EXPERIENCER subjects) only form the morphological passive. Negative polarity verbs denote unaccomplished events and are thus incompatible with a perfective interpretation). Negative polarity verbs are extremely rare in passives, but they are found as shown for the verb *tåle* ('to tolerate') in the example in (55a), but only in the morphological passive.

(55) a. at han er djævelen selv, […], og derfor ikke kan
that he is devil himself and therefore not can
[tåles] af dem, der vil være Kristus tro.[58]
tolerate.PASS.PRES of those who will be Christ faithful
'that he is the devil himself, […], and therefore cannot be tolerated by those, who wants to be faithful to Christ.'

b. * og ikke kan blive tålt af dem, der …
and not can be tolerated by those who
'and cannot be tolerated by those who …'

However, there are many lexical idiosyncrasies. The verbs *beundre* ('to admire'), *hade* ('to hate') and *forgude* ('to adore') select EXPERIENCER subjects, and yet they are perfectly compatible with the analytical passive (56a). Also the verb *besidde* ('to possess') is peculiar in not allowing the analytical passive, while the synonymous *eje* ('to possess') does allow the analytical passive (56b).

(56) a. Han bliver forgudet af sin familie.
he is adored by his family

b. Virksomheden bliver ejet / * besiddet af et udenlandsk selskab.
firm.DEF is owned owned by a foreign company
'The firm is owned by a foreign company.'

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[58] http://www.martinluther.dk/misforsto6.html, [21/7 2011].

To sum up: Semantic and morphosyntactic restrictions play a role in the choice between the analytical and the morphological passive. These restrictions can only be stated as gross generalizations, however. For all the generalizations, there appear to be counterexamples. Again this argues for a lexical approach with gross lexical generalizations and room for lexical idiosyncrasies.

8.1.9 The *get*-construction

Most Germanic languages have a passive-like construction consisting of the verb *get* (or its equivalent) and a passive participle.[59]

An example of the *get*-construction is given in (57). The construction is passive-like in that the external argument of the embedded past participle is suppressed and can be realized as a *by*-phrase as in the canonical passive, while the subject can be interpreted as the indirect object of the past participle. In (57) the AGENT of the verb *anbefale* ('to recommend') is realized as an agentive *by*-phrase and the subject *De* ('you') can be interpreted as the RECIPIENT (the indirect object) of the ditransitive verb *anbefale* ('to recommend').

(57) Gå til en optiker, [De] har [fået anbefalet]   [af andre brillebærende
      go to an optician you have got recommended by other spectacle.carrying
      børns   forældre].[60]
      children.GEN parents
      'Go to an optician which the parents of other apectacle carrying children
      have recommened to you.'

The status of this construction as a passive with an auxiliary *get* is debatable and the exact analysis is made difficult by the fact that the combination of *get* and a past participle is ambiguous between different constructions with different readings.

For German it is argued that there is indeed a *get*-passive (in addition to an agentive-resultative construction and a construction with a predicative participle) with the verb *bekommen* as an auxiliary (Wegener 1985b; Reis 1985; Diewald 1997: Section 2.2; Müller 2002: Section 3.1.4 and 3.2.3; 2007b: Section 17.1.3 and 17.2.2, among others). For Norwegian and Danish the verb *få* ('to get') is argued to assign a semantic role to its subject, i. e. it is no auxiliary and consequently the respective constructions are not *get*-passives (Lødrup 1996; Jakobsen 2009). We will argue that Danish does have a *get*-passive with an

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[59] The construction in (57) is sometimes referred to as the *dative passive* or the *recipient passive*. Both terms are misnomers in Danish. First of all there is no dative case in Danish, secondly the role of the subject cannot be characterized as a recipient since the subject can also be characterized as a malefactive as in (i) (This was pointed out for German by Reis 1976: p. 71; Askedal (1984a: p. 9, p. 22); Wegener 1985b: p. 129; Eroms 1978: p. 371; Diewald 1997: p. 38; Müller 2002: p. 132 and for Danish by Jakobsen 2009: p. 192).

   (i)   Hun fik frataget   kørekortet.
         she got withdrawn drivers.license
         'She had her drivers license withdrawn.'

[60] KorpusDK.

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auxiliary *få* ('to get'). But it also has two main verbs *få* ('get'): an active and a passive-like *get*. The main verbs *get* in turn allow both a construction with a verbal and a predicative participle.

The first distinction to be made is the one between *get* + a verbal past participle and *get* + a predicative participle. Contrary to German, these two constructions can be distinguished by the position of the participle. The verbal participle precedes the object as shown in (58a), while the predicative participle follows the object as in (58b):

(58) a.   og hvad hun skal gøre for   at få [behandlet] [sin sag] i retten.[61]
           and what she must do   in.order to get tried   her case in court.DEF
           'and what she is supposed to do to have her case tried in court.'

      b.   Ialt 13 millioner fik [deres sag] [behandlet],[62]
           total 13 million   got their case tried
           'In total, 13 million had their case tried,'

There does not appear to be any semantic difference between the constructions in (58). Example (58a) as well as (58b) are ambiguous between a causative-agentive reading *she managed to have her case tried* and a passive-like reading *someone tried her case for her.*[63]

However, to some speakers the predicative construction in (58b) is degraded with privative verbs where the subject is interpreted as a malefactive. Cf.

(59) a.   Piloten fik [frataget] [sit certifikat].[64]
           pilot.DEF got withdrawn his license
           'The pilot had his flying license withdrawn.'

      b.   ?? Piloten   fik [sit certifikat] [frataget].
           pilot.DEF got his license   withdrawn
           'The pilot had his flying license withdrawn.'

Still, authentic examples with privative verbs as predicative participles can be found.

(60) De fik [deres id-papirer]   [frataget]   nogle kilometer inden grænsen[65]
      they had their ID-documents withdrawn some kilometers before border.DEF
      'They had their ID documents withdrawn some kilometeres before the border.'

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[61] KorpusDK.
[62] KorpusDK.
[63] If the participle is topicalized, only the causative-agentive reading appears to be available, though. This is shown in example (i) with the topicalized participle *helt stoppet* ('quite stopped'). This example only allows a causative-agentive reading.

   (i)   Så [helt stoppet] havde de   så ikke [fået] den.
         so quite stopped had   they then not   got   it
         'So they had not quite succeeded in stopping it.'
         (http://www.kosmetiskguide.dk/community/forum_posts.asp?TID=10813, [27/3 2012])

The reason why topicalization of the participle favours a causative-agentive reading awaits further study.

[64] KorpusDK.
[65] KorpusDK.

We will only discuss *get*-constructions with a verbal participle, i. e. the structure shown in (58a), where the verb *get* immediately precedes the past participle as in all other complex verb forms.

We suggest that there are three different constructions where *get* combines with a (verbal) past participle.

(61) a. Peter fik læst bogen.   (Active *get*: Peter managed to)
        Peter got read book.DEF
        'Peter managed to read the book.'

    b. Peter fik konstateret allergi.   (Passive *get*: someone did it for Peter)
        Peter got found   allergy
        'Peter had allergy diagnosed.'

    c. Peter fik anbefalet   en tandlæge af sin kollega.   (Auxiliary *get*)
        Peter got recommended a dentist   by his collegue
        'Peter got recommended a dentist by his collegue.'

The example in (61a) illustrates the active main verb *get*. The subject of *get* is co-referential with the AGENT of the embedded participle: the subject referent managed to carry out the action denoted by the participle. The example in (61b) illustrates the passive-like main verb *get*. The subject of *get* is not co-referential with the AGENT of the embedded participle: *Peter* is the benefactive of the action denoted by the participle, which is carried out by someone else. The reading in (61a) is sometimes referred to as *causative-agentive*, but causation can also be involved in the passive-reading. In (61b) a causative-agentive reading is unlikely, but possible on the (somewhat far-fetched) interpretation that Peter deliberately managed to have allergy diagnosed (in order to escape civil service). The example in (62) can easily be understood as *to cause someone to mowe the lawn*.[66]

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[66] The fact that the passive-like *get* in (61b) also allows a causative reading to varying degrees suggests that causation is an implicature rather than a semantic component of the construction. This is further corroborated by the fact that both active *get* and the passive-like *get* can be embedded under causation-predicates without being redundant at all. Example (i.a) illustrates the active *get* embedded under the causation-predicate *to succeed in*, and example (i.b) illustrates the passive-like *get*.

(i) a. Men det er da   [lykkedes] mig at [få installeret] Windows 95
        but it is after.all succeeded me to get installed   Windows 95
        […]   (KorpusDK)

        'But after all I succeeded in installing Windows 95 […]'

    b. Desuden er det [lykkedes] dem at [få bragt] deres indslag både hos Danmarks Radio og
        moreover is it   succeeded them to get shown their feature both at   Danmarks Radio and
        TV 2.   (KorpusDK)
        TV 2
        'Moreover they succeeded in having their feature shown in both Denmarks Radio and TV2.'

(62) Den månedlige udgift til at [få   klippet] græsplænen vil derfor   typisk
     the monthly   expense for to have cut   lawn.DEF   will therefore typically
     være på omkring   700 kr   […][67]
     be   on approximately 700 crowners
     'The monthly expense for having the lawn mowed lies around 700 crowners
     […]'

Constructions with main verb *få* ('to get') without an agentive *by*-phrase are almost always ambiguous between the active and the passive-like reading. Still, there are crucial differences between the two main verbs *get*. Active *get* primarily selects agentive, animate subject referents,[68] while passive *get* readily allows non-agentive, inanimate subject-referents (this will be further discussed below). However, our primary concern here will be the difference between the construction in (61b) and the construction in (61c). Both constructions are passive-like: the past participle allows an agentive *by*-phrase, i. e. the AGENT of the embedded participle is distinct from the referent of the subject. And yet there are crucial differences between the two constructions. We will refer to the construction in (61b) as Possessor-*get* and the construction in (61c) as Passive-*get*.

We will discuss the properties of these two constructions in detail below. Here we will only point to the main difference between Possessor-*get* and Passive-*get*: Possessor-*get* has a thematic subject, while Passive-*get* does not have a thematic subject. The consequence is that Possessor-*get* does not raise an object of the embedded participle to subject. The embedded participle occurs with all its internal complements.

(63) Vi fik bekræftet disse overvejelser   af ministeren
     we got confirmed these considerations by minister.DEF
     'We had these considerations confirmed by the minister.'

For instance, the verb *bekræfte* ('to confirm') is a transitive verb selecting a subject and an object. In (63) the AGENT has been suppressed and realized as an agentive *by*-phrase, but the direct object *disse overvejelser* ('these considerations') is still present as the object of *bekræftet* ('confirmed'). Passive-*get*, in turn, raises the indirect object of a ditransitive.

(64) at alle afgange   fra provinsen   har [fået påtrykt] [gamle priser][69]
     that all departures from province.DEF have had printed   old   prices
     'that all departures from outside the capital have been printed with old prices'

The strictly ditransitive verb *påtrykke* ('to print on') requires two internal objects as shown in (65).

(65) Man påtrykker [alle afgange]   [gamle priser]
     you print.on   all departures old   prices
     'You provide all departures with old prices.'

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[67] KorpusDK.
[68] Inanimate subjects with the causative-agentive reading are marked, but observed in a metaphorical use (Hansen & Heltoft 2011: p. 721).
[69] KorpusDK.

In (64), the participle *påtrykt* ('printed on') has only one object *gamle priser* ('old prices'). The indirect object *alle afgange* ('all departures') has been raised to subject by Passive-*get*. Thus, in (64) there is a further valency reduction within the participial complement: the AGENT is suppressed AND the indirect object is missing.

Compare also the following two examples where the (strictly ditransitive) verb *idømme* ('to sentence') is used in the two different constructions distinguished here. Example (66a) illustrates Possessor-*get* and example (66b) illustrates Passive-*get*.

(66) a. Da   Facebook for to   år   siden [fik idømt]   [en canadier] [en
         when Facebook ago two years ago   got sentenced a Canadian a
         gigabøde   på 873 millioner dollar],[70]
         giga.penalty of 873 million   dollar
         'When Facebook two years ago had a Canadian sentenced to a giga
         penalty of 873 million dollar'

     b. at   både Kurt Thorsen og Klaus Riskjær [fik idømt]   [6 år   for
         that both Kurt Thorsen and Klaus Riskjær got sentenced 6 years for
         pengesvindel]![71]
         money.fraud
         'that both Kurt Thorsen and Klaus Riskjær were sentenced to 6 years of
         prison for money fraud!'

The participles differ in their valency requirements. In (66a) the past participle *idømt* ('sentenced') has two internal complements: *en canadier* ('a Canadian') and *en gigabøde* ... ('a giga penalty ...'). Thus the AGENT has been suppressed, but no other argument of the past participle has been promoted to subject. The subject *Facebook* is not an argument of the verb *idømme* ('to sentence') and – as expected – the example in (66a) is ambiguous between the causative-agentive reading and a benefactive reading of the subject-referent. In (66b) the past participle *idømt* ('sentenced') has only one internal complement: *6 års fængsel* ('6 years of prison'). The indirect object is missing, since it has been promoted to subject. Example (66b) does not allow an agentive-causative reading. If (66a) and (66b) were instances of the same *get*-construction we would have no explanation for the difference in interpretation, and we would need two different kinds of passive participles (one with an indirect object and one without an indirect object). Instead we will argue that we need two different kinds of *få*, namely a main-verb *få* ('to get') that forms a complex predicate with the participle and assigns (BENE-/MALE-)FACTIVE to the subject and an auxiliary *få* ('to get').Further differences between the two *get*-constructions are discussed in the following subsections.

8.1.9.1 Possessor-*get*

We have chosen to term *få* as a passive-like main verb Possessor-*get* because it is reminiscent of the External Possessor Construction (Landau 1999; Lee-Schoenfeld 2006).In

External Possessor Raising the possessor of an NP is raised to a (dative) object while the possessee is realized as an accusative object. Cf. the example from German in (67), where the possessor is realized as a possessive determiner in (67a) and as a dative object in (67b).

(67) a. Sie schneidet seine Haare.
         she cuts   his   hair
         'She is cutting his hair.'

     b. Sie schneidet ihm   die Haare.
         she cuts   him.DAT the hair
         'She is cutting his hair.'

In constructions with Possessor-*get*, the subject argument tends to bear a relation of possession to an object of the embedded participle. In (68a) a relation of possession holds between the subject referent *han* ('he') and *håret* ('the hair') and in (68b) between *han* ('he') and *næsen* ('the nose').

(68) a. Da   han i 2. gå   fik boppet håret   og gennemførte en rå
         when he in 2. class had bopped hair.DEF and went.through a tough
         diskerperiode![72]
         discer.time
         'when he had his hair bopped and went through a tough time as a discer!'

     b. og en 31-årig mand fik   brækket næsen,[73]
         and a 31-year man had broken nose.DEF
         'and a 31-year old man has his nose broken,'

Possession is not restricted to body parts as in these examples, though. Possession can also be extended to the part-whole relationship between buildings and their basements as in (69a) or even between a football team and a goal as in (69b).

(69) a. før   [Christiansborg] [fik indlagt] kondirum   [i kælderen].[74]
         before Christiansborg   had installed fitness.room in basemant.DEF
         'before Christiansborg had a fitness room installed in the basement.'

     b. at [Albertslund] [fik anerkendt]   [et mål] fire sekunder efter tiden,[75]
         that Albertslund had acknowledged a goal four seconds after time.DEF
         'that Albertslund had a goal acknowledge that was shot after the end of the
         game,'

Possessor-*get* does allow for a causative reading as noted above. The subject-referent is distinct from the AGENT of the embedded participle, but still Possessor-*get* allows

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[70] http://crn.dk/nyheder/gigaboede-for-spam-pa-facebook-1.373718.html, [1/3 2011].

[71] http://www.gratis-ting.dk/ny/forum/viewtopic.php?t=39499, [21/7 2011].

[72] KorpusDK. There is an error in the original example, it should read 2.g. (the second class of High School) and not gå.

[73] KorpusDK.

[74] KorpusDK.

[75] KorpusDK.

a reading, where the subject X causes a Y to do something for X. We already saw an example in (66a) above where the subject referent *Facebook* manages to have a Canadian sentenced to a fine by a court.

Crucially, Possessor-*get* does not alternate with a canonical passive. As the example in (70) illustrates, the verb *få* ('to get') cannot be substituted with the passive auxiliary *blive* ('to become'). Even if this does not show that the construction in (70a) is no passive, it will turn out to be a major difference between Possessor-*get* and Passive-*get*, which does alternate with the canonical *blive* ('to become')-passive.

(70) a. Peter [fik konstateret] allergi af sin læge
Peter got diagnosed   allergy by his doctor
'Peter was found to suffer from allergy by his doctor.'

  b. * Peter [blev konstateret] allergi af sin læge
Peter was diagnosed   allergy by his doctor
Intended: 'Peter was found to suffer from allergy by his doctor.'

There are several differences between true passives and the construction with Possessor-*get*. In passives bare NP objects are raised to subject, but not oblique complements (PP objects) as shown in (71).

(71) a. De forsker i genteknologi.
they research in gene.techonology
'They do research in gene technology.'

  b. * Genteknologi   forskes
gene.techonology research.PRES.PASS
Intended: 'Gene technology is researched.'

With Possessor-*get* we find examples where the subject (apparently) corresponds to a PP of the embedded participle. The verb *læse højt* ('to read aloud') in (72a)[76] is intransitive, but allows a PP *to sby.* and the verbs *ordne* ('to fix') in (72b) and *fjerne* ('remove') in (72c) select an NP and an optional PP (*to fix sth. for sby/to remove sth. from sby.* The subjects of *get* in the examples in (72) can only be construed as corresponding to a PP of the embedded participles.

(72) a. Børnene fik læst højt.
kids.DEF had read aloud
'The kids had read aloud to them.'

  b. hvor jeg fik ordnet min billet.[77]
where I had fixed   my ticket
'where I had my ticket checked.' (somebody checked my ticket for me)

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  c. Hun fik fjernet sin næsesonde til føde[78]
she had removed her nasal.tube for feeding
'She had her nasal tube for feeding removed.' (somebody removed the nasal tube for feeding from her)

Moreover we find examples of Possessor-*get* where the subject cannot be construed as an argument of the embedded past participle at all as also noted in Jakobsen (2009: p. 193). A case in point are the examples in (73):

(73) a. [Jesper Parsholt] [fik godkendt] og betalt første del af geologikurset
Jesper Parsholt   had accredited and paid first part of geology.course
på DTU.[79]
at DTU
'Jesper Parsholt got the first part of the geology course accredited and paid at the DTU.'

  b. [Mange forbrugere] [fik aflyst]   deres rejse [...][80]
many customers   got cancelled their trip
'Many customers had their trip cancelled [...].'

The subject *Jesper Parsholt* in (73a) and *mange forbrugere* ('many customers) are no arguments of the verbs *godkende* ('to accredite') and *aflyse* ('to cancel'). These verbs are strict transitive verbs and do not even allow a benefactive argument with *for* ('for'), as shown below:

(74) a. * Luftfartsmyndighederne aflyste   rejsen   for forbrugerne
air.control   cancelled travel.DEF for customers.DEF
Intended: 'Air control cancelled the travel for the customers.'

  b. * Luftfartsmyndighederne aflyste   forbrugerne   rejsen
air.control   cancelled customers.DEF travel.DEF
Intended: 'Air control cancelled the travel for the customers.'

Since the subject of Possessor-*get* does not even have to be licensed by the argument structure of the embedded participle, the subject must be assigned a semantic role by Possessor-*get*. Possessor-*get* assigns the role BENE-/MALEFACTIVE to its subject and this explains why it may happen to correspond to a BENE-/MALEFACTIVE PP of the embedded participle. The subject argument, however, is not syntactically licensed by the embedded participle. On this analysis we even predict that the embedded participle can occur with a BENE-/MALEFACTIVE PP of its own (in addition to the BENE-/MALEFACTIVE subject of Possessor-*get*) giving rise to a kind of "double-realization". And this is what we find. In example (75), the participle *konstatere* ('to diagnose') occurs with a possessor PP *hos dig eller dit barn* ('with you or your child'). This PP is (partly) co-referential with the subject of Possessor-*get*.

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[76] This example shows that the *get*-construction in Danish does not require the embedded verb to have a direct object, as claimed for Norwegian in Lødrup (1996: p. 79).

[77] KorpusDK.

[78] KorpusDK.

[79] KorpusDK.

[80] http://finans-dyn.tv2.dk/nyheder/article.php/id-30466347:nu-kan-du-klage-over-askesky.html, [18/11 2011].

(75) dig$_i$, _$_i$ der lige [har fået] konstateret allergi [hos dig$_i$ eller dit barn][81]
    you who just had got diagnosed allergy with you or your child
    'you who just had allergy diagnosed with yourself or your child'

This double-representation is also observed in examples where the possessor-reading is less salient. In example (76a), (76b) and (72b) (repeated below as (76c)) the participles independently occur with BENEFACTIVE PPs. Again this shows that the BENEFACTIVE subject of Possessor-*get* cannot be licensed by the embedded participle. This would require for the embedded verbs to select for two (uncoordinated) BENEFACTIVES.

(76) a. De ernærede sig ved at fiske fra stranden og gå ud og reparere
      they lived REFL by to fish from beach.DEF and go out and repair
      for dem, der havde råd til at [få repareret] [for sig].[82]
      for those who could.afford to get repaired for them
      'They lived from fishing from the beach and from going out and repair for those who could afford to have something repaired for them.'

   b. Den forventede at blive hjulpet op på en af stolene og [få
      it expected to be helped up onto one of chairs.DEF and get
      serveret] [for sig][83]
      served for it.REFL
      'It (i. e. the dog) expected to be helped up on one of the chairs and to have served for it.'

   c. Hos myndighederne [fik] vi [ordnet] opholdstilladelsen [for vores
      at authorities.DEF got we fixed residence.permit.DEF for our
      forældre]
      parents
      'At the authorities we got the residence permit fixed for our parents.'

These examples show that the verb *få* ('to get') selects a BENEFACTIVE argument independently of the embedded participle. For that reason the embedded participle is free to select a BENEFACTIVE PP with the preposition *for* ('for') as well.

The fact that Possessor-*get* assigns a semantic role to its subject also explains why certain constructions are completely impossible with Possessor-*get*. Danish has a very productive rule of possessor raising with unergative verbs (cf. the analysis in Lødrup (2009) for Norwegian). In Possessor Raising, the possessor of a body-part complement in a prepositional phrase is raised to object of an otherwise intransitive verb. In (77), the possessive determiner *hans* in (77a) is raised to an accusative object *ham* ('him') in (77b). Being an intransitive verb the verb *kigge* ('to look') in (77b) does not assign a semantic role to the object[84] so the object *ham* ('him') in (77b) is a non-thematic object of the verb *kigge* ('to look').

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[81] http://feelbetter.dk/venner/bogen-om-allergi, [18/11 2011].
[82] KorpusDK.
[83] KorpusDK.
[84] We assume that the object is assigned a semantic role by the relational body-part noun.

(77) a. Lægen kiggede i [hans] hals.
      doctor.DEF looked in his throat
      'The doctor looked into his throat.'

   b. Lægen kiggede [ham] i halsen.
      doctor.DEF looked him in throat.DEF
      'The doctor looked him into his throat.'

If Possessor-*get* were a raising verb like the passive auxiliary *blive* ('to become'), it ought to be able to raise the non-thematic object of a possessor raising construction just like *blive* ('to become'). But Possessor-*get* cannot occur with a raised subject:

(78) a. Han blev kigget i halsen
      he was looked into throat.DEF
      'He was looked into the throat.'

   b. ?* Han fik kigget i halsen.
      he got looked in throat.DEF
      'He was looked into the throat.'

The construction in (78b) is only possible with a reflexive experiencer object.

(79) Han fik kigget sig i halsen.
    he had looked himself into throat.DEF
    'He had himself looked into the throat.'

This is expected since Possessor-*get* assigns a thematic role to its subject. The example in (78b) is impossible because the subject *han* ('he') is assigned a semantic role by both the verb *få* ('get') and the relational noun *halsen* ('the throat'). The example in (79) is possible because the verb *få* ('to get') assigns a semantic role to its subject and the relational noun *halsen* ('the throat') assigns a semantic role to the reflexive *sig* ('self'). Example (79) very clearly shows that Possessor-*get* does not raise anything. The participle *kigget* ('looked') in (79) has all its complements, except for the suppressed AGENT-argument.

In Section 8.1.1 we saw that the referential status of the subject has a bearing on the ability of the verb to passivize. A verb with a non-thematic subject does not passivize. So if Possessor-*get* does assign a semantic role to its subject, we should expect it to passivize, and it does as shown in (80a). Since the subject is an EXPERIENCER, it only allows the morphological passive though.

(80) a. hvor vilkårene kan fås udleveret[85]
      where terms.DEF can get.INF.PASS distributed
      'where the terms can be obtained'

   b. * hvor vilkårene kan blive fået udleveret
      where terms.DEF can become got distributed
      Intended: 'where the terms can be obtained'

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[85] KorpusDK.

So far we have shown that Possessor-*get* has a thematic subject and that it selects a past participle with a suppressed agent-position, without raising any of the complements of the participle. Thus the puzzling property of the construction is that the participle allows a passive *by*-phrase while at the same time selecting all of its internal complements (81). We seem to have demotion of the most prominent argument, but no other argument is promoted to subject. This is different from canonical passives which usually do not take objects.

(81) Han fik klippet håret   af frisøren
  he   got cut   hair.DEF by hair.dresser.DEF
  'He had his hair cut by the hair dresser.'

We follow Lødrup (1996) and assume that Possessor-*get* combines with a past participle to form a complex predicate. The fact that the participle is part of a complex predicate explains that the participle precedes the object just like other verbal participles. Secondly, the construction behaves like other complex predicates in that Possessor-*get* is destressed while stress is assigned to the participle as shown in (82). This stress pattern is a reflex of Complex Predicate Formation (cf. e. g. Nedergaard-Thomsen (1991)).

(82) Han $_0$fik forNYet sit kørekort.[86]
  he   got renewed his driving.license
  'He had his driving license renewed.'

Possessor-*get* is like an auxiliary in that it combines with a past participle and in that it is destressed. On the other hand it differs from auxiliaries in that it assigns a semantic role to its subject and in that it does not raise any complements of the past participle. As a consequence the past participle has no subject at all. The subject argument of the participle has been suppressed but no other argument has been promoted to subject. Possessor-*get* has a subject of its own and it inherits the argument structure of the past participle with which it forms a complex predicate.

8.1.9.2 Passive-*get*

In contrast to Possessor-*get*, Passive-*get* does not assign a semantic role to its subject, as we expect of an auxiliary.[87]

In constructions with Passive-*get* the indirect object of a ditransitive verb is raised to subject by the auxiliary *få* ('to get'). Examples of ditransitive verbs occurring with Passive-*get* are *anbefale* ('to recommend'), *overrække* ('to present'), *betro* ('to entrust'),

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[86] KorpusDK.

[87] Just like the passive-auxiliary *blive* ('to become'), *få* ('to get') is not replicated in tag-questions (see example (44b) above). Thus, it behaves like a main verb in this respect.

  (i) Han fik frataget   kørekortet,   ??fik / gjorde han ikke?
    he   got withdrawn driving.license got / did   he not
    'He had his driving license withdrawn, hadn't he?

---

bevilge ('to grant'), *indpode* ('to instill'), *tilbyde* ('to offer') and *tilføre* ('to provide') and *påtvinge* ('to force upon'). Cf. the following examples.

(83) a. Mette [fik bevilget] 10 timers psykologhjælp   på kommunens
      Mette got granted 10 hours psychologist.aid at municipiality.DEF.GEN
      regning.[88]
      expense
      'Mette had 10 hours of psychological aid granted at the expense of the municipality.'
  b. Og hvem var det så,   der [fik betroet] opbevaringen af disse
      and who was it then who had entrusted custody.DEF   of these
      mystiske   pakker.[89]
      mysterious packages
      'And who was it finally, to whom the custody of these mysterious packages was entrusted.'

Passive-*get* does not allow a causative reading. The example in (83a) cannot be understood as meaning *Mette made efforts to have someone grant her psychological aid*. This is expected since the indirect object of *bevilge* ('to grant') is raised and cannot be given an interpretation as a CAUSER. A prerequisite for the causative interpretation is that the subject is assigned a semantic role by the verb *få* ('to get').

Passive-*get* alternates with canonical passives in contradistinction to the Possessor-*get*, which does not alternate with canonical passives, as shown above in (78). The following examples show the verb *idømme* ('to sentence') in both a canonical passive (84a) and with Passive-*get* (84b).

(84) a. Han [blev] [idømt]   seks års   fængsel for spionage,[90]
      he   was   sentenced six years prison for spying
      'He was sentenced to six years of prision for spying.'
  b. Han blev fundet skyldig og [fik] [idømt]   seks måneders husarrest[91]
      he was found guilty and got sentenced six months   house.detention
      'He was found guilty and sentenced to six months of house detention.'

While Possessor-*get* does not raise an argument of the past participle, passive *get* does raise an argument of the embedded participle. If Passive-*get* did not raise an argument of the participle (but rather assigned the subject a semantic role of its own) we would have difficulties in explaining why verbs with two obligatory internal arguments are possible in this passive (Kordoni & van Noord (2009: p. 87–88) make a similar point for the Dutch

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[88] KorpusDK.

[89] KorpusDK.

[90] KorpusDK.

[91] http://www.kongesuiten.dk/kulturkomiteen/?p=592, [1/3 2011].

krijgen-passives).[92] The verb *påtvinge* ('to force upon someone') requires two internal arguments as shown below for the *blive*-passive.

(85) a. Han påtvinger   Peter rengøringen.
        he   forced.upon Peter cleaning.DEF
        'He forced Peter to clean.'

    b. * Peter blev påtvunget.
        Peter was forced.upon
        'Peter was forced upon.'

    c. * Rengøringen blev påtvunget.
        cleaning.DEF was forced.upon
        'The cleaning was forced upon.'

    d. Peter blev påtvunget   rengøringen.
        Peter was forced.upon cleaning.DEF
        'The cleaning was forced upon Peter.'

Only the example in 85d is possible because both internal arguments are present, while the agent of the verb has been suppressed.
Consider now Passive-*get* with the verb *påtvinge* ('to force upon').

(86) da   [vi] fik påtvinget [vinduesrenoveringen   i afd.   1].[93]
        when we got forced.upon window.renovation.DEF in ward 1
        'when we were forced to take on the window renovation in ward 1.'

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[92] An alternative analysis is that the GOAL-argument of the past participle is mapped to the subject of the embedded past participle and that *få* ('to get') is a control-verb with the matrix subject controlling the subject of the past participle. This analysis is indicated with a PRO-subject in the example in (i).

(i) Mette$_i$ fik PRO$_i$ bevilget 10 timer af sin arbejdsgiver.
        Mette got   granted 10 hours by her employer
        'Mette was granted 10 hours by her employer.'

If *få* ('to get') were a control verb, however, it is completely unexpected that we do not get the causative reading which was observed with Possessor-*get*. It is also unexpected that Passive-*get* does not allow subject-oriented adverbs.

(ii) ?? fordi Peter [helst] får idømt   6 års   fængsel
        because Peter preferably gets sentenced 6 years prison
        'because Peter would prefer the most to be sentenced to 6 years of prison.'

Also the subject of passive-*get* fails to control into purpose clauses.

(iii) ?* Peter$_i$ fik idømt   6 dages fængsel for   at PRO$_i$ prøve hvordan det var
        Peter got sentenced 6 days jail   in.order to   try how   it was
        'Peter was sentence 6 days prison in order to try what it was like.'

Passive-*get* does not behave like a control verb in any way and so we do not pursue an analysis of *få* as a control verb.

[93] KorpusDK.

If Passive-*get* in (86) did not raise the subject of the past participle and the subject *vi* ('we') were the subject of *get*, the past participle ought to be missing one of its internal arguments, namely the GOAL-argument as in example (85c). The grammaticality of (86) is only expected if *få* ('to get') is an auxiliary that raises the subject of the past participle.

Passive-*get* cannot be passivized. This is in contrast to Possessor-*get* (see (80a) on page 312) and expected since Passive-*get* is an auxiliary and – like other raising verbs – auxiliaries do not passivize.

(87) * Bogen   [fås]   anbefalet   overalt
        book.DEF get.PRES.PASS recommended everywhere
        Intended: 'The book is recommended everywhere.'

Like the canonical passive in (88a), Passive-*get* allows control into a purpose clause by the implicit AGENT argument as shown in (88b) (control by the subject is not possible as noted in Footnote 92). We saw above that control by the implicit agent was degraded with Possessor-*get*.

(88) a. ALLE KRÆFTER vil selvsagt blive sat   ind   [for   at realisere
        all   efforts   will naturally be   made PART in.order to realize
        disse målsætninger].[94]
        these objectives
        'Of course all efforts will be made in order to reach these objectives.'

    b. Mette fik bevilget 10 timers psykologhjælp [for   at hjælpe hende
        Mette got granted 10 hours psychological.aid in.order to help her
        gennem krisen][95]
        through crisis.DEF
        'Mette was allocated 10 hours of psychological aid in order to help her through the crisis.'

On the basis of this evidence we conclude that Passive-*get* is indeed a passive auxiliary and that it raises the GOAL argument of ditransitive verbs. But there are two peculiarities about this auxiliary: It can only be used with verbs taking two bare objects. It does not allow verbs taking a direct object and a prepositional object, as shown in example (89).

(89) a. De overbeviste [Peter] [om nytten   af en computer]
        they convinced Peter about benefit.DEF of a computer
        'They convinced Peter about the benefit of a computer.'

    b. * Peter fik overbevist om   nytten   af en computer
        Peter got convinced about benefit.DEF of a computer
        Intended: 'Peter got convinced about the benefit of a computer.'

This restriction is particularly clear with verbs allowing the dative-alternation, i.e. verbs selecting two NPs or an NP and a PP. The THEME-argument of the verb *præsentere*

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[94] KorpusDK.
[95] KorpusDK

('to present') can be realized as an NP or as a PP with the preposition *for* ('to'). Passive-*get* only allows the realization of the THEME-argument as an NP as shown in (90).

(90) a. Så   måtte   de tre   unge pænt gå til bekendelse og [fik præsenteret]
          then must.PRET the three young nicely go to confession and got presented
          [en regning på 30.000 kr.   i bøde og told].⁹⁶
           a bill   of 30.000 crowner as fine and tax
          'Then the three young ones had nicely to confess and were presented with
          a bill over 30.000 crowner as fine and tax.'
      b. * Så   måtte   de tre   unge pænt gå til bekendelse og [fik præsenteret]
          then must.PRET the three young nicely go to confession and got presented
          [for en regning på 30.000 kr.   i bøde og told].
           for a bill   of 30.000 crowner as fine and tax
          Intended: 'Then the three young ones had nicely to confess and were pre-
          sented with a bill over 30.000 crowner as fine and tax.'

Secondly *få* ('to get') does not allow non-thematic subjects. A few verbs allow a non-thematic indirect object such as *at give det den tid der skal til* ('to be patient', lit.: 'to give it the time it requires') or *at give den gas* ('to freak out', lit.: 'to give it gas'). These are systematically ruled out in the *få*-passive.

(91) a. * [Det] [får givet] den tid   der skal til.
           it   is given the time that requires
          Intended: 'There gets given the time that is required.'
      b. * Den får   givet gas.
           it gets given gas
          Intended: 'It gets freaked out.'

As also noted for the corresponding construction in German (Reis 1985: p. 149) the subject tends to be animate provided that indirect objects of ditransitive verbs tend to be animate. However, inanimate objects are possible, as also noted for German in Leirbukt (1987: p. 104) and Müller (2002: p. 133–134).

(92) På den måde kan [musklerne] hurtigt [få tilført]   brændstof⁹⁷
      in that way can muscles.DEF quickly get supplied.with fuel
      'In this way the muscles can quickly be supplied with fuel.'

8.1.10 Arguments for the Lexical Status of the Passive

Bresnan (1982, 2001a: Chapter 3) argues that participles feed adjective derivation:

(93) a. active present participles (cp. The leaf is falling): *the falling leaf*

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⁹⁶ KorpusDK.
⁹⁷ KorpusDK.

      b. active past participles (cp. The leaf has fallen): *the fallen leaf*
      c. passive participles (cp. The toy is being broken (by the child).): *the broken toy*

That the derived forms are adjectives, not verbs, is shown by a host of properties, including negative *un-* prefixation: *unbroken* means 'not broken', just as *unkind* means 'not kind', while the *un-* appearing on verbs indicates, not negation, but action reversal, as in *untie* (Bresnan, 1982: p. 21, 2001a: Chapter 3). Predicate adjectives preserve the subject of predication of the verb and for prenominal adjectives the rule is simply that the role that would be assigned to the subject goes to the modified noun instead (*The toy remained (un-)broken.*; *the broken toy*).

Bresnan (1982: p. 56) provides the examples in (94) which show that the *un-* prefixation is also possible for participles taking part in prepositional passives.

(94) a. That was unpaid for.
      b. The bed looks unslept in.

Being an A^0, such derived adjectives can be coordinated with other A^0s, as in the following:

(95) a. The suspect should be considered [armed and dangerous].
      b. any [old, rotting, or broken] toys

In (95b), three adjectives are coordinated, one underived (*old*), one derived from a present participle (*rotting*), and one from a passive participle (*broken*). Such coordination is completely mundane on a lexical theory. Each A^0 conjunct has a valence feature (in HPSG it would be the SPR feature for predicates or the MOD feature for the prenominal modifiers), which is shared with the mother node of the coordinate structure.

8.2 The Analysis

In this section we present an analysis of the passives discussed above. We treat passivization as a lexical operation deriving passive verbs from verb stems.

8.2.1 Argument Structure and Valence

As was explained in Section 1.2.1, we assume that lexical items come with an ARG-ST feature for the representation of valence information. In Section 1.2.1 we provided examples with fully specified case values. However, it has been argued in several frameworks that it is useful to distinguish structureal from lexical case. Structural case is case that changes depending on the environment. For instance, an NP that is realized as accusative in the active can be realized as nominative in the passive. So, we assume the following ARG-ST values for the verbs *ankomme* ('to arrive'), *danse* ('to dance'), *læse* ('to read'), *give* ('to give'), and *hjælpe* ('to help'). In addition (96) shows the mapping to SPR and COMPS.

(96) Lexical information for prototypical verbs:

ARG-ST

a. ankomm- (unacc): $\langle \text{NP}[str] \rangle$

b. dans- (unerg): $\langle \text{NP}[str] \rangle$

c. læs- (trans): $\langle \text{NP}[str], \text{NP}[str] \rangle$

d. giv- (ditrans): $\langle \text{NP}[str], \text{NP}[str], \text{NP}[str] \rangle$

str is the abbreviation for structural case. We follow Meurers (1999b) and Przepiórkowski (1999a) in assuming that case is assigned to all elements on the ARG-ST list, provided they are not raised to the ARG-ST list of a governing head. In verbal environments the first element in an ARG-ST list that has structural case gets nominative and all other elements in the ARG-ST list get accusative (for a formalization of case assignment see Meurers (1999b); Przepiórkowski (1999a)). The following is an informal specification of the Case Principle:

Principle 3 (Case Principle)

• *In a list that contains both subjects and complements of a verbal head,*

    – *the first element with structural case is assigned nominative case unless it is raised to a dominating head.*

    – *All other elements of this list with structural case are assigned accusative case unless they are raised to a dominating head.*

• *In nominal environments all elements with structural case are assigned genitive case.*

• *In prepositional environments all elements with structural case are assigned accusative case unless they are raised to a dominating head.*

Applying this Case Principle we get the following case assignments, where *snom* and *sacc* stand for structural nominative and accusative, respectively.

(97) Case assignment and mapping to valence features:

	ARG-ST	SPR	COMPS
a. ankommer (unacc):	$\langle \text{NP}[snom] \rangle$	$\langle \text{NP}[snom] \rangle$	$\langle \rangle$
b. danser (unerg):	$\langle \text{NP}[snom] \rangle$	$\langle \text{NP}[snom] \rangle$	$\langle \rangle$
c. læser (trans):	$\langle \text{NP}[snom], \text{NP}[sacc] \rangle$	$\langle \text{NP}[snom] \rangle$	$\langle \text{NP}[sacc] \rangle$
d. giver (ditrans):	$\langle \text{NP}[snom], \text{NP}[sacc], \text{NP}[sacc] \rangle$	$\langle \text{NP}[snom] \rangle$	$\langle \text{NP}[sacc], \text{NP}[sacc] \rangle$

(97) also shows how the elements of the ARG-ST lists are mapped to the valence features SPR and COMPS.

8.2.2 Passive as Designated Argument Reduction

We follow Haider (1986a), Heinz & Matiasek (1994) and Müller (2003b) in assuming a special list-valued feature DESIGNATED ARGUMENT (DA) that contains the designated argument of a verb. The designated argument is the subject of transitive and unergative verbs. The DA value of unaccusative verbs is the empty list. Passive is analyzed as a lexical rule that applies to a verbal stem and subtracts the DA list from the argument structure list of the input verb or stem.

As was discussed in the data section, we have to distinguish personal from impersonal passives. In both passive variants the subject is suppressed, but only in the impersonal passive an expletive is inserted. (98) shows the DA values for our examples in (96):

(98) Lexical information for prototypical verbs:

	ARG-ST	DA
a. ankomm- (unacc):	$\langle \text{NP}[str]_i \rangle$	$\langle \rangle$
b. dans- (unerg):	$\langle \boxed{1}\, \text{NP}[str]_i \rangle$	$\langle \boxed{1} \rangle$
c. læs- (trans):	$\langle \boxed{1}\, \text{NP}[str]_i, \text{NP}[str]_j \rangle$	$\langle \boxed{1} \rangle$
d. giv- (ditrans):	$\langle \boxed{1}\, \text{NP}[str]_i, \text{NP}[str]_j, \text{NP}[str]_k \rangle$	$\langle \boxed{1} \rangle$

With the exception of the unaccusative verb *ankomme* all verbs have a designated argument that is identified with the first element in the ARG-ST via the structure sharing $\boxed{1}$.

(99) shows the result of designated argument reduction:

(99) Designated argument reduction (preliminary):

	ARG-ST	DA
a. ankommet (unacc):	$\langle \text{NP}[str]_i \rangle$	$\langle \rangle$
b. danset/-s (unerg):	$\langle \rangle$	$\langle \text{NP}[str]_i \rangle$
c. læst/-s (trans):	$\langle \text{NP}[str]_j \rangle$	$\langle \text{NP}[str]_i \rangle$
d. givet/-s (ditrans):	$\langle \text{NP}[str]_j, \text{NP}[str]_k \rangle$	$\langle \text{NP}[str]_i \rangle$

We defer the discussion of the participle of the unergative *ankomme* until Section 8.2.8 where we discuss the formation of adjectival participles. The unergative verb *danse* will be dealt with in Section 8.2.4 and we will extend the representation of *givet/gives* in Section 8.2.5.

8.2.3 Personal Passives

The transitive and ditransitive verbs have a subject on their ARG-ST and a further argument that can function as a subject (an NP with structural case or a CP or a VP argument).

The subject (NP[*str*]$_i$) is suppressed. It is still contained in the lexical item of the passive forms, but as the element of the DA list and not in the ARG-ST list.

The Case Principle assigns nominative to the first element in an ARG-ST list and hence the underlying direct objects (NP$_j$) get nominative. (100) shows the case assignment and the mapping to the valence features:

(100) Case assignment and mapping to valence features for strictly transitive verbs:

$$\text{ARG-ST} \qquad \text{SPR} \qquad \text{COMPS}$$

c. læst/-s (trans): $\langle \text{NP}[\textit{snom}]_j \rangle \langle \text{NP}[\textit{snom}]_j \rangle \langle \rangle$

With these preliminaries out of the way we can now turn to the analysis of the examples in (101):

(101) a. at   han læser bogen
       that he   reads book.DEF

   b. at   bogen læses
      that book   read.PRES.PASS
      'that the book is read'

(102) a. at   han præsenterer Peter for regningen
       that he   presents   Peter for bill.DEF
       'that he presents Peter with the bill'

   b. at   Peter præsenteres   for regningen
      that Peter present.PRES.PASS for bill.DEF
      'that Peter is presented with the bill'

Figure 8.1 on the next page shows the analysis of the active in (102a) with the subject mapped to SPR and the object to COMPS and the analysis of (102b), in which the underlying subject is suppressed and the underlying object is the first element of the ARG-ST list of the passive form and hence mapped to SPR and realized preverbally as the subject.

The following lexical rule accounts for the personal passive, that is, for those passives where no expletive is inserted.

(103) Lexical rule for the personal passive in Danish (preliminary):

$$\begin{bmatrix} \text{HEAD} & \begin{bmatrix} \text{DA} & \boxed{1} \\ \textit{verb} \end{bmatrix} \\ \text{ARG-ST} & \boxed{1} \oplus \boxed{2} \end{bmatrix} \mapsto \begin{bmatrix} \text{ARG-ST} & \boxed{2} \end{bmatrix}$$

The ARG-ST list of the input item is divided in two parts $\boxed{1}$ and $\boxed{2}$. $\boxed{1}$ is identical with the value of the DA feature. The value of the DA feature depends on the verb. It can be the empty list or contain one element. $\boxed{2}$ is the remainder of the ARG-ST list of the input verb. For unaccusative verbs it is identical to the ARG-ST list of the input, since $\boxed{1}$ was the empty list. For all other verbs $\boxed{2}$ is shorter than the ARG-ST list of the input verb.
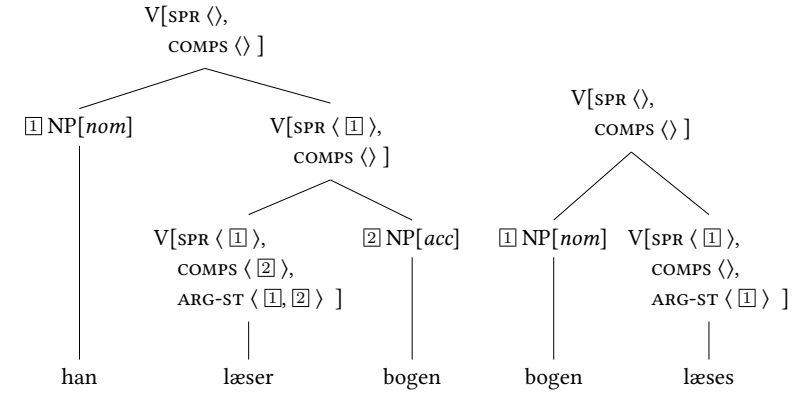
Figure 8.1: The analyis of *han læser bogen* ('he reads the book') and *bogen læses* ('the book was read')

As a convention all feature values that are not mentioned in the output are taken over from the input unchanged. This of course also affects the CONT value of an input verb. For our example the lexical item in (104b) will be licensed by the lexical entry for the stem *læs-* in (104a):

(104) a. *læs-*:

$$\begin{bmatrix} \text{SYNSEM}|\text{LOC} & \begin{bmatrix} \text{CAT} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \text{DA} & \langle \boxed{1} \rangle \\ \textit{verb} \end{bmatrix} \\ \text{ARG-ST} & \langle \boxed{1}\,\text{NP}[\textit{str}]_{\boxed{2}}, \text{NP}[\textit{str}]_{\boxed{3}} \rangle \end{bmatrix} \\ \text{CONT} & \begin{bmatrix} \text{IND} & \boxed{4}\ \textit{event} \end{bmatrix} \end{bmatrix} \\ \text{RELS} & \left\langle \begin{bmatrix} \text{EVENT} & \boxed{4} \\ \text{AGENT} & \boxed{2} \\ \text{THEME} & \boxed{3} \\ \textit{read} \end{bmatrix} \right\rangle \end{bmatrix}$$

b. *læset* and *læses*:

$$
\begin{bmatrix}
\text{SYNSEM}|\text{LOC} & \begin{bmatrix}
\text{CAT} & \begin{bmatrix}
\text{HEAD} & \begin{bmatrix}
\text{DA} & \langle \text{NP}[str]_{\boxed{2}} \rangle \\
verb
\end{bmatrix} \\
\text{ARG-ST} & \langle \text{NP}[str]_{\boxed{3}} \rangle
\end{bmatrix} \\
\text{CONT} & \begin{bmatrix} \text{IND} & \boxed{4}\ event \end{bmatrix}
\end{bmatrix} \\
\text{RELS} & \left\langle \begin{bmatrix}
\text{EVENT} & \boxed{4} \\
\text{AGENT} & \boxed{2} \\
\text{THEME} & \boxed{3} \\
read
\end{bmatrix} \right\rangle
\end{bmatrix}
$$

The important point here is that the connection between syntax and semantics that is established in the lexical entry for *læs-* in (104a) carries over to the derived form. So, since the object of *læse* is linked to the theme role in (104a) it is also linked to the theme role in (104b). The subject of *læs-* is not part of the ARG-ST list of the passive form, but the DA value is taken over from the input and hence the subject of the stem is contained in the lexical item for the passive form and it is linked to the agent role.

The lexical rule as stated in (103) applies to transitive and unaccusative verbs and licenses the forms in (111a,c,d). As we will see in Section 8.2.8 the fact that the lexical rule applies to unaccusative verbs is welcome since we need participle forms as input for a lexical rule for adjective conversion that licenses prenominal participles as in (105):

(105)   det ankommet tog
        the arrived   train

However, the morphological passive of unaccusatives is unacceptable (106a) and the realization of the subject that is still in the ARG-ST list of the item in (111a) is impossible, as (106b) shows:

(106)   a.   * at   ankommes
             that arrive.PRES.PASS
             Intended: 'that there was arriving there'

        b.   * at   togen   ankommes
             that train.DEF arrive.PRES.PASS

The derivation of the respective morphological passive is excluded by adding the constraint to the lexical rule in (103) that $\boxed{1}$ is a non-empty list.[98]

---

[98] In fact this constraint holds for all kinds of morphological passives, that is, it also holds for the impersonal and the prepositional passive.

---

(107)   Lexical rule for the morphological, personal passive in Danish:

$$
\begin{bmatrix}
\text{HEAD} & \begin{bmatrix}
\text{VFORM} & fin \vee bse \\
\text{DA} & \boxed{1}\ ne\_list \\
verb
\end{bmatrix} \\
\text{ARG-ST} & \boxed{1} \oplus \boxed{2} \\
word
\end{bmatrix}
\mapsto
\begin{bmatrix} \text{ARG-ST} & \boxed{2} \end{bmatrix}
$$

The lexical rule applies to words. The VFORM of the input is specified to be *fin* or *bse*. This admits the application to present and past tense forms, which come with the right tense semantics. In the case of the present tense, the *r* that is part of the present tense morphology has to be omitted before the passive suffix *-s* is added. This tense semantics is just taken over from the input. Alternatively the morphological may apply to *bse* forms. The only form the morphological passive may not apply to is the participle form.

(108) shows the variant of the lexical rule that licenses participles:

(108)   Lexical rule for the analytical, personal passive in Danish:

$$
\begin{bmatrix}
\text{HEAD} & \begin{bmatrix} \text{DA} & \boxed{1} \\ verb \end{bmatrix} \\
\text{ARG-ST} & \boxed{1} \oplus \boxed{2} \\
stem
\end{bmatrix}
\mapsto
\begin{bmatrix}
\text{HEAD}|\text{VFORM} & ppp \\
\text{ARG-ST} & \boxed{2} \\
word
\end{bmatrix}
$$

This lexical rule applies to stems and licenses words. It adds the inflection for the participle and constrains the output of the lexical rule to have the VFORM value *ppp*.

With the lexical rules in place, we almost have a complete analysis of the personal passive. One thing that is still missing is the passive auxiliary. We treat the passive auxiliary as a raising verb: It embeds a VP containing a passive participle and raises its SPR value to its own ARG-ST list. A preliminary version of the lexical entry for the auxiliary *bliver* ('is') is given in (109):

(109)   Passive auxiliary *bliver* ('is', preliminary):

$$
\begin{bmatrix}
\text{ARG-ST} & \boxed{1} \oplus \left\langle \begin{bmatrix}
\text{HEAD}|\text{DA} & \langle \text{XP}_{ref} \rangle \\
\text{SPR} & \boxed{1} \\
\text{COMPS} & \langle \rangle
\end{bmatrix} \right\rangle
\end{bmatrix}
$$

The specification of the DA value ensures that unaccusative participles cannot be embedded under the passive auxiliary and hence rule out (110):

(110)   * at   tog   bliver ankommet
          that train is   arrived

Since all participles have a subject (some an expletive one), the specifier list $\boxed{1}$ of the participle is not empty. Whatever the value is, it is appended at the beginning of the ARG-ST list of the auxiliary. The mapping principles ensure that the first element of the

ARG-ST list of the matrix verb is mapped to the SPR list and the others to the COMPS list. Figure 8.2 shows the analytical analog to the morphological passive shown in Figure 8.1. The participle *læst* has a reduced argument structure that contains the underlying object
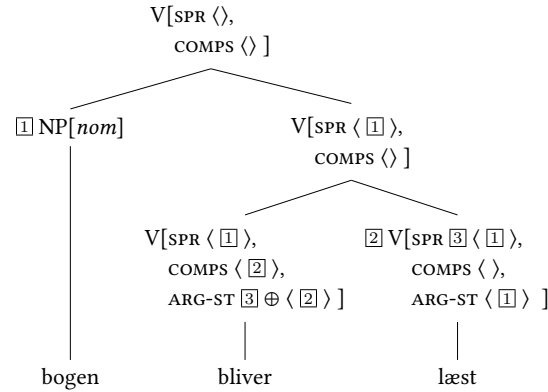
Figure 8.2: The analyis of *bogen bliver læst* ('the book was read')

($\boxed{1}$). This element is mapped to SPR. The auxiliary selects the participle ($\boxed{2}$) and appends the SPR list of the participle ($\boxed{3}$) at the beginning of its ARG-ST list. The ARG-ST list of the auxiliary is hence $\langle \boxed{1}, \boxed{2} \rangle$. Since the NP corresponding to the object of *læse* is not raised any further and since it is the first NP in the ARG-ST list of *bliver* it is assigned nominative. The NP is mapped to SPR and the participle to COMPS. The participle is combined with the auxiliary with the Head-Complement Schema and the NP *bogen* with the phrase *bliver læst* with the Specifier-Head Schema.

As will be discussed in Section 8.2.5, the lexical item for the auxiliary in (109) interacts properly with the analysis of pronoun shift that was suggested in Section 5.2.1.

8.2.4 Impersonal Passives

Danish like English is a language that requires a subject. English simply does not allow impersonal passives but Danish has a different strategy to : It solves the subject problem by inserting an expletive in the mapping from ARG-ST to SPR/COMPS. The ARG-ST list of *danset* was given in (111).

(111) shows the result of the mapping to SPR/COMPS in combination with designated argument reduction:

(111) Designated argument reduction (preliminary):

	ARG-ST	DA	SPR	COMPS
a. ankommet (unacc):	$\langle NP[str]_i \rangle$	$\langle \rangle$	$\langle NP[str]_i \rangle$	$\langle \rangle$
b. danset/-s (unerg):	$\langle \rangle$	$\langle NP[str]_i \rangle$	$\langle NP_{expl} \rangle$	$\langle \rangle$
c. læst/-s (trans):	$\langle NP[str]_j \rangle$	$\langle NP[str]_i \rangle$	$\langle NP[str]_j \rangle$	$\langle \rangle$
d. givet/-s (ditrans):	$\langle NP[str]_j, NP[str]_k \rangle$	$\langle NP[str]_i \rangle$	$\langle NP[str]_j \rangle$	$\langle NP[str]_k \rangle$

This can be written down formally as in (112):

(112) Mapping from ARG-ST to valence features (preliminary):
$$\begin{bmatrix} \text{SPR} & \boxed{1} \\ \text{COMPS} & \boxed{2} \\ \text{ARG-ST} & \boxed{3} \end{bmatrix} \land \boxed{3} = \boxed{1} \langle \text{ NP} \lor \text{S } \rangle \oplus \boxed{2} \lor$$
$$\boxed{3} \neg \langle \text{ NP} \lor \text{S } \rangle \oplus \square \land \boxed{1} = \langle NP_{expl} \rangle \land \boxed{2} = \boxed{3}$$

The mapping constraint distinguishes two cases: In the first case, the argument structure list ($\boxed{3}$) contains an element in the first position that can be mapped to subject, since the list $\langle$ NP $\lor$ S $\rangle$ is a prefix of $\boxed{3}$. This list is identified with the value of the SPR feature. The remaining list ($\boxed{2}$) is identified with the value of COMPS. The second case is the one in which $\boxed{3}$ does not start with an argument that could be mapped to subject and in this case an expletive is the element of the SPR list and the whole ARG-ST list is identified with the COMPS list ($\boxed{2} = \boxed{3}$).

On page 326 we said that the arguments of the ARG-ST list are split into two lists and a list with a singleton element is represented under SPR and the rest under COMPS. The constraints above can be represented in a way that is closer to this original idea:

(113) Mapping from ARG-ST to valence features (preliminary):
$$\begin{bmatrix} \text{SPR} & \boxed{1} \\ \text{COMPS} & \boxed{2} \\ \text{ARG-ST} & \boxed{3} \end{bmatrix} \land \boxed{4} = \text{insert\_expletive}(\boxed{3}) \oplus \boxed{3} \land$$
$$\boxed{4} = \boxed{1} \oplus \boxed{2} \land$$
$$\boxed{1} = \langle \square \rangle$$

Here insert_expletive is a function that returns an empty list, if its argument starts with an element that can be a subject and a list with an expletive NP otherwise. The function is defined as follows:

(114) insert_expletive($\boxed{1}$, $\langle \rangle$)   if $\boxed{1}$ = $\langle$ NP $\lor$ S $\rangle$ $\oplus$ $\square$.
insert_expletive($\square$, $\langle NP_{expl} \rangle$) otherwise.

(115) Mapping from ARG-ST to valence features with constraint for Danish:
$$\begin{bmatrix} \text{SYNSEM|LOC|CAT} & \begin{bmatrix} \text{SPR} & \boxed{1} \\ \text{COMPS} & \boxed{2} \\ \text{ARG-ST} & \boxed{1} \oplus \boxed{2} \end{bmatrix} \end{bmatrix} \land \boxed{4} = \text{insert\_expletive}(\boxed{3}) \oplus \boxed{3} \land$$
$$\boxed{4} = \boxed{1} \oplus \boxed{2} \land$$
$$\boxed{1} = \langle \square \rangle \oplus \text{list of shifted elements}$$

8.2.5 Passivization of Ditransitive Verbs

As was shown in Section 8.1.4 both objects of ditransitive verbs can be realized as subjects in passives. This is not explained yet. The lexical rules we have so far just suppress the designated argument. The Case Principle assigns nominative to the first NP with structural case, so we can analyze passive in which the direct object is realized as subject. In addition to the argument structure for passivized ditransitives that was given as (111d) and that is repeated here as (116a), we need (116b):

(116) a. $\left\langle \text{NP}[str]_j, \text{NP}[str]_k \right\rangle$

     b. $\left\langle \text{NP}[str]_k, \text{NP}[str]_j \right\rangle$

The lexical rules for the personal passive that have been discussed so far do not incorporate the passive variants in which an indirect object (NP[str]$_k$) is promoted to subject. For such a promotion the second object with structural case has to be placed before the first object with structural case in the ARG-ST list. This can be achieved by non-deterministically deleting an NP with structural case from ② in the input to lexical rule in (103) and adding it at the beginning of ②. *delete* and *append* are standard relational constraints and their formulation will not be given here. The variant of the lexical rule in (103) that allows for the promotion of the indirect object is shown in (117):

(117) Lexical rule for personal passives:

$$\begin{bmatrix} \text{HEAD} & \begin{bmatrix} \text{DA} \ ① \\ verb \end{bmatrix} \\ \text{ARG-ST} \ ① \oplus ② \end{bmatrix} \mapsto \begin{bmatrix} \text{ARG-ST} \ ③ \end{bmatrix} \land \text{delete}(④ \ \text{NP}[str], ②, ⑤) \\ \land \text{append}(④, ⑤, ③)$$

We delete an NP with structural case (④) from the list ②. The result is the list ⑤ which does not contain ④. ④ is appended at the beginning of ⑤ and the result is ③, which is also the ARG-ST value of the sign that is licensed by the lexical rule.

This lexical rule can be adapted to also accommodate the impersonal passive. In order to do so, we have to capture the case in which ② does not contain an element that can be promoted to subject. (118) shows the adapted lexical rule:

(118) Passive lexical rule for personal and impersonal passives:

$$\begin{bmatrix} \text{HEAD} & \begin{bmatrix} \text{DA} \ ① \\ verb \end{bmatrix} \\ \text{ARG-ST} \ ① \oplus ② \end{bmatrix} \mapsto \begin{bmatrix} \text{ARG-ST} \ ③ \end{bmatrix} \land \text{promote}(②, ③)$$

promote basically uses *delete* and *append* to promote one of the promotable objects or just identifies ② with ③ in case there are no promotable objects.

(119) promote(②, ③) := delete(④ NP[str], ②, ⑤) ∧
                 append(④, ⑤, ③).
      promote(②, ③) := ② = ③ otherwise.

It is interesting to note that the two instances of pronoun shift in (120b,d) can be analyzed without any problems:

(120) a. Bjarne bliver ikke anbefalet   den.
            Bjarne is   not recommended it
            'The book is not recommended to Bjarne.'

     b. ? Anbefalet   bliver Bjarne den ikke.
            recommened is   Bjarne it   not
            'The book is not recommended to Bjarne.'

     c. Bogen   bliver ikke anbefalet   ham.
            book.DEF is   not recommended him
            'The book is not recommended to him.'

     d. ? Anbefalet   bliver bogen   ham ikke.
            recommened is   book.DEF him not
            'The book is not recommended to him.'

(121a) is a personal passive with the direct object promoted to subject. In (120c), the indirect object is promoted to subject. In (121b) the participle is fronted and the pronoun shifts over the negation (see Section 5.1.1). Similarly, the participle is fronted in (121d) and the direct object shifts. Figure 8.3 on the next page shows the analysis of (120b). *anbefale* is a ditransitive verb, the participle has two NPs on its ARG-ST list. These are both mapped to the SPR list of *anbefalet* since the object is a pronoun (see Section 5.2.1). Since we are dealing with a V2 sentence, the auxiliary *bliver* is in fronted position. It is related to a verb trace via percolation of DSL features via the projection of head features. The verb trace therefore behaves like the auxiliary that is shown in (109). It is combined with the extraction trace that corresponds to the fronted *anbefalet*. The extraction trace – like *anbefalet* – has two elements in the SPR list an no element in the COMPS list. It therefore stands for a VP and can be combined with the verb trace. The auxiliary appends all elements from the SPR list of the embedded extraction trace to its own ARG-ST list. The members of the ARG-ST list of the auxiliary are mapped to the SPR and COMPS list of the auxiliary. Since the valence features of the auxiliary and the verb trace are identical, the verb trace has a SPR list with two NPs in it and an empty COMPS list. The verb trace and the extraction trace form a VP. In the next step the negation attaches. Then the two elements in the SPR list are combined with the VP until we have a fully saturated verbal projection, containing a verb trace and an extraction trace (S//V/VP). This projection serves as the argument of the fronted auxiliary resulting in a projection that has one unbounded dependency to be filled: S/VP. This S/VP is combined with the participle with the Filler-Head Schema to form a complete sentence.

8.2.6 The Prepositional Passive

We follow the analysis in Lødrup (1991) and treat the pseudo-passive as a special kind of raising-structure. The prepositional passive is not the result of re-analysis where the preposition is incorporated into the verb (as also shown for Norwegian in Christensen
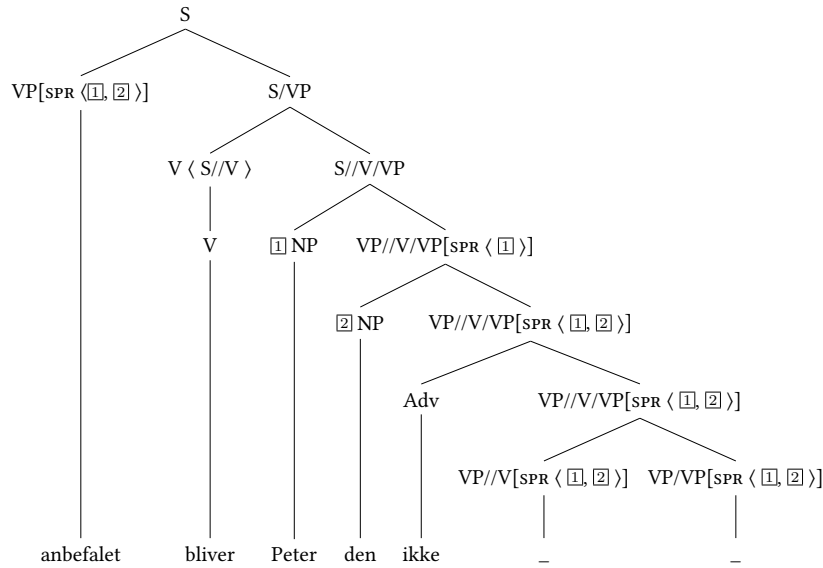
Figure 8.3: Analysis of *Anbefalet bliver Peter den ikke.* ('The book is not recommended to Bjarne.')

(1986: Section 6)). Instead the passive verb selects for a lexical P and attracts the complement of the preposition onto its ARG-ST list. The following lexical rule licenses participles that can take part in the prepositional passive:[99]

(121) Lexical rule for the Prepositional Passive:

$$\begin{bmatrix} \text{HEAD} & \begin{bmatrix} \text{DA} & \boxed{1} \\ verb \end{bmatrix} \\ \text{ARG-ST} & \boxed{1} \oplus \langle \text{PP}[\text{HEAD } \boxed{2}]{:}\boxed{3} \rangle \\ stem \end{bmatrix} \mapsto \begin{bmatrix} \text{HEAD|VFORM } ppp \\ \text{ARG-ST} \langle \boxed{4}, \text{P}[\text{HEAD } \boxed{2}, \text{COMPS } \langle \boxed{4}\text{ NP} \rangle]{:}\boxed{3} \rangle \\ word \end{bmatrix}$$

The lexical rule takes as input a stem where the designated argument list (☐) is a prefix of the ARG-ST list. This is common between all passive lexical rules. The information about the PP is taken over from the input of the rule with the exception of the COMPS value. This is indicated in (121) by the specification of the HEAD values (☐) and the

---

[99] See also Tseng (2007) for a similar lexical rule for prepositional passives in English. Tseng's lexical rule is more general since it allows NP objects and mor oblique arguments in addition to the PP complement. Tseng does not use a DA feature and treats the *by*-PP as an argument of the licensed word.

semantic contribution (☐) but also applies to nonlocal information.[100] The COMPS list of the output of the lexical rule is required to contain an NP (☐). This NP is raised from the preposition and is the first element in the ARG-ST list of the output word. This element will be mapped to the SPR list since it is the first element of the ARG-ST list.

The lexical rule above only applies to verbs selecting one PP complement. As was discussed in Section 8.1.5 Danish seems to differ from Norwegian in not allowing verbs that select NP objects in the prepositional passive.

We will now explain the details of the analysis of (33a), repeated here as (122) for convenience:

(122) Hun   bliver passet   på.   (pseudo passive)
       she.NOM is   taken.care of
       'She is taken care of.'

In order to do this we provide some background information about the analysis of sentences with prepositional objects in HPSG and explain the active example in (123):

(123) Han   passer   på hende.
       he.NOM takes.care of her
       'He takes care of her.'

The lexical item for the stem of *passer* ('to take care') is given in (124):

(124) Lexical item for *pass-* ('to take care'):

$$\begin{bmatrix} \text{SYNSEM|LOC} & \begin{bmatrix} \text{CAT} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \text{DA} & \langle \boxed{1} \rangle \\ verb \end{bmatrix} \\ \text{ARG-ST} & \langle \boxed{1}\text{ NP}[str]_{\boxed{2}}, \text{PP}[\text{PFORM } p\mathring{a}]_{\boxed{3}} \rangle \end{bmatrix} \\ \text{CONT} & \begin{bmatrix} \text{IND} & \boxed{4}\ event \end{bmatrix} \end{bmatrix} \\ \text{RELS} & \left\langle \begin{bmatrix} \text{EVENT} & \boxed{4} \\ \text{AGENT} & \boxed{2} \\ \text{THEME} & \boxed{3} \\ take\text{-}care\text{-}of \end{bmatrix} \right\rangle \\ stem \end{bmatrix}$$

This lexical item selects a subject and a prepositional phrase. It is sometimes assumed that prepositional objects are NPs and the preposition is a marker that contributes a certain marking value that can be selected by the governing head (Abeillé et al. 2006: Section 3.3), but since Danish allows for preposition stranding (see (33b) and the analysis of this sentence in Figure 8.6 below), a marker analysis would be counter-intuitive, since

---

[100] Tseng (2007: p. 279, fn. 8) remarks that he would need a disjunctive specification of the prepositional arguments in order to ensure the correct linking between preposition and semantics in the output. If the semantics of the preposition in the input and the output is shared as in the lexical rule above, linking is accounted for. It is just preserved from the input to the output and no additional stipulations are necessary.

the marker would mark a non-overt head. See also Pollard & Sag (1994: p. 45) for a brief remark on the inappropriateness of marker analyses for languages that allow for stranding.

Prepositions that can be used in complement PPs have a feature PFORM. (125) shows the lexical item for *på*:

(125)   Lexical item for the preposition *på* for marking prepositional objects:

$$
\begin{bmatrix}
\text{SYNSEM|LOC}
\begin{bmatrix}
\text{CAT}
\begin{bmatrix}
\text{HEAD}
\begin{bmatrix}
\text{PFORM} \quad på \\
prep
\end{bmatrix} \\
\text{COMPS} \left\langle \text{NP}[str]_{\boxed{2}} \right\rangle
\end{bmatrix} \\
\text{CONT}
\begin{bmatrix}
\text{IND} \ \boxed{2}
\end{bmatrix}
\end{bmatrix} \\
\text{RELS} \ \langle \rangle \\
word
\end{bmatrix}
$$

Since the PFORM feature is a head feature, it is projected and therefore is available at the PP node. The preposition does not contribute semantically but is just a marker. Hence the RELS list is the empty list. Note however that the referential index of the NP argument is identified with the referential index of the preposition. It is therefore possible that verbs that take a *på*-PP assign a semantic role to the NP inside of the PP by just referring to the referential index of the PP.

The lexical item does not contain any information about case assignment. NPs in prepositional phrases are always accusative in Danish. Hence, Danish differs from languages like German in which the case of the NP inside of a prepositional object is determined by the governing verb (see Section 8.3.4). We assume that the case of an NP inside of a prepositional object is a structural case that is assigned by the Case Principle. The Case Principle enforces the accusative for non-raised NPs.

Figure 8.4 on the following page shows the analysis of the sentence in (123).

The lexical rule in (121) licenses the following lexical item for *passet*:

(126)   *passet*:

$$
\begin{bmatrix}
\text{SYNSEM|LOC}
\begin{bmatrix}
\text{CAT}
\begin{bmatrix}
\text{HEAD}
\begin{bmatrix}
\text{DA} \ \left\langle \text{NP}[str]_{\boxed{2}} \right\rangle \\
verb
\end{bmatrix} \\
\text{ARG-ST} \ \left\langle \boxed{5}\text{NP}[str]_{\boxed{3}}, \text{P}[\text{PFORM} \ på, \text{COMPS} \ \langle \boxed{5}\text{NP} \rangle]_{\boxed{3}} \right\rangle
\end{bmatrix} \\
\text{CONT}
\begin{bmatrix}
\text{IND} \ \boxed{4} \ event
\end{bmatrix}
\end{bmatrix} \\
\text{RELS} \ \left\langle
\begin{bmatrix}
\text{EVENT} \ \boxed{4} \\
\text{AGENT} \ \boxed{2} \\
\text{THEME} \ \boxed{3} \\
take\text{-}care\text{-}of
\end{bmatrix}
\right\rangle
\end{bmatrix}
$$

Figure 8.4: Analysis of *Han passer på hende.* ('He takes care of her.')

Instead of selecting a full PP as argument the verb in (126) selects a preposition that selects for an NP ($\boxed{5}$). This NP is also the first element of the ARG-ST list. The mapping principles map this NP onto the SPR list and the preposition onto the COMPS list.

The analysis of (127) is shown in Figure 8.5 on the next page.

(127)   Hun   bliver passet   på.   (pseudo passive)
        she.NOM is   taken.care of
        'She is taken care of.'

The argument of the preposition ($\boxed{1}$) is raised and hence does not get case in the prepositional domain. Since it is the first element in the ARG-ST list of *passer* it gets nominative and it is mapped to the SPR list of *passer*.

As was discussed in the data section, verbs with PP complements also allow for an impersonal passive. When the lexical item in (124) serves as input for the lexical rule in (118), the subject is suppressed and only the PP object remains on the ARG-ST list. In the mapping to the valence features an expletive is inserted. As a result we get a lexical item with the following ARG-ST, DA and valence features:

(128)

	ARG-ST	DA	SPR	COMPS
passet (unerg):	$\langle$ PP[PFORM *på*] $\rangle$	$\langle$ NP[*str*] $\rangle$	$\langle$ NP[*str*]$_{expl}$ $\rangle$	$\langle$ PP[PFORM *på*] $\rangle$

This lexical item can be used to analyze the impersonal passive in (33b), which is repeated here as (129):

(129)   Hende$_i$ bliver der   passet   på $_{-i}$.   (impersonal passive)
        her.ACC is   there taken.care of
        'There is taken care of her.'

S
└ ① NP[*nom*] VP[SPR ⟨ ① ⟩]
   │   └ V[SPR ⟨ ① ⟩,   ② VP[SPR ⟨ ① ⟩]
   │   COMPS ⟨ ② ⟩]   └ V[SPR ⟨ ① ⟩,   ③ P[PFORM *på*,
   │   COMPS ⟨ ③ ⟩]   COMPS ⟨ ① ⟩]
   hun   bliver   passer   på
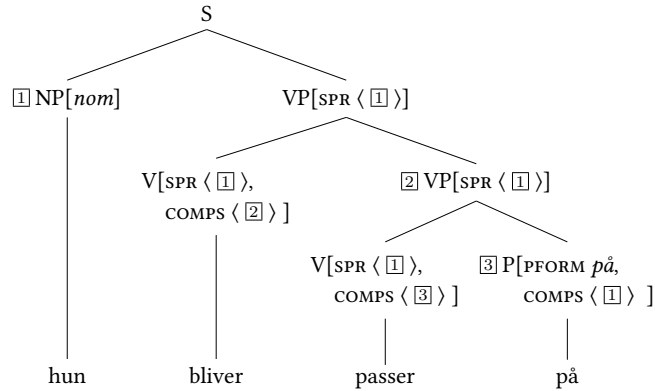
Figure 8.5: Analysis of *Hun bliver passet på.* ('She is taken care of.')

The analysis of (129) is shown in Figure 8.6 on the following page. *passet* selects for a PP object (②) and an expletive subject (③). The PP object consists of a preposition that takes an NP as argument. This NP is case marked by the preposition. Since it is a trace the information about the missing element is percolated up the tree as the value of SLASH (①). Since we have a verb second sentence, the finite verb *bliver* ('is') is not combined directly with the passive VP but a verbal trace is. The projection of the verbal trace is combined with the subject *der* ('there') and the resulting sentence is combined with the verb *bliver* in initial position. In a last step the SLASH value is bound off and a complete sentence results.

8.2.7 The *get* Construction

8.2.8 Adjectival Participles

8.3 Other Languages

In this chapter we have shown that there are considerable differences between passivization in German and Danish. Danish has two kinds of passives: the morphological and the analytical passive, with distinct semantic and pragmatic properties. German only has an analytical passive. Moreover Danish has the prepositional passive allowing the complement of a preposition to be raised to subject. This is not observed in German. This difference is accounted for by considerations regarding case assignment in Section 8.3.4. Also there is variation in the kinds of verbs allowing passives. In Danish also state verbs such as *eje* ('to possess'), *vide* ('to know') and *have* ('to have') allow passives. Finally we showed that Danish, just like German, has a passive with the auxiliary *få* ('to get')

S[SLASH ⟨ ⟩]
└ NP①[*acc*]   S[SLASH ⟨ ① ⟩]
   │   └ V[COMPS ⟨ ② ⟩]   ② S//V[SLASH ⟨ ① ⟩]
   │   │   └ ③ NP   VP//V[SPR ⟨ ③ ⟩, SLASH ⟨ ① ⟩]
   │   │   │   └ V//V   VP[SPR ⟨ ③ ⟩, SLASH ⟨ ① ⟩]
   │   │   │   │   └ V[SPR ⟨ ③ ⟩,   ② PP[PFORM *på*, SLASH ⟨ ① ⟩]
   │   │   │   │   COMPS ⟨ ② ⟩]   └ P[PFORM *på*,   ④ NP①[*acc*,
   │   │   │   │   COMPS ⟨ ④ ⟩]   SLASH ⟨ ① ⟩]
   hende   bliver   der   _   passet   på   _
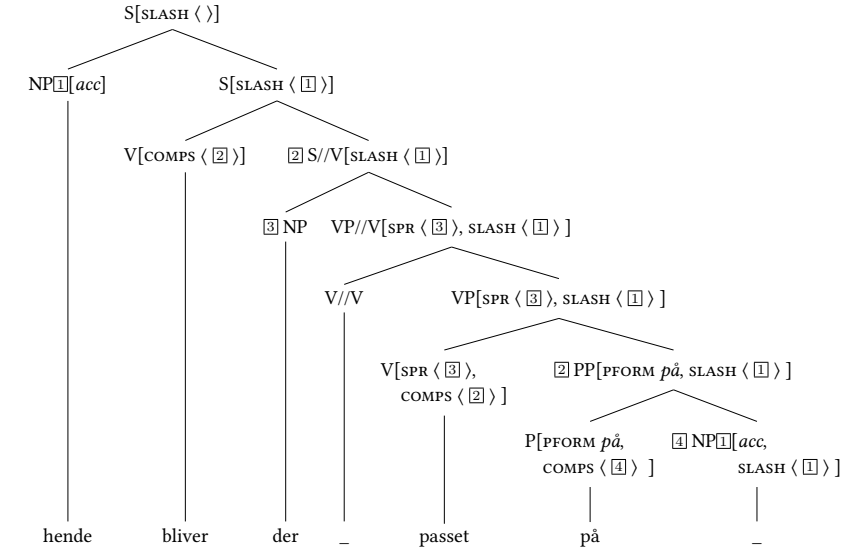
Figure 8.6: Analysis of *Hun bliver passet på.* ('She is taken care of.')

where the indirect object of a ditransitive verb is raised to object. An interesting outcome of the discussion is also that Danish has to distinguish active from passive participles, motivated by the fact that Danish distinguishes two different expletives and also allows passives to raise subject of embedded verbal complements. German does not distinguish two kinds of expletives and does not allow subject-to-subject-raising in passives. Therefore it is possible to treat the German past participle as unspecified for voice. This issue will be discussed more thoroughly in Section 8.3.5.

It is interesting to note that the personal and impersonal passives of all three languages can be described with the lexical rule given in (118). The differences between the languages under examination can be explained by differences in the case systems of the languages (dative or not), by differences between structural and lexical cases of secondary objects, by differences in mappings from ARG-ST to the valence features (insertion of an expletive or not) and by presence or absence of verbal complexes. The following section deals with a generalization of the passive auxiliary that makes it usable in grammars of German and after this we turn to impersonal passives and passives of ditransitives.

8.3.1 The Passive Auxiliary

The lexical item for the passive auxiliary is similar for all three languages: The passive auxiliary is a raising verb:

(130)   Passive auxiliary for Danish, German and English:

$$
\left[\text{SYNSEM|LOC|CAT|ARG-ST } \boxed{1} \oplus \boxed{2} \oplus \left\langle \begin{bmatrix} \text{DA} & \left\langle \text{XP}_{ref} \right\rangle \\ \text{SUBJ} & \boxed{1} \\ \text{COMPS} & \boxed{2} \end{bmatrix} \right\rangle \right]
$$

German forms a predicate complex, that is, a complex consisting of the participle and the passive auxiliary. The arguments of the participle ($\boxed{1}$ and $\boxed{2}$) are attracted by the passive auxiliary (see Hinrichs & Nakazawa (1989) on argument attraction). The formation of such predicate complexes is licensed by a special schema, the Head-Cluster Schema that allows non-head daughters to be unsaturated. Danish and English do not allow for complex formation. The respective grammars do not have a Head-Cluster Schema and hence the only way the passive auxiliary can be combined with the participle is via the Head-Complement Schema. Therefore the verbal argument has to have an empty COMPS list, that is, for Danish and English $\boxed{2}$ in (130) is the empty list.

8.3.2 Impersonal Passives

German differs from Danish and English in having a dative case. The dative is assumed to be a lexical case, which explains why the dative does not change under passivization:

(131)   a.   weil   der Mann   ihm   geholfen hat
             because the man.NOM him.DAT helped   has
             'because the man has helped him'

        b.   weil   ihm   geholfen wurde
             because him.DAT helped   was
             'because he was helped'

The passive construction in (131b) is an impersonal passive. The object of Danish *hjælpe* ('to help') and English *help* is an NP with structural case and hence the passives are normal personal passives in which this object is promoted to subject. (132a) shows the Danish and (132b) the English example:

(132)   a.   at   han bliver hjulpet
             that he   was   helped

        b.   that he was helped

The ARG-ST values for the verb *help* in Danish, German, and English are given in (133):

(133)   ARG-ST

        a. hjælpe: ⟨ NP[*str*], NP[*str*] ⟩

        b. helfen: ⟨ NP[*str*], NP[*ldat*] ⟩

        c. help: ⟨ NP[*str*], NP[*str*] ⟩

As we saw in Section 8.2.4 Danish inserts an expletive in impersonal passives. Danish shares the subject requirement with English, but English does not use this fix for the subject requirement. Instead impersonal passives are ruled out altogether. German is an SOV language and does not require a subject. The arguments are mapped from ARG-ST to the valence features directly without the insertion of an expletive.

8.3.3 Passives of Ditransitives

While German and English do not allow for the promotion of the indirect object to subject in passives with the cannonical auxiliary, both the direct and indirect object can be promoted to subject in Danish. The following German examples show, that the dative object cannot be promoted to subject in passives with *werden*:

(134)   a.   weil   der Mann   dem Jungen den Ball   schenkt
             because the man.NOM the   boy.DAT the ball.ACC gives.as.a.present
             'because the man gives the boy the ball as a present'

        b.   weil   dem Jungen der Ball   geschenkt   wurde
             because the   boy.DAT the ball.NOM given.as.a.present was
             'because the boy was given the ball as a present'

        c. * weil   der Junge   den Ball   geschenkt   wurde
             because the boy.NOM the ball.ACC given.as.a.present was
             Intended: 'because the ball was given to the boy as a present'

The same is true for the indirect object in English: While the direct object can be promoted to subject as in (135a), promoting the indirect object as in (135b) is ungrammatical.[101]

(135)   a.   because the boy was given the ball

        b.   * because the ball was given the boy

The intended information structural effect can be reached though by using the dative shift construction in (136a) and passivizing the verb that takes an NP and a PP object:

(136)   a.   because the man gave the ball to the boy

        b.   becaue the ball was given to the boy

This situation is covered by the following ARG-ST specifications:

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[101] Such passivizations are possible in some English dialects. We assume that these dialects can be analyzed in parallel to the analysis of Danish that we suggest below.

(137)   ARG-ST

    a. giv: ⟨ NP[*str*], NP[*str*], NP[*str*]⟩

    b. geben: ⟨ NP[*str*], NP[*str*], NP[*ldat*]⟩

    c. give: ⟨ NP[*str*], NP[*str*], NP[*lacc*]⟩

Danish has three NPs with structural case (137a). The first is the subject, which is suppressed in the passive. Since the two objects have structural case either of them can be promoted to subject. Since the secondary object in German (137b) and English (137c) have lexical case they cannot be promoted to subject.

8.3.4 Case in Prepositional Objects and the Prepositional Passive

As was noted in the introduction, German does not allow for the Prepositional Passive.

(138)   * Das Buch wurde gearbeitet an.
      the book was   worked   on
      Intended: 'The book was worked on.'

This is explained by the assumption that the case of NPs inside of prepositional objects is lexical. This may seem as an ad hoc stipulation to get the facts right, but there is independent evidence for such an assumption. As was pointed out by Eisenberg (1994: p. 78) the case of an NP in a prepositional object can be either dative as in (139a) or accusative as in (139b):

(139)   a. Sie hängt an ihrer elektrischen Eisenbahn.
        she hangs at her electric   railway.DAT

    b. Sie denkt an ihre Vergangenheit.
       she thinks of her past.ACC

Müller (1999a: p. 277) used these examples to argue against analyses like the one of Haider (1985: p. 82) that assume that prepositional objects always contain accusative NPs and treat this case as structural. Müller argued for a uniform treatment of all NPs in prepositional phrases as bearing lexical case. If one requires that the result of the prepositional passive lexical rule is a personal construction, that is one with a subject and hence with an NP with structural case, it follows that prepositional passives are excluded for German since arguments of prepositions have a fixed case and hence cannot be raised to subjects.

8.3.5 Perfect

The highlight of the analyses for German is that only one participle is needed for both the analysis of the passive and the analysis of the perfect (Haider 1986a). The trick is that the designated argument is blocked but represented in the lexical item of the participle. The passive auxiliary leaves the designated argument blocked, while the perfect auxiliary

deblocks it. So, in addition to the passive in (140a) we have the perfect in (140b) and both sentences involve the same lexical item for *gelesen* ('read'):

(140)   a. Der Aufsatz   wurde gelesen.
        the paper.NOM was   read
        'The paper was read.'

    b. Er hat den Aufsatz gelesen.
       he has the paper   read
       'He read the paper.'

Unless one wants to assume a complex predicate analysis like the one depicted in (141a) for Danish and English perfect constructions one is forced to assume a separate lexical item for the perfect, since the argument realization in a passive VP is different from the one in the active VP (141b,c).[102]

(141)   a. He [has given] the book to Mary.
    b. He has [given the book to Mary].
    c. The book was [given to Mary].

Furthermore, the ARG-ST mapping constraints for Danish introduce an expletive argument into the SPR list of participles and this expletive argument would be in the way in the perfect:

(142)   a.   at   der bliver arbejdet
         that EXPL is   worked

    b. * at   Peter har arbejdet der
         that Peter has worked   EXPL

    c. * at   der har arbejdet Peter
         that EXPL has worked Peter

Again the problem can be solved, but there are consequences: It could be suggested that the perfect auxiliary concatenates the designated argument of the embedded verb to the

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[102] Note that such an analysis would be possible in principle given the analyses that were suggested for German by Müller (1996b, 1999a, 2002) and Meurers (1999a). Although classical constituency tests seem to argue against such a structure, the analysis that was developed for partial verb phrase fronting in German gets the facts right. For instance the fronting in (i) can be explained since *has* would just attract the arguments of the embedded participle. When the particle is not fronted as in (141a), the participle is required to be LEX +, that is, it has to be a lexical constituent without any arguments. However, this requirement does not hold in nonlocal dependencies since LEX is represented under SYNSEM rather than LOC and hence restrictions regarding LEX are not shared in nonlocal dependencies. The result is that *given the book to Mary* can be a filler for the complement of *has* in (i):

    (i)   He wanted to give the book to Mary and given the book to Mary, he has.

A language particular constraint for English requires fillers to have an empty COMPS list, but this would be independent of the requirements of the auxiliary *has*.
However, due to the evidence from complex passives to be discussed next, we decided to not pursue this route any further, although a unified analysis seems to be highly desirable.

ARG-ST list of the embedded verb rather then concatenationg the DA and the valence lists. Since the expletive is present on the valence lists only, the problem would be solved.

There is another area in the grammar of Danish that requires one to distinguish between active and passive participles. The complex passive (see Section 9.1.3) raises a subject from the embedded participle to the higher clause.

(143) at   Bilen   blev forsøgt repareret
       that car.DEF was tried   repaired
       'that an attempt was made to repair the car'

This raising is possible despite the fact that the matrix predicate is not a raising predicate in the active. A verb like *forsøgt* does not even take a participle in the active:

(144) a.   at   Peter har forsøgt at reparere bilen
            that Peter has tried   to repair car.DEF
            'that Peter tried to repair the car'
       b. * at   Peter har forsøgt repareret bilen
            that Peter has tried   repaired car.DEF
            Intended: 'that Peter tried to repair the car'

This difference could be captured by assuming a VOICE feature, whose value is *passive* for participles like *forsøgt* in (143). The perfect auxiliary would require participles with the VOICE value *active* and hence rule out the embedding of passive participles as in (144b). All participles licensed by the passive lexical rule in (118) would be underspecified for VOICE and hence be compatible with both the passive and the perfect auxiliary.

However, there remains one crucial problem which seems unsolvable: The perfect interacts with (partial) fronting. Meurers (1999b) and Meurers & De Kuthy (2001) found a way to deal with case assignment into fronted VPs and hence can account for all the items in (145):

(145) a. Gelesen wurde der Aufsatz   schon oft.
           read   was   the paper.NOM yet   often
           'The paper was read often.'
       b. Der Aufsatz   gelesen wurde schon oft.
           the paper.NOM read   was   yet   often
           'The paper was read often.'
       c. Den Aufsatz   gelesen hat er schon oft.
           the paper.ACC read   has he yet   often
           'He read the paper often.'

In the analysis all objects are mapped to the COMPS list and can be realized preverbelly independet of their status as subject in (145b) or object (145c). But this analysis does not extend to English/Danish, since the most prominent element of the ARG-ST of the participle has to be mapped to SPR list in the passive (146a) and to the COMPS list in the active:

(146) a. The book should have been given to Mary and
           [given to Mary] it was.
       b. He wanted to give the book to Mary and
           [given the book to Mary] he has.

So there does not seem to be a way to underspecify the active/passive distinction in the participle in SVO languages like English and Danish.

However, as was discussed above, the analysis of the German passive and perfect can be maintained and is compatible with a more general analysis that also captures the passive in Danish and English.

8.4 Alternatives

We will discuss two fundamentally different kinds of alternative analyses in this section. The first group is movement-based analyses as they are common in GB/Minimalism. One such approach is discussed in Section 8.4.1. The other group of analyses assumes that structure sharing of valence features is the appropriate tool for describing argument alternations. Such analyses are generally assumed in frameworks like LFG and HPSG. There are several different passive analyses in the framework of HPSG by now. The approaches by Kathol (1991, 1994), Pollard (1994), and Ryu (1997) are discussed in Müller (2002: Section 3.3) and the discussion will not be repeated here. However, there are two interesting new proposals that have to be discussed here: the first one by Tseng (2007) regards passive in English and makes fundamental assumptions that differ enormously from what is stardardly assumed in lexicalist theories like HPSG is the topic of Section 8.4.2. The second approach is by Bjerre & Bjerre (2007) and deals explicitly with Danish. This proposal is discussed in Section 8.4.3.

8.4.1 Movement-Based Approaches

The standard analysis of passive in GB/Minimalism is movement-based. It is assumed that finite INFL assigns nominative to subjects and that verbs assign accusative to their objects with structural case (Chomsky 1981b: p. 50; Haider 1984: p. 26; Fanselow & Felix 1987: p. 71–73). There is a Case Filter that rules out structures with NPs that did not get a case assigned. The main idea is that the passive morphology blocks the assignment of accusative to an object and suppresses the subject. In order for the object to receive case it has to move to another case-assigning position, namely the specifier position of IP where it gets nominative from the finite verb (Chomsky 1981b: p. 124).

This approach works well for English: The subject of (147a) *the mother* is suppressed and the object *the girl* moves to the subject position:

(147) a.   The mother gave [the girl] [a cookie].
       b.   [The girl] was given [a cookie] (by the mother).
       c. * It was given [the girl] [a cookie].

As (147c) shows the subject requirement cannot be met by inserting an expletive, hence *the girl* has to be realized as a subject and (147b) is the only option.

However, such a movement is not obligatory in German (Lenerz 1977: Section 4.4.3):

(148) a. weil   das Mädchen dem Jungen   den Ball   schenkt
           because the girl.NOM the boy.DAT the ball.ACC gives
           'because the girl gave the boy the ball as a present'

       b. weil   dem Jungen   der Ball   geschenkt wurde
           because the boy.DAT the ball.NOM   given   was

       c. weil   der Ball   dem Jungen   geschenkt wurde
           because the ball.NOM the   boy.DAT given   was

While (148c) is possible, the unmarked order is the one in (148b), in which the animate NP precedes the inanimate one. So, for (148c) a reordering analysis would be plausible, but for (148b) it is not. Grewendorf (1988: p. 157; 1993: p. 1311), Fortmann (1996: p. 27), Lohnstein (To appear) and many others nevertheless assume a movement analysis for (148b) but claim that the movement is abstract/covert, that is invisible. The subject position is filled by an invisible expletive that gets the nominative case, which is then transferred to the subject *der Ball*.

Grewendorf (1993: p. 1311), Koster (1986: p. 11–12), and Lohnstein (To appear) assume that empty expletives also play a role in impersonal passives in German and Dutch. We believe that empty expletives are frightening creatures that were introduced into the theory only to safe the uniformity of structures. If one drops the universal claim that every clause has to have a subject, one is not forced to assume such abstract entities and the differences between the languages under discussion immediately follow: English and Danish require a subject (since they are SVO languages) and German and Dutch being SOV languages do not.[103] Personal and impersonal passives are simply the suppression of the subject in all four languages. The "movement" of the subject is a consequence of the fact that the SVO languages encode the subject relation configurationally but in principle this reordering is independent of what is at the core of the passive phenomenon.

8.4.2 Tseng (2007)

While the standard analysis of passive is a lexical one in the framework of HPSG, Tseng (2007: Section 3.1) suggests an analysis in which the valence information is reorganized in syntax. For the personal passive in English he suggests the schema in Figure 8.7 on the next page. This construction takes a word or phrase that selects for a subject and an object and changes the valence properties of the word or phrase in such a way that the new subject is linked to the former object and a *by*-PP is selected as complement that is coindexed with the subject of the dominated word or phrase. The schema would apply to the word *read* in (149a) and to the phrase *given the ball* in (149b).

$$\begin{bmatrix} \text{VFORM} & passive \\ \text{SUBJ} & \langle\, \text{NP}_{\boxed{1}} \,\rangle \\ \text{COMPS} & \langle\, (\text{PP}[by]_{\boxed{2}})\, \rangle \\ np\text{-}passive\text{-}cx \end{bmatrix}$$

$$\begin{bmatrix} \text{VFORM} & psp \\ \text{SUBJ} & \langle\, \text{NP}_{\boxed{2}} \,\rangle \\ \text{COMPS} & \langle\, \text{NP}_{\boxed{1}} \,\rangle \end{bmatrix}$$
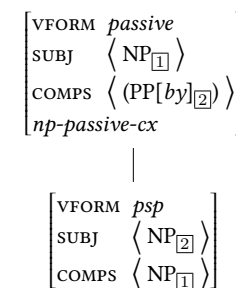
Figure 8.7: Schema for passive according to Tseng (2007)

(149) a. The book was read by Mary.
       b. The boy was given the ball.

Tseng provides two further schemata to deal with prepositional passives: one for complement prepositions and one for adjunct prepositions.

There are three major problems with his proposal: first, it is too specific and rules out the passivization of predicates with object clauses, second the status of intermediate phrases is unclear, and third the interaction with derivational morphology. The last point was already discussed in Section 8.1.10 and the other points will be addressed in turn.

8.4.2.1 Sentential Objects

The rule does not account for passives in which a sentential object is realized as a subject:

(150) That the earth is round was not believed.[104]

The specification of the daughter could be made more general to allow for sentential objects, but this is not as trivial as it seems, since one cannot simply specify the element in the downstairs COMPS list to be NP ∨ S, since the value of the upstairs SUBJ element depends on which disjunct is actually present. So, one either has to assume distributed disjunctions (if disjunct one is chosen downstairs, choose disjunct one upstairs) or to have to specify two independent schemata one for NP objects and another one for clausal objects. In the approach suggested here nothing special has to be said for sentential objects: Since the least oblique element is suppressed the sentential objects will be the first element on the ARG-ST list and hence they will be mapped to the SPR list. The mapping constraints are rather general and independent of the analysis of passive. They apply to active verbs that select a sentential subject as well.

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[103] See also Koster (1986: p. 12) for similar conclusions. However, Koster assumes empty expletive subjects. According to him the difference is whether empty expletives are allowed (German, Dutch) or not (Danish, English).

[104] Dalrymple & Lødrup (2000: p. 108).

8.4.2.2 The Status of Intermediate Phrases

In order for the passive schema to be applicable, it must be possible to derive a phrase *given the ball* with a verb that selects two complements as in (151):

 (151)   He has given the boy the ball.

However, such a phrase is usually not licensed by any grammar for English. Pollard & Sag (1994) and most following work assume flat structures in which a V^0 is combined with all its complements and even if one assumes binary branching structures as in this book, *given the ball* would never be licensed as a constituent. So in order to license this constituent one would need a separate schema that basically combines an active item with its arguments as if it was a passive item. This schema would behave like a combination of our passive lexical rule (argument reducing) plus the normal combinatory schemata. Since the schema in Figure 8.7 is needed in addition, the analysis is more complex than the lexical one.

   So, concluding the discussion, it must be said that the constructional analysis has no account of the morphological data that was discussed in Section 8.1.10, it cannot account for sentential subjects in passive constructions without duplicating or considerably complicating the schemata and it needs additional schemata to license constituents that are usually not assumed in grammars of English.

8.4.3 Bjerre & Bjerre (2007)

8.5 Conclusion

This chapter has described passivization as suppression of the most prominent argument. Furthermore it has introduced the distinction between personal and impersonal passives and the distinction between the morphological and the analytical passive. It has also discussed the constraints on the verbs forming passives. Considerable space was devoted to the so-called *get*-passive. It was shown that two kinds of passive-like *get*-constructions can be discerned: the first one termed the Possessor *get*-Construction has a main verb *få* ('to get') which forms a kind of complex predicate with the embedded participle. The other one termed the Passive *get*-Construction occurs with the verb *få* ('to get') as an auxiliary and a past participle based on a ditransitive verb. The crucial difference is that Possessor-*get* has a thematic subject while Passive-*get* does not. The next chapter will discuss raising in passives, i. e. verbs that become subject-to-subject raising verbs in the passive.

A List of Phrases Covered/Rejected by the Grammar

NP + definiteness marking

(1) bogen
     book.DEF
     'the book'

(2) bøgerne
     book.DEF.PL
     'the books'

(3) den bog
     the book
     'the book'

(4) * den bogen
     the book.DEF

NP + Agreement

(5) * de   bog
     the.PL book

(6) de   bøger
     the.PL books
     'the books'

(7) * en bøger
     a books

NP + Adjective + Agreement

(8) den kloge   bog
     the smart.DEF book
     'the smart book'

(9) en klog   bog
     a smart.INDEF book
     'a smart book'

(10) * den klog   bog
     the smart.INDEF book

(11) * en kloge   bog
     a smart.DEF book

NP + Adjective

Possessives + NP + Agreement

(12) min   bog
     my.COMMON book.COMMON
     'my book'

(13) * mit   bog
     my.NEU book.COMMON

(14) * min   barn
     my.COMON child.NEU

(15) mit   barn
     my.NEU child.NEU
     'my child'

(16) * min   bogen
     my.COMMON book.COMMON.DEF

(17) * min   bøger
     my.COMMON.SG books.DEF

(18) * mit   bøger
     my.NEU.SG books.COMMON

(19) mine   bøger
     my.NEU.PL books.COMMON
     'my books'

(20) hans bog
     his book.COMMON
     'his book'

(21) hans barn
      hos child.NEU
      'his child'

(22) vores bog
      our   book.COMMON
      'our book'

(23) vores barn
      our   child.NEU
      'our child'

(24) Bjarne læser vores bog.
      Bjarne reads our   book
      'Bjrane reads our book.'

Tense

(25) Bjarne læser en bog.
      Bjarne reads a   book
      'Bjarne is reading a book'

(26) Bjarne læste en bog.
      Bjarne read a   book
      'Bjarne read a book'

Tense + Perfect

(27) Bjarne har læst bogen.
      Bjarne has read bog.DEF
      'Bjarne has read the book.'

(28) at   Peter har forsøgt to reparere bilen
      that Peter has tried   to repair   car.DEF
      'that Peter has tried to repair the car'

Tense + Perfect + VP Fronting

(29) Læst bogen   har Bjarne.
      read book.DEF has Bjarne
      'Bjarne has read the book.'

Constituent Order

(30) Bjarne læser ikke en bog.
      Bjarne reads not a   book
      'Bjarne is not reading a book'

(31) at   Bjarne læste en bog
      that Bjarne read a   book
      'that Bjarne read a book'

(32) Peter tror,   at   Bjarne ikke læste en bog.
      Peter believes that Bjarne not read a   book
      'Peter believes that Bjarne did not read a book.'

(33) at   Bjarne ikke giver Max bogen
      that Bjarne not gives Max book.DEF
      'that Bjarne does not give the book to Max'

(34) * at   Bjarne ikke giver bogen   Max
      that Bjarne not gives book.DEF Max

V2

(35) Bogen   læser Bjarne.
      book.DEF reads Bjarne
      'The book, Bjarne reads.'

(36) * Bogen   Bjarne læser.
      book.DEF Bjarne reads
      'The book, Bjarne reads.'

(37) Bogen   giver Bjarne manden.
      book.DEF gives Bjarne man.DEF
      'The book, Bjarne gives to the man.'

(38) * Manden   giver bogen   Bjarne.
      man.DEF gives book.DEF Bjarne

(39) Nu   læser Bjarne bogen.
      now reads Bjarne book.DEF
      'Now, Bjarne reads the book.'

(40) * Nu   Bjarne læser bogen.
      now Bjarne reads book.DEF

(41) Bogen   forsøger Bjarne at læse.
      book.DEF tries   Bjarne to read
      'The book, Bjarne tries to read.'

(42) * Læse bogen   forsøger Bjarne at
       read book.DEF tries   Bjarne to

V2 + case

(43) Han   læser bogen.
      he.nom reads book.DEF
      'He reads the book.'

(44) * Ham   læser bogen.
      he.acc reads book.DEF

(45) Ham   tror   jeg vinder.
      he.acc think I   wins
      'As for him, I think he wins.'

(46) * Han   tror   jeg vinder.
      he.nom think I   wins

(47) Ham   tror   jeg du   kender.
      he.acc think I   you know
      'As for him, I think you know him.'

(48) * Han   tror   jeg du   kender.
      he.nom think I   you know

V2 + case + coordination

(49) Ham   elsker Max og   hader Peter.
      he.acc loves Max and hates Peter
      'As for him, Max loves him and Peter hates him.'

(50) Han   elsker Max og   hader Peter.
      he.nom loves Max and hates Peter
      'He loves Max and hates Peter.'

Vbase + case

(51) at   han   læser bogen
      that he.nom reads book.DEF
      'that he reads the book.'

(52) * at   ham   læser bogen
      that he.acc reads book.DEF

that trace

(53) Bjarne tror   jeg vinder.
      Bjarne think I   wins
      'As for him, I think he is going to win.'

(54) * Bjarne tror   jeg at   vinder.
      Bjarne think I   that wins

Questions

(55) Giver Bjarne manden   bogen?
      gives Bjarne man.DEF book.DEF

(56) * Giver Bjarne bogen   manden?
      gives Bjarne book.DEF man.DEF

Predicational structures

(57) Max er vinderen.
      Max is winner.DEF
      'Max is the winner.'

(58) Max er en klog   mand.
      Max is a   smart man
      'Max is a smart man.'

(59) Max er ikke vinderen.
      Max is not   winner.DEF
      'Max is not the winner.'

(60) Vinderen   er Max ikke.
      winner.DEF is Max not
      'The winner, Max is not.'

(61) at   Max er vinderen
      that Max is winner.DEF
      'that Max is the winner'

Predicational structures + adjective + agreement

(62) Drengen er stor.
      boy.DEF is big
      'The boy is big.'

(63)   Huset   er stort.
house.DEF is big
'The house is big.'

(64)   Drengene er store.
boy.DEF.PL are big
'The boys are big.'

(65)   Han er tro   hende.
he is faithful her
'He is faithful to her.'

(66)   * Han er hende tro.
he is her   faithful
'He is faithful to her.'

Predicational structures + adjective

(67)   Max er klog.
Max is smart
'Max is smart.'

(68)   Klog er Max ikke.
smart is Max not
'Max is not smart.'

Specificational structures

(69)   Vinderen   er ikke Max.
winner.DEF is not Max
'The winner is Max.'

(70)   * Klog er ikke Max.
smart is not Max
'Max is not smart.'

(71)   * at   klog er Max
that smart is Max

coordination

(72)   Bjarne og Max arbejder.
Bjarne and Max work

(73)   * Bjarne arbejder og.
Bjarne works   and

(74)   Bjarne læser bogen   og avisen.
Bjarne reads book.DEF and newspaper.DEF
'Bjarne reads the boog and the newspaper.'

(75)   Bjarne kender ham og hans kone.
Bjarne knows him and his   wife
'Bjarne knows him and his wife.'

(76)   Jeg elsker bogen   og Peter hader avisen.
I   like   book.DEF and Pater hates newspaper.DEF
'I like the book and Peter hates the newspaper.'

coordination + predicational structures

(77)   Max er klog   og smuk.
Max is smart and pretty
'Max is smart and pretty.'

(78)   Max er klog   og vinderen.
Max is smart and winner.DEF
'Max is smart and the winner.'

(79)   Klog og vinderen   er Max ikke.
smart and winner.DEF is Max not
'Max isn't smart and the winner.'

coordination + specificational structures

(80)   * Klog og vinderen   er ikke Max.
smart and winner.DEF is Max not
'Max isn't smart and the winner.'

Weather Verbs

(81)   Det regner.
it   rains
'It rains.'

Passive

(82) Bogen   bliver læst.
      book.DEF is   read
      'The book was read.'

(83) At Bjarne danser, bliver påstået.
      that Bjarne dances is   claimed
      'It is claimed that Bjarne dances.'

(84) At reparere bilen,   bliver forsøgt.
      to repar   car.DEF is   tried
      'Somebody tries to repair the car.'

(85) At Bjarne danser, påståes.
      that Bjarne dances claim.PRES.PASS
      'It is claimed that Bjarne dances.'

(86) At reparere bilen,   forsøges.
      to repar   car.DEF try.PRES.PASS
      'Somebody tries to repair the car.'

(87) Der   bliver arbejdet.
      there is   worked
      'There was working.'

(88) * bliver arbejdet
        is   worked
      'There was working.'

(89) * der   blev forsvundet
        there was disappeared

(90) * Bjarne blev forsvundet
        Bjarne was disappeared

(91) * Anne blev behøvet
        Anne was needed

(92) * Bogen   was haft
        book.DEF was had

(93) at   han bliver hjælpt
      that he   was helped
      'that he was helped'

Passive + morphological

(94) Der arbejdes.
      there work.PRES.PASS
      'There was working.'

(95) Bogen   læses.
      book.DEF read.PRES.PASS
      'The book is read.'

(96) Bogen   skal læses.
      book.DEF must read.INF.PASS
      'The book must be read.'

(97) * Arbejdes
        work.PRES.PASS
      'There is working there.'

Passive + ditransitive

(98) at bogen   bliver anbefalet   ham
      that book.DEF is   recommended him
      'that the book is not recommended to him'

(99) at   han bliver anbefalet   bogen
      that he   is   recommended book.DEF
      'that the book is not recommended to him'

(100) at bogen   anbefales   ham
      that book.DEF recommend.PRES.PASS him
      'that the book is not recommended to him'

(101) at   han anbefales   bogen
      that he   recommend.PRES.PASS book.DEF
      'that the book is not recommended to him'

Passive + Weather Verb

(102) * Der regnes.

(103) * Regnes

(104) * Der bliver regnet.

Weather Verb + Perfect

(105)   Der har regnet.

Passive + Coordination

(106)   at   Anne kysses   og   danser
          that Anne kiss.PRES.PASS and dances
          'that Anne is kissed and dances'

Passive + Weather Verbs

(107)   * Der   bliver regnet.
          there is   rained

Passive + VP Fronting

(108)   Kysset bliver manden.
          kissed was   man.DEF
          'The man was kissed.'

(109)   Givet bogen bliver manden.
          given book   was   man.DEF
          'The man was given a book.'

Adjectival Participles

(110)   et forsvundet barn
          a disappeared child
          'a child that dissapeared'

(111)   den forsvundete bog
          the disappeared bog
          'the bog that disappeared'

(112)   * en danset mand
          a   danced man

(113)   en læst bog
          a   read book
          'a read book'

(114)   * en læst mand
          a   read man

(115)   * en kysset bil
          a   kissed car

Reportive Passive

(116)   at   Peter påstår at   Bjarne reparerer bilen
          that Peter claims that Bjarne repairs   car.DEF
          'that Peter claims that Bjarne repairs the car'

(117)   at   Bjarne påståes   at reparere bilen
          that Bjarne claim.PRES.PASS to repair   car
          'that it is claimed that Bjarne repairs the car'

(118)   * at   Bjarne bliver påstået at reparere bilen
          that Bjarne is   claimed to repair   car
          'that it is claimed that Bjarne repairs the car'

(119)   at   bilen   påståes   at blive repareret
          that car.DEF claim.PRES.PASS to be   repaired
          'that it is claimed that the car is repaired'

(120)   Det siges   at regne.
          it   say.PRES.PASS to rain
          'It is said that it rains.'

Complex Passive

(121)   Bilen   forsøges   at reparere.
          car.DEF try.PRES:PASS to repair
          'It was tried to repair the car.'

(122)   * at   bilen   forsøges   at reparere
          that car.DEF try.PRES:PASS to repair

(123)   Bilen   blev forsøgt repareret.
          car.DEF was tried   repaired
          'It was tried to repair the car.'

(124)   Bilen   forsøges   repareret.
          car.DEF try.PRES:PASS repaired
          'It was tried to repair the car.'

(125)   Bilen   blev lovet   forsøgt repareret.
          car.DEF was promised tried   repaired
          'As for the car, a promise was made to try to repair it.'

(126) Der   forsøges   arbejdet.
       EXPL try.PRES.PASS worked
       'It is tried to work.'

(127) Der   forsøges   arbejdet på bogen.
       EXPL try.PRES.PASS worked at book.DEF
       'It is tried to work on the book.'

(128) Der   forsøges   repareret bilen.
       EXPL try.PRES.PASS repaired car.DEF
       'It is tried to repair the car.'

Complex Passive + Perfect

(129) * at   Peter har forsøgt repareret bilen
         that Peter has tried   repaired car.DEF
         'that Peter has tried to repair the car'

(130) * en forsøgt repareret bil
         a tried   repaired car

(131) * en forsøges repareret bil
         a try.PASS repaired car

Adjuncts

(132) Bjarne læser bogen   nu.
       Bjarne reads book.DEF now
       'Bjarne reads the book now.'

(133) Bjarne læser nu   bogen.
       Bjarne reads now book.DEF
       'Bjarne now reads the book.'

(134) at   Bjarne nu   læser bogen
       that Bjarne now reads book.DEF
       'that Bjarne now reads the book'

(135) at   Bjarne læser bogen   nu
       that Bjarne reads book.DEF now
       'that Bjarne reads the book now'

(136) * at   Bjarne læser nu   bogen
         that Bjarne reads now book.DEF

(137) * Bjarne læser bogen   ikke.
         Bjarne reads book.DEF not

(138) * at   Bjarne læser bogen   ikke
         that Bjarne reads book.DEF not

(139) * at   Bjarne har nu   læst bogen
         that Bjarne has now read book.DEF
         'that Bjarne has read the book now.'

(140) at   Bjarne sandsynligvis ikke læser bogen
       that Bjarne probably   not reads book.DEF
       'that Bjarne probably does not read the book'

(141) * at   Bjarne ikke sandsynligvis læser bogen
         that Bjarne not   probably   reads book.DEF

Adjuncts + Manner Adverbs

(142) at   Bjarne læser bogen   forsigtig
       that Bjarne reads book.DEF carefully
       'that Bjarne reads the book carefully'

(143) at   Bjarne forsigtig læser bogen
       that Bjarne carefully reads book.DEF
       'that Bjarne carefully reads the book'

(144) * at   Bjarne læser forsigtig bogen
         that Bjarne reads carefully book.DEF

(145) at   Bjarne forsigtig giver Max bogen
       that Bjarne carefully gives Max book.DEF
       'that Bjarne carefully gives Max the book'

(146) at   Bjarne giver Max bogen   forsigtig
       that Bjarne gives Max book.DEF carefully
       'that Bjarne gives Max the book carefully'

(147) * at   Bjarne giver Max forsigtig bogen
         that Bjarne gives Max carefully book.DEF

(148) * at   Bjarne giver forsigtig Max bogen
         that Bjarne gives carefully Max book.DEF

(149) at   Bjarne arbejder ihærdigt på bogen
       that Bjarne works   seriously on book.DEF
       'that Bjarne works on the book seriously'

(150)　　　at　Bjarne arbejder på bogen　　　ihærdigt
　　　　　　that Bjarne works　on book.DEF seriously
　　　　　　'that Bjarne works on the book seriously'

(151)　　　at　Bjarne ihærdigt　arbejder på bogen
　　　　　　that Bjarne seriously works　on book.DEF
　　　　　　'that Bjarne works on the book seriously'

(152)　 * at　Bjarne læser nu　bogen
　　　　　　that Bjarne reads now book.DEF

(153)　　　Peter sov　ikke i　teltet.
　　　　　　Peter slept not　in tent.DEF
　　　　　　'Peter did not sleep in the tent.'

(154)　 * Peter sov　i　teltet　　ikke
　　　　　　Peter slept in tent.DEF not
　　　　　　'Peter did not sleep in the tent.'

(155)　　　at　Peter sov　i　teltet
　　　　　　that Peter slept in tent.DEF
　　　　　　'that Peter slept in the tent'

Adjuncts + Manner Adverbs + V2

(156)　　　Bjarne arbejder ihærdigt　på bogen.
　　　　　　Bjarne works　seriously on book.DEF
　　　　　　'Bjarne works on the book seriously'

Interrogatives

(157)　　　Hvem læser bogen?
　　　　　　who　reads book.DEF
　　　　　　'Who reads the book?'

(158)　　　Bjarne spørger hvad han læser.
　　　　　　Bjarne asks　　what he　reads
　　　　　　'Bjarne asks what he reads.'

(159)　　　Bjarne spørger hvem der　　læser bogen.
　　　　　　Bjarne asks　　who　EXPL reads book.DEF
　　　　　　'Bjarne asks who reads the book.'

(160)　 * Bjarne spørger hvem læser bogen.
　　　　　　Bjarne asks　　who　reads book.DEF

(161)　 * Bjarne spørger hvem der　　der　　kommer.
　　　　　　Bjarne asks　　who　EXPL EXPL comes

(162)　　　Bjarne tror　jeg arbejder.
　　　　　　Bjarne think I　　works
　　　　　　'I think Bjarne works.'

(163)　　　Bjarne tror　　at　jeg sandsynligvis arbejder.
　　　　　　Bjarne thinks that I　　work
　　　　　　'Bjarne thinks that I probably work.'

(164)　　　Bjarne tror　　jeg sandsynligvis arbejder.
　　　　　　Bjarne thinks I　　probably　　　work

(165)　　　hvem de　troede der　arbejder
　　　　　　who　they believe there works
　　　　　　'Who do they believe works?'

(166)　　　hvem de　troede arbejder
　　　　　　who　they believe works
　　　　　　'Who do they believe works?'

(167)　 * Bjarne arbejder der.
　　　　　　Bjarne works　there

(168)　 * Bjarne der　arbejder.
　　　　　　Bjarne there works

interrogatives + coordination

(169)　　　Bjarne spørger hvem der　　kommer og　synger.
　　　　　　Bjarne asks　　who　EXPL comes　and sings
　　　　　　'Bjarne asks who comes and sings.'

(170)　 * Bjarne spørger hvem kommer og　synger.
　　　　　　Bjarne asks　　who　comes　　and sings

(171)　　　Bjarne spørger hvad Max elsker og　Peter hader.
　　　　　　Bjarne asks　　what Max loves　and Peter hates
　　　　　　'Bjarne asks what Max loves and Peter hates.'

Object shift

(172)　　　Bjarne læser　　den ikke.
　　　　　　Bjarne is.reading it　not
　　　　　　'Bjarne isn't reading it.'

(173) * at   Bjarne den ikke læser
     that Bjarne it   not   is.reading

(174) Bjarne har ikke læst den.
     Bjarne has not   read it
     'Bjarne has not read it.'

(175) * Bjarne har den ikke læst
     Bjarne has it   not   read
     'Bjarne has not read it.'

(176) Har Bjarne ikke givet ham det?
     has Bjarne not   given him it
     'Hasn't Bjarne givem it to him?'

(177) Læser Bjarne den ikke?
     reads Bjarne it   not
     'Doesn't Bjarne read it?'

(178) Læser Bjarne ikke den?
     reads Bjanre not it   (stressed pronoun)
     'Doesn't Bjarne read it?'

(179) Har Bjarne ikke læst den?
     has Bjarne not   read it
     'Hasn't Bjarne read it?'

(180) * Har Bjarne den ikke læst?
     has Bjarne it   not   read

(181) * Giver Bjarne den ikke Peter?
     gives Bjarne it   not Peter

(182) Giver Bjarne ham den ikke?
     gives Bjarne him it   not
     'Doesn't Bjarne give it to him?'

(183) * Giver Bjarne den ham ikke?
     gives Bjarne it   him not

(184) Giver han ham den ikke?
     gives he   him it   not
     'Doesn't he give it to him?'

(185) ? Giver Bjarne Peter den ikke?
     gives Bjarne Peter it   not
     'Doesn't Bjarne give it to Peter?'

(186) Arbejder Bjarne ikke på den?
     works   Bjarne not at it
     'Doesn't Bjarne work on it?'

(187) * Arbejder Bjarne den ikke på
     works   Bjarne it   not   at

(188) * Arbejder Bjarne på den ikke
     works   Bjarne at it   not

(189) * Hun så   Peter aldrig
     Marit saw Peter never

(190) * Læser den Bjarne ikke
     reads it   Bjarne not

Object Shift + V Fronting

(191) Læst har Bjarne den ikke.
     read has Bjarne it   not
     'Bjarne did not read it.'

(192) * Læst har Bjarne ikke bogen
     read has Bjarne not   book.DEF

(193) * Den læst har Bjarne ikke.
     it   read has Bjarne not

(194) at   jeg ikke har   kunnet læse det
     that I   not have could   read it
     'that I could not read it.'

(195) * Kunnet læse har   jeg det ikke
     could   read have I   it   not
     'I could not read it.'

(196) Bjarne har ikke villet   læse   den.
     Bjarne has not   wanted read.INF it
     'Bjarne did not want to read it.'

(197) * Læse   har Bjarne den ikke villet.
     read.INF has Bjarne it   not   wanted

(198) Læse den har   jeg ikke villet.
     read it   have I   not   wanted
     'I have not wanted to read it.'

(199)   * Læse har   jeg ikke villet   den.
            read   have I   not   wanted it

(200)   Elskt og   læst har Bjarne det ikke.
           liked and read has Bjarne it   not
           'Bjarne has niether liked nor read it.'

Object Shift + V Fronting + Passive

(201)   Bogen   bliver ikke anbefalet   ham.
           book.DEF is   not   recommended him
           'The book is not recommended to him.'

(202)   ? Anbefalet   bliver bogen   ham ikke.
           recommened is   book.DEF him   not
           'The book is not recommended to him.'

(203)   * Anbefalet   bliver ham bogen   ikke.
           recommened is   him book.DEF not
           'The book is not recommended to him.'

(204)   Bjarne bliver ikke anbefalet   den.
           Bjarne is   not   recommended it
           'The book is not recommended to Bjarne.'

(205)   ? Anbefalet   bliver Bjarne den ikke.
           recommened is   Bjarne it   not
           'The book is not recommended to Bjarne.'

(206)   * Anbefalet   bliver den   Bjarne ikke.
           recommened is   Bjarne it   not
           'The book is not recommended to Bjarne.'

Object Shift + Coordination

(207)   Bjarne giver ikke ham eller hende bogen.
           Bjarne gives not   him or   her   book.DEF
           'Bjarne does not give the book to him or to her.'

(208)   * Bjarne giver ham eller hende ikke bogen.
           Bjarne gives him or   her   not   book.DEF
           'Bjarne does not give the book to him or to her.'

Object shift + A fronting

(209)   Tro   er han hende ikke.
           Faithful is he her   not
           'He is not faithful to her.'

V Fronting

(210)   Han skal   kunne   sove.
           he   should be.able.to sleep
           'He should be able to sleep.'

(211)   Sove   skal   han kunne.
           sleep should he   be.able.to
           'He should be able to sleep.'

(212)   ?* Kunne   sove skal   han
           be.able.to sleep should he

(213)   Læst den har han.
           read it   has he
           'He has read it.'

Negation

(214)   Jeg tror   at   ingen   sover.
           I   believe that nobody sleeps
           'I believe that nobody sleeps.'

Neg Shift

(215)   at   Bjarne ingen bog   læser
           that Bjarne no   book reads
           'that Bjarne reads no book'

(216)   * at   Bjarne læser ingen bog
           that Bjarne reads no   book

(217)   at   Bjarne ingenting læser
           that Bjarne nothing   reads
           'that Bjarne reads nothing'

(218)   * at   Bjarne læser ingenting
           that Bjarne reads nothing

(219)   at   Bjarne ingen bog har læst
         that Bjarne no   book has read
         'that Bjarne did not read any book'

(220) * at   Bjarne har ingen bog læst
         that Bjarne has no   book read

(221) * at   Bjarne har læst ingen bog
         that Bjarne has read no   book

(222)   at   Bjarne ingenting har læst
         that Bjarne nothing   has read
         'that Bjarne did not read anything'

(223) * at   Bjarne har ingenting læst
         that Bjarne has nothing   read

(224) * at   Bjarne har læst ingenting
         that Bjarne has read nothing

(225) * at   Bjarne giver Max ingenting
         that Bjarne gives Max nothing

(226) * at   Bjarne giver ingenting Max
         that Bjarne gives nothing   Max

(227)   at   Bjarne ingenting giver Max
         that Bjarne nothing   gives Max
         'that Bjarne did not give Max to Max'

(228) * at   Bjarne giver ingen   bogen
         that Bjarne gives nobody book.DEF

(229) * at   Bjarne giver bogen   ingen
         that Bjarne gives book.DEF nobody

(230) * at   Bjarne ingen   giver bogen
         that Bjarne nobody gives book.DEF

(231) ? at   Bjarne ingen   ingenting giver
         that Bjarne nobody nothing   gives
         'that Bjarne did not give anything to anybody'

(232)   at   Bjarne arbejder på ingenting
         that Bjarne works   at nothing
         'that Bjarne does not work on anything'

(233) * at   Bjarne ingenting arbejder på
         that Bjarne nothing   works   at

(234) * at   Bjarne på ingenting arbejder
         that Bjarne at nothing   works

(235)   at   Bjarne afleverer bogen   til ham
         that Bjarne delivered book.DEF to him
         'that Bjarne delivered the book to him'

(236)   at   Bjarne ingenting har afleveret til ham
         that Bjarne nothing   has delivered to him
         'that Bjarne did not deliver anything to him'

(237) * at   Bjarne ingen   har afleveret bogen   til
         that Bjarne nobody has delivered book.DEF to

Neg Shift + Complex Verb Phrase

(238)   Han har ingenting villet   læser.
         He   has nothing   wanted read
         'He did not want to read anything.'

Neg Shift + V2

(239) * John giver ingenting Sven.
         John gives nothing   Sven.
         'John did not give anything to Sven.'

(240) * Bjarne læser   ingen bog sandsynligvis.
         Bjarne is.reading no   book probably
         'Bjarne probably is reading no book.'

(241)   Bjarne læser   sandsynligvis ingen bog.
         Bjarne is.reading probably   no   book
         'Bjarne probably is reading no book.'

(242) * Bjarne har læst ingen bog.
         Bjarne has read no   book
         'Bjarne has read no book.'

(243)   Bjarne har ingen bog   læst.
         Bjarne has no   book read
         'Bjarne has read no book.'

Neg shift + V fronting

(244) *Læst har Bjarne ingen bog.
read has Bjarne no   book
'Bjarne has read no book.'

(245) *Ingen bog læst har Bjarne.
no   book read has Bjarne

(246) Bjarne har ingen bog villet   læse.
Bjarne has no   book wanted read.INF
'Bjarne has wanted to read no book.'

(247) *Læse   har Bjarne ingen bog villet.
read.INF hat Bjarne no   book wanted

Negation Preposing

(248) Peter arbejder, hvis han ikke læser en bog.
Peter works   if   he not reads a book
'Peter works, if he does not read a book.'

(249) Peter arbejder, hvis ikke han læser en bog.
Peter works   if   not he reads a book
'Peter works, if he does not read a book.'

Negation Preposing + Neg Shift

(250) Bjarne arbejder, hvis ingen bog han læser.
Bjarne works   if   no   book he reads
'Bjarne works, if he does not read a book.'

modal verbs

(251) Bjarne vil   læse den.
Bjarne wants read it
'Bjarne wants to read it.'

head specifier structures

(252) *Bjarne læst   den
Bjarne read.PPP it

Preposition Stranding

(253) Hvad arbejder Bjarne på?
what works   Bjarne on
'What does Bjarne work on?'

(254) En bog arbejder Bjarne på?
a book works   Bjarne on
'A book, Bjarne works on.'

(255) Den arbejder Bjarne på?
it   works   Bjarne on
'Bjarne works on it.'

(256) *en at mand
a   to man

Control

(257) Bjarne forsøger at læse bogen.
Bjarne tries   to read book.DEF
'Bjarne tries to read the book.'

Time NP

(258) Bjarne sløver den hele nat.

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