

Ida Toivonen, 2003, Non-projecting words: A case study of
Swedish particles

To my parents

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PREFACE

This book is an extensively revised version of my thesis (Toivonen 2001b). The core ideas presented here have remained the same through all revisions, but many details have changed, and there has also been a shift in emphasis. My thesis devotes a lot of discussion to consequences of different formulations of grammatical constraints and principles, specifically the principle of Economy. The argumentation in my original thesis is therefore closely tied to Lexical-Functional Grammar (LFG), which is the formal framework within which my ideas are formulated. In revising this book, I have shifted the emphasis to a more general discussion of empirical generalizations and their syntactic consequences, and I have tried to highlight theoretical points that are of importance regardless of formal framework. The only part of this book where the main focus is on theoretical detail is chapter 3; all other chapters are oriented towards empirical argumentation of theoretical points that I have tried to state in a broad enough way so that their impact for differing formal theories should be obvious. I still employ the formal tools of LFG, but I strive to state my theoretical assumptions and original proposals as explicitly as possible, partly for the sake of clarity, but also for the benefit of those who might attempt to translate the ideas into another syntactic framework.

The main focus of this book is small words. By ‘small words’, I mean elements that are neither bound morphemes, nor full phrasal constituents. Such words are problematic for three reasons. First, they are difficult to categorize structurally; second, they do not form a uniform class; and third, they do not fit neatly into most theories of phrase structure. The argumentation centers around a case study of Swedish verbal particles, which form a particular group of small words. Swedish particles are exemplified by *upp* ‘up’ and *bort* ‘away’. I argue that verbal particles in Swedish are syntactically independent words which do not project phrases. Particles then differ syntactically from other constituents and are therefore governed by different distributional constraints. Specifically, I argue, particles must adjoin to V^0 . This explains the

otherwise mysterious word order facts: Swedish verbal particles obligatorily precede direct objects. The analysis advocated in this book also explains the fact that particles cannot take complements and modifiers. Since particles do not project phrasal levels, there is nowhere for other phrases to attach.

My proposal is incompatible with traditional X' -theory, which dictates that every word is embedded in (at least) three levels of syntactic structure: a lexical level (X^0), an intermediate level (X') and a phrasal level (XP or X''). I modify the LFG version of X' -theory in order to accommodate non-projecting words. The modification seems warranted, as it is quite common for specific analyses to violate X' -theory when modelling small words, especially clitics. My revision of the theory of phrasal structure will, I hope, lead to insight into the nature of all sorts of small words, not just verbal particles.

Although I focus on general points rather than theory-internal argumentation, it is interesting to note that the nature of verbal particles is captured in a particularly natural way in LFG. Swedish verbal particles are distinguished from other words *solely* by their phrase structure realization. With respect to semantics and grammatical function, they are identical to fully projecting words. Phrase structure must thus be seen as a module separate from other types of syntactic information and also semantic information, in accordance with the foundational assumptions of LFG. In LFG, the level of constituency and word order (constituent structure) is separated from other levels of linguistic representation, such as functional structure, argument structure, semantic structure, etc. Importantly, predicate-argument relations are not directly tied to the c-structural representation of a clause, and this is crucial for the analysis of Swedish particles, since particles can correspond to more than one syntactic function. As a consequence, the nature of verbal particles supports the modular view of the grammar which is adopted in LFG.

The syntactic representation of verbal particles that I propose is quite simple, but that does not entail that their semantic representation is equally straightforward. In fact, I show that particles divide into three groups semantically: they are resultative predicates, aspect markers, or part of verb-particle idioms. However, the structure of particles is the same regardless of their semantic function. No matter what their meaning is, particles are non-projecting words, adjoined to V^0 .

In every Germanic language, we find a group of words that are closely related to the Swedish verbal particles. Although these words are related, their characteristics are not identical to those of Swedish particles. There are some well-known differences with respect to word order. In Danish, particles follow

the direct object; in English, particles appear on either side of the object; and in Swedish, particles necessarily precede the direct object. I examine Danish, German and English particles and show that the c-structure realization of verbal particles in each language is different. German is like Swedish, in that particles are head-adjoined to V^0 . In Danish, there are no non-projecting verbal particles. Instead, the words that correspond to Swedish particles necessarily project full phrases. English has morphologically incorporated ‘particles’, in addition to fully projecting prepositions. Although these words are similar across languages with respect to their syntactic and semantic function, they differ in their phrase structural realization.

As is clear from the outline above, this book focusses on topics which have already received much attention in the tradition of generative grammar. Verbal particles in Germanic has been an active research topic for decades. Fraser (1976), den Dikken (1995), Zeller (2001), Lüdeling (2001), Dehé, Urban, McIntyre, and Jackendoff (2002) and Müller (2002) are books published on the topic, and there are also many articles, conference papers and book chapters written about particles. As far as I know, however, there have not yet been any in-depth examinations of verbal particles in languages other than English, Dutch and German. Not so much has been written on the syntax of verbal particles in the Scandinavian languages; especially not Swedish. One of the conclusions of this book is that with respect to particles, Swedish is surprisingly similar to German and surprisingly different from English and Danish.

Another vast area of research which is ventured into here is X' -theory. My analysis of the structure of Swedish particles is problematic for X' -theory, and I address those problems. I assume a fairly traditional version of X' -theory here, although there have been proposals to modify the traditional model and even to dispose of X' -theory completely (see Speas 1990, Chomsky 1995, Chametzky 2000, and many others); and there are of course also models of grammar that have never adopted X' -theory. Verbal particles are problematic for X' -theory, and there are approaches to syntax that do not incorporate this theory, and so it might seem peculiar that I choose to adopt it at all here. The reason is that traditional X' -theory allows me to express in a straightforward way how Swedish particles and other small words differ from other types of words and phrases. The theory also allows me to make an explicit proposal for how to allow small words into grammars alongside fully projecting words.

Finally, I want to say something about the examples used in this book. Most Swedish example sentences are taken from the PAROLE corpus. However, I have also constructed many examples; in particular, I have constructed un-

grammatical examples. All examples (corpus and constructed; starred and non-starred) have been checked by native speakers. I have tried my hardest to include only examples with uncontroversial grammaticality judgments. The examples included thus involve very little dialectal variation, and the few dialectal differences I have found have been clearly marked. My informants are all from Sweden or Åland, Finland. The dialect of Swedish spoken on the Finnish mainland is not included. Most non-Swedish examples are extracted from linguistics papers and books. Some English examples are taken from the British National Corpus.

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I have been lucky enough to have mentors outside Stanford as well. Ray Jackendoff has supported me in many ways over the years. He has taught me a lot about linguistics and about how linguistics relates to other disciplines. Mark Hale has influenced me greatly and I am very lucky to have been taught by him. Charles Reiss has also been a key influence, and I have benefitted from our many long discussions about language.

Many thanks are due to the following people who have given me detailed and insightful comments on drafts of this book: Ash Asudeh, Ray Jackendoff, Joan Maling, Jean-Philippe Marcotte, Andrew McIntyre, Daniel Ormelius, Chris Potts, Devyani Sharma, and two anonymous and careful reviewers. I am especially grateful to Ash Asudeh who has been very supportive in all ways while I have been working on this topic. He has generously granted me free access to his impressive knowledge and understanding of syntax and L^AT_EX. I furthermore want to thank everybody in the linguistics departments/programs at Brandeis University, Concordia University, University of Rochester, University of Canterbury and Stanford University. Jacqueline Bergsma and Jolanda Voogd at Kluwer have also been very friendly and helpful.

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CHAPTER 1

INTRODUCTION

The goal of this book is to explore syntactically independent words which do not project full phrases. The main focus will be on Swedish verbal particles such as *upp* ‘up’, *bort* ‘away’ and *ut* ‘out’, exemplified in (1.1). Throughout this book, words that fall under the definition of ‘particle’ will be boldfaced when they appear in example sentences:

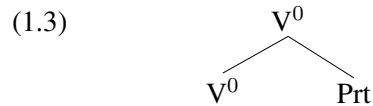
- (1.1) (a) Pia sparkade **upp** bollen.
P. kicked up ball.the
‘Pia kicked up the ball.’
(b) Ella lade **bort** vantarna.
E. laid away mittens.the
‘Ella put the mittens away.’
(c) Sanna kastade **ut** alla böckerna.
S. threw out all books.the
‘Sanna threw all the books out.’

The Swedish verbal particles form a group of their own and are traditionally recognized by the criteria in (1.2) (Teleman, Hellberg, and Andersson 1999: Volume 3, 417–435, Platzack 1998, Haider 1997, Norén 1996, Svenonius 1994, Ralph 1987, Taraldsen 1983, Hellberg 1976, Kjellman 1929):

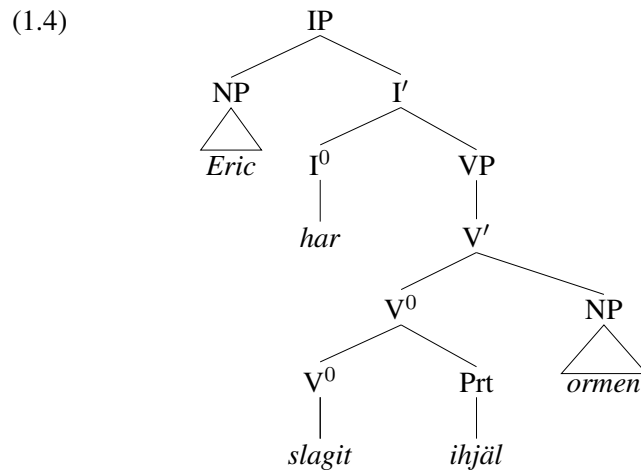
- (1.2) (i) A particle bears stress.
(ii) A particle immediately follows the verbal position within the VP.
(iii) A particle cannot have a modifier or a complement.

Criterion (i) distinguishes particles from (transitive) prepositions, criterion (ii) distinguishes particles from adverbs and obliques, and criterion (iii) distinguishes particles from other words, such as normal verbs, nouns, prepositions and adjectives. By these criteria, it is easy to determine which elements belong to the group of particles and which do not. The following question then arises: How do particles and other words differ from each other formally?

I argue that what distinguishes particles from other words is their phrase structural realization. More specifically, I argue that particles are non-projecting words, adjoined to V^0 :

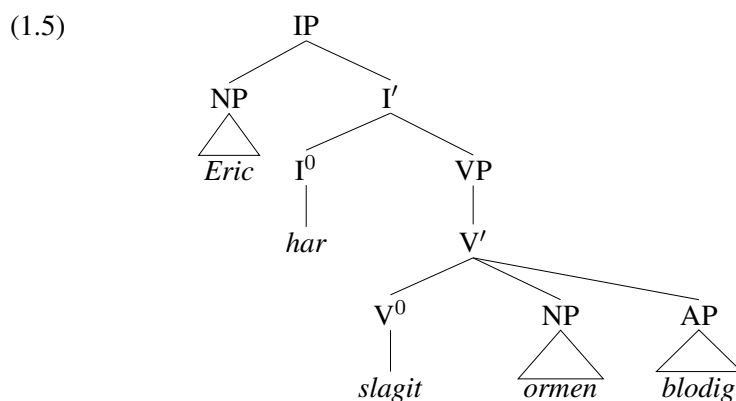


An example is given in (1.4):



Eric har slagit ihjäl ormen.
 E. has beaten to.death snake.the
 'Eric has beaten the snake to death.'

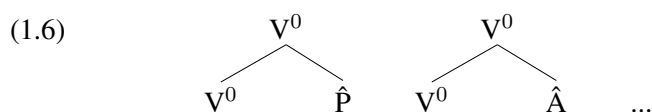
The word *ihjäl* in (1.4) is a verbal particle. The structure in (1.4) can be compared to (1.5), which does not contain a verbal particle:



Eric har slagit ormen blodig.
 E. has beaten snake.the bloody
 'Eric has beaten the snake bloody'

The sentences in (1.4) and (1.5) are very similar, as they only differ in the choice of one lexical item: *ihjäl* in (1.4) is replaced by *blodig* in (1.5). Since *ihjäl* is a particle and *blodig* is not, there is a difference in word order: particles adjoin to V^0 and must therefore appear in the 'particle position' immediately adjacent to the verbal position within the VP.

In the chapters that follow, I show that the phrase structural realization in (1.3) is the defining characteristic of particles. Importantly, Swedish particles do not form their own *word class* (i.e., syntactic category, such as nouns or verbs). Instead, words from different syntactic categories can appear in the particle position adjoined to V^0 , as illustrated in (1.6). Throughout this book, I adopt the following notation: a non-projecting word is notated as \hat{X} (e.g., \hat{P}) and a projecting word is an X^0 (e.g., P^0).¹



So, particles are not connected to a specific word class. They are also not associated with any one grammatical function: they can be resultative predicates,

¹In Toivonen (2001b) I notate a non-projecting words as a plain X . The notation used here follows Asudeh (2002), who changes my original notation with the following motivation: "I write non-projecting preterminal categories as \hat{X} , using the circumflex accent ($\hat{}$) to indicate iconically that these categories have a 'roof' and cannot project any further."

directional place expressions, or aspect markers. The one formal characteristic that unifies the particles and distinguishes them from other words is their phrase structural realization. The definition I assume for Swedish verbal particles is thus the following:

- (1.7) A Swedish verbal particle is a non-projecting word which is adjoined to V^0 .

As we will see in section 2 below, V^0 can be empty in Swedish, as the verb often appears in a higher projection. It is therefore more correct to say that Swedish verbal particles are *attached* to V^0 , rather than *adjoined* to V^0 . Technically, particles are only adjoined when V^0 is actually filled. In this text, however, ‘adjunction’ is intended to encompass this kind of attachment, as well as proper adjunction.

The vast majority of previous analyses of verbal particles argue for one of the following two ideas: (1) verbal particles are morphologically bound by the verb; or (2) verbal particles are displaced prepositional heads.² However, a few previous researchers share the intuition that verbal particles call for an unorthodox structural representation. In the literature of Dutch verbal particles, there are several proposals which involve structures identical to or compatible with (1.3); see, e.g., Muysken (1983), Muysken and van Riemsdijk (1986), Groos (1989), Booij (1990), Neeleman and Weerman (1999), and Neeleman (2002). These proposals differ from mine in detail and theoretical background, but the main structural idea is the same. In what follows, I use detailed empirical evidence from Swedish to argue for this particular structural representation of particles, and I also discuss the theoretical consequences of proposing such a structure.

1. PARTICLES AND X'-THEORY

My analysis will be cast within the formal framework of Lexical-Functional Grammar (LFG) (Kaplan and Bresnan 1982, Bresnan 1982b, 2001, Dalrymple, Kaplan, Maxwell, and Zaenen 1995, Dalrymple 2001, Falk 2001). The architecture of LFG includes several distinct but interrelated levels of grammatical information, including c(onstituent)-structure, f(unctional)-structure, and a(rgument)-structure. The different structures contain different types of infor-

²In chapter 6, I will argue that the morphological analysis is in fact correct for English particles, although it is incorrect for Swedish.

mation, as illustrated by the following characterization of the sentence ‘The star is shining’:³

(1.8) THE LFG ARCHITECTURE

lexicon:

star: N (\uparrow PRED) = ‘star’

(\uparrow NUM) = SG

the: D (\uparrow DEF) = +

is: I (\uparrow TENSE) = PRESENT

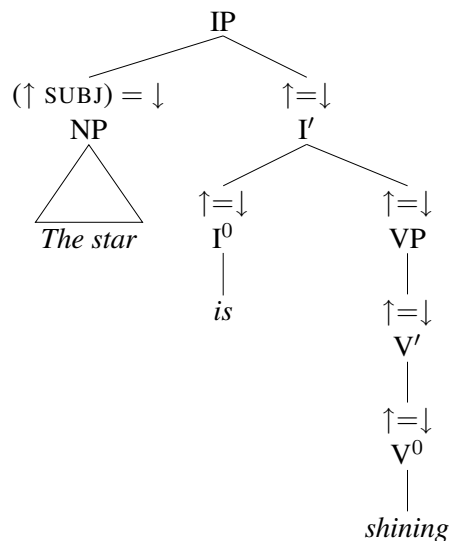
(\uparrow SUBJ NUM) = SG

(\uparrow SUBJ PERS) = 3

shining: V (\uparrow PRED) = ‘shine <(SUBJ)>’

(\uparrow ASPECT) = DURATIVE

c-structure:



³(1.8) is meant as an illustration of the kind of information that is represented at the different syntactic levels. It is not intended as a complete characterization of the sentence *The star is shining*. For example, the characterization of aspect is more complex than what is shown here. Aspect will be discussed in chapter 5, section 2.

f-structure:

PRED	'shine $\langle(\uparrow \text{SUBJ})\rangle$ '									
TENSE	PRESENT									
ASPECT	DURATIVE									
SUBJ	<table><tr><td>PRED</td><td>'star'</td></tr><tr><td>NUM</td><td>SG</td></tr><tr><td>PERS</td><td>3</td></tr><tr><td>DEF</td><td>+</td></tr></table>		PRED	'star'	NUM	SG	PERS	3	DEF	+
	PRED	'star'								
	NUM	SG								
	PERS	3								
DEF	+									

A comment on the notation: \uparrow ('up-arrow') refers to the immediately dominating node, and \downarrow ('down-arrow') refers to the node itself. The notation $(\uparrow \text{SUBJ}) = \downarrow$ on the NP node thus says that the NP is the subject of the IP. The notation $\uparrow = \downarrow$ has the effect that the node's information maps into the same f-structure as the information contributed by the mother node. The PRED feature can be thought of as the individual index of each lexical entry. The value of the PRED feature is an identifier and a pointer to the semantics of a given lexical item. The PRED feature value also contains the subcategorization frame of the lexical item. The principles of Completeness and Coherence ensure that the f-structure contains exactly the number of arguments required by the predicate:

- (1.9) **Completeness** (Kaplan and Bresnan 1982: 211)
 An f-structure is *locally complete* if and only if it contains all the governable grammatical functions that its predicate governs. An f-structure is *complete* if and only if all its subsidiary f-structures are locally complete.
- (1.10) **Coherence** (Kaplan and Bresnan 1982: 212)
 An f-structure is *locally coherent* if and only if all the governable grammatical functions that it contains are governed by a local predicate. An f-structure is *coherent* if and only if all its subsidiary f-structures are locally coherent.

In other words, Completeness requires that every function designated by a PRED be present in the f-structure of that PRED, and Coherence requires that every argument function in an f-structure be designated by a PRED (Bresnan 2001: 63).

C-structure models the surface phrase structure and concerns word order and dominance; f-structure represents grammatical functions, such as

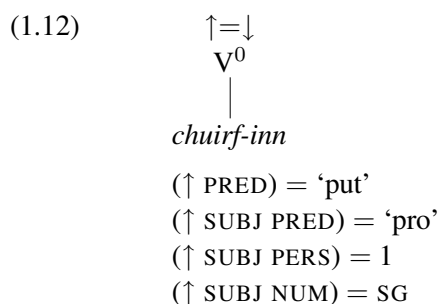
SUBJ(ECT) and OBJ(ECT); and a-structure concerns thematic roles, such as agent and theme. C-structure information is mapped onto the f-structure. This mapping is restricted by the *uniqueness* condition, which states that every attribute has a unique value. The mapping can be characterized intuitively as unification: features contributed by various sources can unify within an f-structure as long as no given attribute receives more than one distinct value. For a general discussion of feature unification in linguistic theory, see Shieber (1986).

The mapping between a-structure and f-structure is constrained by Lexical Mapping Theory (LMT) (Levin 1985, Bresnan and Kanerva 1989, Bresnan and Moshi 1990, and others). There are also other levels which will not be relevant here; examples are d(iscourse)-structure and s(emantic)-structure. The fact that LFG clearly separates different types of linguistic information into distinct levels makes it ideal for modelling an analysis such as the one that I argue is correct for particles: particles differ from other elements in the c-structure, and in the c-structure only.

The levels are interrelated through mapping principles (formally represented as functions), but the mappings are not necessarily one-to-one. Mismatches between different levels of information are thus predicted to occur, and such mismatches are indeed often attested cross-linguistically, as has been pointed out by various researchers (see Bresnan 1994, Matsumoto 1996, Toivonen 2000b and others). For example, Andrews (1990) argues that the subject function in Irish corresponds to an independent NP (1.11) *or* to a pronoun incorporated into the verb, situated in the V^0 -node (1.12).⁴ In (1.11), an independent pronoun, *mé*, contributes all the relevant features to the f-structure. In (1.12), the same features are contributed by a bound morpheme, *-inn*:

- (1.11) (\uparrow SUBJ) = \downarrow
 NP
 |
 mé
 (\uparrow PRED) = ‘pro’
 (\uparrow PERS) = 1
 (\uparrow NUM) = SG’

⁴He thus explains the Irish agreement facts discussed by McCloskey and Hale (1984), McCloskey (1986) and others.



Each PRED feature has its own unique value, and the values of PRED features therefore cannot unify. The ending *-inn* has its own PRED feature, and so *chuirfinn* cannot cooccur with the independent pronoun *mé*.⁵ The examples in (1.11-1.12) illustrate that it is possible for a given grammatical function to be realized in different ways (here, as an independent pronoun or as a bound morpheme) in c-structure within the same language.

C-structure in LFG is constrained by X'-theory. My proposal for the syntactic realization of particles is at odds with X'-theory, which posits that every word heads a phrasal projection of the same category. According to my proposal, particles do not project phrases of the same category, as they do not project phrases at all, and so my proposal violate traditional X'-theory. However, although non-projecting structures are disallowed by X'-theory, they are often tacitly assumed across theoretical frameworks and theories, even ones which otherwise adhere to X'-theory. I will briefly review different contexts in which non-projecting words are typically appealed to in the literature, and we will see that only one is relevant for LFG's theory of phrase structure.

Morphological constructs are often modelled as subsyntactic tree structures, involving head-adjoined non-projecting words. For example, Zeller (1999, 2001) adopts the structure in (1.13) for German prefix verbs:



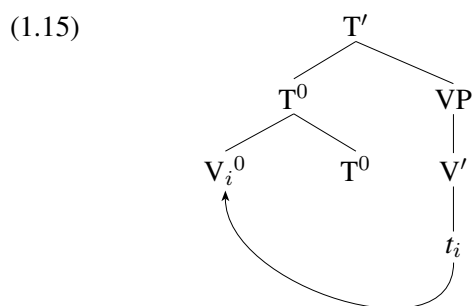
Zeller (along with many others) distinguishes between German prefix verbs and particle verbs. He does not assume that the particle verbs have the structure in (1.13). An example of a German prefix verb is given in (1.14):

⁵However, featural information of morphemes that contribute person and number features but no PRED feature can unify with the featural information of some nominal which does contribute a PRED feature. In this case, the ending is an agreement marker, and not an incorporated pronoun.

- (1.14) Peter be-steigt den Berg.
 P. prefix-climbs the mountain
 ‘Peter climbs the mountain.’ (Zeller 2001: 56)

The structure in (1.13) represents the internal morphological structure of a word. In LFG, the formation of words is assumed to take place in the lexicon, which is not governed by X' -theory. Morphological head-adjoined structures such as that in (1.13) are therefore handled differently and are not of concern here. The Swedish verb-particle combinations are clearly not morphological constructs, as will be shown in chapter 2, section 3.

Non-projecting structures in the syntax are often posited as head-adjunction resulting from *head-movement*. LFG does not adopt the mechanism of movement, but I mention it here since it is a common source of structures encountered in the literature where an X^0 -category is not dominated by an X' -category. Movement analyses of the verb-particle constructions will be discussed in various places below (see, for example, chapter 2, section 2). An example involving movement is given in (1.15). This particular example is adapted from Radford (1997: 245):



Although V^0 does not project in its surface position, it projects in its base position. It can be argued that structures such as the one in (1.15) do not violate X' -theory, since the verbal head does project a phrase at one point in the derivation.

We can thus disregard morphology and movement structures. However, base-generated non-projecting structures in the syntax have also been proposed, and they pose a real problem for the LFG X' -theory. Such structures have previously been proposed in theories other than LFG by Muysken (1983), Muysken and van Riemsdijk (1986), Jaeggli (1986), Pulleyblank (1986), Poser (1992), Piñón (1992), Keyser and Roeper (1992), and others. Within LFG, non-projecting structures are posited by Zaenen (1983), Sadler and Arnold

(1994), Sells (1994), Sadler (1998a,b), and Sells (2001).⁶ Swedish particles also provide evidence for base-generated, non-projecting words, even though X'-theory does not allow them. Although previous researchers have made reference to non-projecting words, I am not aware of any explicit discussion of how such structures can be reconciled with X'-theory. One of my goals here is to modify the LFG X'-theory so that it accomodates non-projecting words and also restricts their distribution.

2. SWEDISH CLAUSE STRUCTURE

This section briefly sketches the phrase structure of Swedish. I focus on generalizations and assumptions that are relevant to the points made about verbal particles in this book. For fuller discussions, further argumentation and more examples, I refer the reader to Holmberg (1986), Delsing (1993), Holmberg and Platzack (1995), Platzack (1998), Telemann, Hellberg, and Andersson (1999), Sells (2001), and references cited in those works.

Swedish is a verb-second (V2) language, and the finite verb in the main clause is preceded by exactly one phrase. In (1.16a), the subject precedes the verb, but the initial element can be a topicalized phrase of any function, as in (1.16b-d):⁷

- (1.16) (a) Pojken läste boken.
 boy.the read book.the
 'The boy read the book.'
- (b) Boken läste han inte.
 book.the read he not
 'The book, he didn't read.'
- (c) [Ett muntligt prov] klarade hon lysande.
 an oral exam passed she brilliantly
 'An oral exam she passed easily.' (PAR)

⁶Zaenen (1983) calls such structures 'minor categories', and specifically assumes that functional categories, such as determiners and complementizers, belong in this group. Sadler and Arnold (1994) propose a non-projecting structure for English adjectives and adverbs. Sadler (1998a,b) posits a similar analysis of Welsh possessive determiners. Sells (2001) proposes non-projecting structures to account for object-shifted pronominals in Swedish.

⁷Most of the examples used in this book are taken from the Swedish PAROLE corpus, which is available on the web at spraakdata.gu.se/lb/parole and www.lexlogik.se/Demonstrations/svecorpus.htm. The corpus examples are marked with (PAR) in this text. On the suggestion of an anonymous reviewer, I have shortened and edited some of the corpus examples.

- (d) [Genom den öppna dörren] såg hon Anders och
 through the open door.the saw she A. and
 Hammou fördjupade i spelet.
 H. engaged in game.the
 ‘Through the open door she saw Anders and Hammou deeply
 engaged in the game.’ (PAR)

Finite verbs in main clauses appear in a functional projection outside the VP:

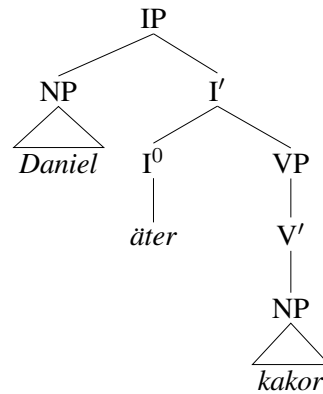
- (1.17) (a) Daniel äter inte [_{VP} kakor].
 D. eats not cookies
 ‘Daniel doesn’t eat cookies.’
 (b) Sofia kastar ofta [_{VP} **bort** saker].
 S. throws often away things
 ‘Sofia often throw things away.’

Negation words (such as *inte* in (1.17a)) and certain adverbs (such as *ofta* in (1.17b)) mark the left edge of the VP in Swedish (Holmberg 1986, Holmberg and Platzack 1995, Platzack 1998). Since the verb is to the left of these adverbs, it must be situated somewhere outside the VP.

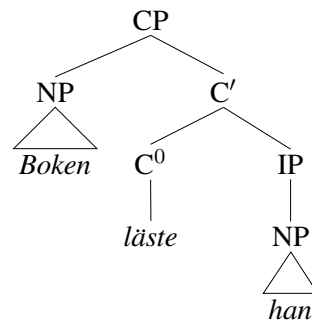
When the initial element is not a subject (as in (1.16)), the verb is generally assumed to be in C^0 , and this assumption is also adopted here. However, the position of the verb in subject-initial clauses is controversial. Holmberg (1986), Holmberg and Platzack (1995), Vikner (1995) and others assume that the verb is always in C^0 , whereas Travis (1991), Zwart (1997), Sells (2001) argue that the verb is in I^0 when a subject precedes it, otherwise it is in C^0 (for a comparison of the two approaches, see Sells 2001). I assume the latter analysis, but note that nothing crucially hinges on this choice. The structure for (1.17a) is (1.18) and the structure for (1.16a) is (1.19) (I am excluding the negation, as I have no reason to take a stand on its structural realization here):⁸

⁸Whether the negation is situated within the VP or outside the VP is controversial. See the discussion of Sells (2000), who assumes that the negation is outside the VP, but reviews the arguments for both views. Note also that the topicalization data in chapter 4, section 3.1 seem to support the view that the negation is external to the VP.

(1.18)



(1.19)



Even though I assume that subject-initial V2 clauses are IPs and non-subject-initial V2 clauses are CPs, the choice is made only for the sake of explicitness: my treatment of the verbal particles is equally compatible with both analyses.

Finite verbs in subordinate clauses and non-finite verbs are situated within the VP. This generalization is illustrated by the examples in (1.20), where the negation precedes the verb:

- (1.20) (a) Oskar sa att han inte [_{VP} äter kakor].
 O. said that he not eats cookies
 'Oskar said that he doesn't eat cookies.'
- (b) Oskar vill inte [_{VP} äta kakor].
 O. wants not eat cookies
 'Oskar does not want to eat cookies.'

It is important to note that no matter where the verb is situated, the particle will always appear within the VP:

- (1.21) (a) Jan åt inte [**upp** kakorna].
 J. ate not up cookies.the
 ‘Jan did not eat up the cookies.’
- (b) Jan vill inte [äta **upp** kakorna].
 J. wants not eat up cookies.the
 ‘Jan does not want to eat up the cookies.’
- (c) Jan sa att han inte [åt **upp** kakorna].
 J. said that he not ate up cookies.the
 ‘Jan said that he didn’t eat up the cookies.’

When the verb is situated in I^0 or C^0 , the particle is the first element within the VP, as in (1.21a). When the verb is in V^0 , the particle immediately follows it, as in (1.21b–c). These data are consistent with the structural representation of particles proposed here: the particle is always attached to V^0 , as in (1.3) and (1.4). Due to independent principles of LFG, this is the case even if the verb itself is hosted by I^0 or C^0 , in a position outside the VP.

3. OVERVIEW

This book is organized as follows:

Chapter 2 motivates the analysis for Swedish particles sketched above. I specifically argue against analyzing particles as full phrases. I also provide evidence that verbs and particles are combined in the syntax and not in the lexicon. Chapter 2 further shows that Swedish particles cannot be analyzed as clitics, at least not if we follow the standard clitic-hood definitions. Defining clitics is a difficult task, but I argue that the notion of non-projecting words proposed here is useful in classifying different types of ‘clitic-like’ elements; that is, the vast range of elements which have previously been referred to as clitics in the literature.

Chapter 3 discusses and revises X' -theory. I specifically focus on the X' -theory assumed in Bresnan (2001), and I strive to reformulate the theory in such a way as to make it more explicit and more restrictive. The revised theory crucially constrains the occurrence of non-projecting words by postulating that they must be head-adjoined. Chapter 3 also concerns some other crucial aspects of the LFG theory of c-structure, such as, for example, the mapping from c-structure to f-structure. Finally, chapter 3 discusses several previous proposals which involve structures that can be compared to the non-projecting

words of the present work. These proposals are cast in Government and Binding Theory and Head-Driven Phrase Structure Grammar.

Chapter 4 shows how the theory outlined in chapter 3 can be applied to Swedish, focussing mainly on VP-internal syntax. The machinery that was developed in chapters 2 and 3 is all we need in order to account for the syntax of verbal particles in Swedish. Chapter 4 also provides evidence that Swedish particles are adjoined to V^0 . I furthermore show that Swedish provides empirical evidence for the LFG Economy principle, which has previously been argued for solely on theoretical grounds. Chapter 4 also includes a discussion of data that seem to provide counterevidence to the claim that Swedish particles necessarily precede the direct object.

Chapter 5 concerns the semantics of verb-particle combinations. I propose that verb-particle combinations in Swedish divide into three main groups: aspect markers, resultative predicates, and parts of verb-particle idioms. The fact that the particles can have different semantic functions, however, does not affect their syntactic realization. No matter what their semantics is, their syntax remains the same.

Finally, chapter 6 discusses verbal particles in some of the other Germanic languages, specifically Danish, German and English. Danish and German are straightforwardly analyzed within the assumptions laid out here. However, English proves to be more complicated, because of the syntactic optionality we find in English verb-particle constructions. I adopt an analysis where the English pre-object particle is lexically adjoined to the verb. Chapter 6 also provides a discussion of the complex particle construction in English, exemplified by *bring him up a drink*. This construction poses an interesting putative problem for the present analysis, as an apparent non-projecting word is separated from the verb by the first object. I introduce some new data which suggest that the complex particle construction is a type of constructional idiom.

CHAPTER 2

EMPIRICAL MOTIVATION

A verbal particle in Swedish consists of a single word. A full phrase which includes a modifier and/or a complement can therefore never appear in the particle position. This fundamental fact motivates the proposal that particles are non-projecting words. The basic analysis of Swedish particles was sketched in chapter 1. The present chapter motivates and explains the proposal further (section 1). This chapter also discusses and rejects three alternative approaches. First, I consider an analysis where the particles project full phrases (section 2). This analysis runs into several problems. I show that the problems are not readily solved with a simple movement analysis, as it is necessary to posit mandatory movement in some cases, optional movement in some cases, and in yet other cases we need to obligatorily *prevent* movement. Second, I consider a morphological analysis, where the verb and the particle are assumed to be combined in the lexicon (section 3). This hypothesis is rejected since the verb and the particle do not need to be adjacent, and since the verb-particle ordering goes against the rules of compounding in Swedish, which dictate that compounds are head-final. Third, I consider the possibility of analyzing particles as clitics (section 4). This analysis is shown to be untenable as well, as Swedish verbal particles are not phonologically weak, a characteristic that is normally taken to be a defining feature of ‘clitic-hood’.

Even though particles are not prototypical clitics, the two types of elements are interestingly similar in that neither projects phrases. This observation leads to the conclusion that non-projecting words can be phonologically dependent (clitics) or phonologically independent (particles). At the end of this chapter, I explore the typological consequences of dividing words into groups according to phonological dependence on the one hand and syntactic projectivity on the other.

1. PARTICLES AS NON-PROJECTING WORDS

Both in traditional grammatical descriptions and in theoretical analyses of the Germanic languages, particles are widely recognized to form a class of their own.¹ However, researchers differ in what formal status they attribute to particles. In chapter 1, I proposed that particles are defined *solely* by their syntactic structure, as they do not correspond to a single grammatical function, nor do they constitute a syntactic category. We will now examine those claims more carefully.

Ejerhed (1978) classifies particles as a *grammatical function*, on a par with subject and object. This proposal is problematic, since there is no function which is associated with *all* particles. A particle can be an aspect marker (2.1), a resultative predicate (2.2), or a directional complement (2.3):

- (2.1) ...hon hade städat **upp** i köket...
 she had cleaned up in kitchen.the
 ‘...she had cleaned up in the kitchen...’ (PAR)
- (2.2) Bland annat skrämmer grodan **ihjäl** Pascals
 among other scares frog.the to.death P.’s
 hatade far.
 hated father
 ‘Among other things, the frog scares Pascal’s hated father to death.’ (PAR)
- (2.3) Matts lägger **ner** boken.
 Matts lays down book.the
 ‘Matts lays the book down.’

In chapter 5, I argue that the directional particles are actually a type of resultative, but these particles are still clearly different from the aspectual particles. The examples in (2.1–2.3) thus show that particles can have different grammatical functions.

Another problem for the grammatical function hypothesis is that there is no grammatical function that can *only* be realized as a particle. As is well-known, aspectuality can also be expressed with an adverbial adjunct, a resultative predicate can be expressed with an AP following the object, and a directional complement can be expressed with a PP following the object (see Toivonen 2002b).

¹See, however, Lüdeling (2001) for a different view, which will be discussed in chapter 6, section 2.

There is thus no one-to-one correspondence between particles and grammatical functions, and it is therefore not possible to define verbal particles as a special grammatical function.

Another possibility is that particles constitute their own *word class* or *syntactic category*, parallel to categories like verbs and nouns (Norén 1996). This position is also problematic, since words from different syntactic categories can be particles:

Preposition:

- (2.4) Hon knäppte **på** teven.
 she clicked on TV.the
 ‘She turned the TV on.’ (PAR)

Adjective:

- (2.5) Sen började hon vicka **loss** foten.
 then began she wiggle loose foot.the
 ‘Then she started to wiggle the foot free.’ (PAR)

*Verb:*²

- (2.6) Rykten vill göra **gällande** att Håkan funderar på
 rumors want make valid that H. thinks on
 att...
 to
 ‘Rumor has it that Håkan is thinking about...’ (PAR)

Noun:

- (2.7) Jag ansåg mig oförmögen att köra **bil**.
 I considered me incapable of drive car
 ‘I considered myself incapable of driving a car.’ (PAR)

The boldfaced words in (2.4-2.7) are drawn from four different syntactic categories, yet they are all particles. Swedish particles thus differ from the English particles, which have been claimed to all be prepositional (Jackendoff 1973). On the other hand, Zeller (1999) and Stiebels and Wunderlich (1994) show

²The word *gällande* is a form of the verb *gälla* ‘to hold, to be valid’. The form *gällande* appears to be a verb rather than an adjective, as it is not possible to use the comparative or superlative form of *gällande* in (2.6).

that German is like Swedish in that particles are not necessarily prepositional.³ Particles from different word classes will be discussed further in chapters 4 and 5, and see also Ejerhed (1978) and Teleman, Hellberg, and Andersson (1999: Volume 3, 417–435). Words such as those in (2.4–2.7) are traditionally called particles, since they have the characteristic particle properties listed in the introduction and repeated here:

- (2.8) (i) A particle bears stress.
 (ii) A particle immediately follows the verbal position within the VP.
 (iii) A particle cannot have a modifier or a complement.

I have no reason to reject the traditional analysis of these words. The prepositional and adjectival words are uncontroversial particles, but the nominal and verbal particles are not as well studied as the other two. However, even if a non-particle analysis proves to be more appropriate for the verbs and the nouns, that does not pose a problem for the general theory of particles that I argue for here. The important thing to note here is that particles are drawn from different syntactic categories. That is, particles can be homophonous and synonymous with (and thus presumably identical to) adjectives and prepositions, and at least seemingly also with nouns and verbs.

A further reason to reject the hypothesis that particles form their own syntactic category is that syntactic categories are not limited in distribution the way particles are. For example, nouns can appear in many different positions within a sentence; the subject position, the object position, the prepositional object position, etc. Particles, however, are tied to the particle position (immediately adjacent to the verb).

The observations that particles are limited to single words and cannot have modifiers or complements pose a problem for both the grammatical function and the syntactic category hypothesis: all other lexical categories allow their members to take complements and modifiers.⁴ It is true that there are individual examples of nouns (or verbs, prepositions, etc.) that are not modified and do not have a complement, but it is not a general fact about nouns that they

³In addition, Groos (1989) claims that Dutch particles can be N, A, or P. She does not, however, provide any examples of particles of the categories N and A.

⁴The categories I consider are all lexical categories, since the particles are clearly not functional categories: functional categories are closed-class words with very limited semantic content. Particles often have elaborate semantic content.

cannot take modifiers and complements. In parallel, there are individual examples of subjects (or objects, predicates, etc.) that are not modified and do not have a complement, but it is not a general fact about subjects that they cannot take modifiers and complements.

Particles thus cannot be classified as a distinct category or function. Instead, their special status is due to their *phrase structural realization*. I will go over the arguments for this proposal immediately below.

Note first that verbal particles in Swedish precede the object (Haider 1997, Svenonius 1994, Taraldsen 1983):

- (2.9) (a) Peter sparkade (**bort**) bollen (*bort).
 P. kicked away ball.the away
 ‘Peter kicked the ball away.’
 (b) Maria körde (**fram**) bilen (*fram).
 M. drove forth car.the forth
 ‘Maria drove the car there.’
 (c) Simon kastade (**ut**) soporna (*ut).
 S. threw out garbage.the out
 ‘Simon threw out the garbage.’

This generalization also holds for ‘existential sentences’, exemplified in (2.10). Example (2.10a) is taken from Telemann, Hellberg, and Andersson (1999: Volume 4, 53):

- (2.10) (a) Det dök **upp** falska hundralappar.
 it dove up fake hundred.crown.bills
 ‘There appeared fake hundred crown bills.’
 (b) Om det kom **fram** en Björn Borg i dag skulle
 if it came forth a B. B. in day would
 det säkert ha funnits en vilja att lyfta fram
 it surely have existed a will to lift forth
 honom.
 him
 ‘If a Björn Borg had appeared today, he would surely have
 been promoted.’ (PAR)

The Swedish existential construction has an expletive subject (normally *det* ‘it’), and the logical subject is in the normal object position (Platzack 1983,

Teleman, Hellberg, and Andersson 1999: Volume 4, 53–54, Lødrup 2000). As shown in (2.10), the logical subject in the existential construction follows the particles *upp* and *fram*.

The Swedish word order pattern contrasts with the pattern in Danish, where the particle follows the object (2.11). It also contrasts with Norwegian and English, where the particle can appear both before and after the object as exemplified in (2.12) for Norwegian and (2.13) for English:

- (2.11) Han knugede sine hænder sammen.
 he clasped his hands together.PRT
 ‘He clasped his hands.’ [Danish; Platzack 1998]

- (2.12) Vi slapp (ut) hunden (ut).
 we let (out) dog.the (out)
 ‘We let the dog out.’ [Norwegian; Svenonius 1994]

- (2.13) John threw (out) the garbage (out).

Swedish thus differs from other Germanic languages with respect to the structural realization of particles.

The core proposal of this text is motivated by two distributional facts concerning the particles in Swedish. The first fact is that particles appear in a position different from full phrases that have the same function in the sentence:

- (2.14) (a) Matts kastade [_{prt} in] soporna.
 M. threw in garbage.the
 ‘Matts threw in the garbage’
 (b) *Matts kastade soporna in.
 M. threw garbage.the in.
- (2.15) (a) Matts kastade soporna [_{PP} i sopkorgen].
 M. threw garbage.the in garbage.can.the
 ‘Matts threw the garbage in the garbage can.’
 (b) *Matts kastade i sopkorgen soporna.
 M. threw in garbage.can.the garbage.the

The particle *in* in (2.14) has the same function as the PP *i sopkorgen* in (2.15), as they both denote the place where the garbage is thrown. Even though their function within the sentence is the same, their distribution is different: *in* precedes the object, and *i sopkorgen* follows the object.

The second crucial fact is that particles cannot be modified:

- (2.16) *Olle sparkade [längre bort] bollen.
 O. kicked further away ball.the

Recall that one of the defining characteristics of particles is that a particle *immediately* follows the verbal position, and it must therefore precede the direct object. Some words are optionally particles; that is, they optionally appear in the particle position. It is possible to modify these words, but only when they are not in the particle position. Compare (2.16) to (2.17):

- (2.17) Olle sparkade bollen [längre bort].
 O. kicked ball.the further away.
 ‘Olle kicked the ball further away.’

The corpus examples in (2.18) illustrate the same thing; *ut* precedes the object in (a) where it is unmodified, and it follows the object in (b) where it is modified:

- (2.18) (a) ... och släpar **ut** honom.
 and drag out him
 ‘... and drag him out.’ (PAR)
- (b) Han vill inte säga det rakt ut.
 he wants not say it right out
 ‘He does not want to say it straight out.’ (PAR)

The examples in (2.16–2.18) demonstrate that a word in the particle position can never be modified, even if the same word can have a modifier elsewhere.

In sum, the data in (2.14–2.18) show that although single words can precede the object and appear in the particle position, this position is not available for full phrases. This can be accounted for if we allow for non-projecting words in the syntax.

Whether a word projects, does not project, or optionally projects is *lexically* determined. The lexical specification is illustrated by the hypothetical partial entries in (2.19–2.21):

- (2.19) *tillbaka*: P⁰ (↑ PRED)=‘back’

- (2.20) *tillbaka*: \hat{P} (↑ PRED)=‘back’

- (2.21) *tillbaka*: P (↑ PRED)=‘back’

The lexical entry for *tillbaka* in (2.19) is specified P^0 and cannot head-adjoin, but must project a phrase. The *tillbaka* in (2.20) is specified \hat{P} and cannot project a phrase, and must head-adjoin (for reasons given in chapter 3 below). Both options are available for the *tillbaka* in (2.21), with the notation P (plain P). Throughout this book I will use X (plain X) to mean optionally X^0 or \hat{X} . The fact that words must be lexically specified for whether or not they have particle status has already been noted by many previous authors. For example, Stiebels and Wunderlich (1994) and Zeller (2001) argue that whether or not a German word is a particle must be lexically determined. Groos (1989) provides similar arguments for Dutch particles. Exactly how particlehood is specified lexically varies across analyses. Groos (1989), for example, assumes that the lexical specification is connected to the *verb* in each verb-particle combination.

Let us take a look at some data that show that all three options (2.19–2.21) exist. There are clearly words that always project, and we have also seen examples of words which optionally project:

- (2.22) (a) Peter sparkade **bort** bollen.
 P. kicked away ball.the
 ‘Peter kicked the ball away.’
 (b) Peter sparkade bollen längre bort.
 P. kicked ball.the further away
 ‘Peter kicked the ball further away.’

Particles (like *bort*) that can be modified and appear after the object optionally project. There are also words that *never* project. The French clitic pronouns discussed below in section 4 provide an example. They can never be modified or stressed, nor can they appear in the normal object position following the verb. There are also a few Swedish particles which cannot be modified and can never appear after the direct object (in the position for XP obliques and predicate complements). The particle *ihjäl* is an example (2.23):

- (2.23) (a) Han slog **ihjäl** en karl.
 he beat to.death a man
 ‘He beat a man to death.’ (PAR)
 (b) *Han slog en karl ihjäl.
 he beat a man to.death
 (c) *Han slog en karl helt ihjäl.
 he beat a man completely to.death

The word *ihjäl* can never project, and it must always be head-adjoined to the verb. Other examples include *an* ‘on’, *bi* ‘by’, and *ihåg* ‘to mind’ (Norén 1996, Teleman, Hellberg, and Andersson 1999:417).

The examples above show that there are particles that project, particles that do not project, and particles that optionally project. But why do I propose that this is *lexically* determined? The group of words that are here referred to as particles only have a single thing in common: they do not project full phrases. There is no semantic characteristic that ties them together. Their non-projectivity (particle status) thus cannot be said to follow from anything else. Consider the examples in (2.24–2.25):

- (2.24) Jag lägger **hit** boken.
 I lay here book.the
 ‘I put the book here.’

- (2.25) Jag lägger boken här.
 I lay book.the here
 ‘I put the book here.’

The words *hit* and *här* both mean ‘here’. The word *hit* is normally used in directional contexts, whereas *här* is locational. However, they are both appropriate with the verb *lägga* ‘to lay’. Note the difference in word order: *hit* appears in the particle position, but *här* does not. The two words are very similar in meaning, and there is no particular reason why one should be a particle although the other one is not. The difference in word order cannot be attributed to the fact that *hit* implies directionality. There are plenty of words that encode directionality that *must* project. Consider the word *hitåt* ‘hither; towards here’, which is clearly directional:

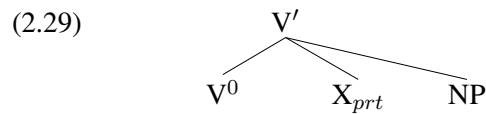
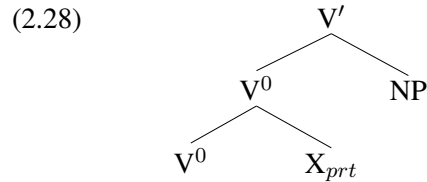
- (2.26) (a) Tobias kastar bollen hitåt.
 T. throws ball.the towards.here
 ‘Tobias throws the ball in this direction.’
 (b) *Tobias kastar hitåt bollen.
 T. throws towards.here ball.the

The directional *hitåt* obligatorily follows the object; in other words, *hitåt* must project. The hypothesis that directionality determines particlehood thus does not hold. I conclude that whether or not a particular word has the option of not projecting a phrase is lexically determined.

The key aspects of my proposal are summarized in (2.27):

- (2.27)
- Particles are non-projecting words; i.e., \hat{X} s, which do not head X' or XP .
 - A particle can, in principle, be of any syntactic category (\hat{N} , \hat{P} , \hat{V} , \hat{A}).
 - A non-projecting element is marked as such in the lexicon.
 - Verbal particles in Swedish are head-adjoined to V^0 .

Each part of my proposal is empirically motivated. We have not yet seen evidence for the fourth claim of (2.27), that the particles are adjoined to V^0 . The Swedish data we have seen thus far are equally compatible with each of the following two structures:



In chapter 4, I provide evidence that the Swedish particles are indeed adjoined to V^0 , as in (2.28).

There are also theoretical reasons to prefer the structure in (2.28) over the one in (2.29). Allowing the presence of non-projecting words is a weakening of X' -theory. In order to keep the theory as restrictive as possible, I propose in chapter 3 that the distribution of non-projecting words is governed by a constraint dictating that they are head-adjoined. As for Swedish particles, a straightforward phrase structure rule demanding that they are adjoined to V^0 easily accounts for their distribution. A structure like (2.29) leaves unexplained why the particles differ in distribution from PPs with the same function (see again examples (2.14-2.15)), since the particle (X_{prt}) could just as well follow the NP. If we require the particle to be head-adjoined to V^0 , as in (2.28), it follows that it cannot appear after the object NP. These considerations favor structure (2.28) over structure (2.29).

Since there is empirical evidence that the Swedish verb-particle structure is (2.28) and there are theoretical reasons for constraints on the distribution of non-projecting words, I posit head-adjunction of non-projecting words as a

universal constraint in chapter 3. Previous proposals have analyzed words that do not seem to project phrases without positing a head-adjunction constraint (see, for example, Sag 1987, Baltin 1989 and Abeillé and Godard 2000). The head-adjunction hypothesis is more restrictive, and it also explains why 'small' words tend to differ distributionally from other words and phrases (specifically, they gravitate towards head positions). Moreover, I have not found any clear counterexamples to this hypothesis, and I therefore will maintain it here. However, it is important to note that the issue of head-adjunction is actually orthogonal to the question of whether or not non-projecting words exist.⁵

The proposal in (2.27) is formalized and discussed in more detail in chapters 3 and 4. Before that, I discuss three alternative approaches to analyzing verbal particles. Section 2 will lay out the problems with an analysis where the particles project full phrases, and section 3 will consider a morphological approach, under which the particles combine with verbs in the lexicon. Section 4 is devoted to a discussion of clitics, and I will show there that particles do not fit under standard definitions of 'cliticness'.

2. ARGUMENTS AGAINST AN XP ANALYSIS

In the previous section, we saw that only elements which do not take a complement and which are not modified may appear in the particle position preceding the object. These facts suggest that particles are words which do not project phrases, since phrases can normally contain complements and modifiers. This section provides a discussion of problems that arise if particles are treated as heads projecting full phrases. Three possibilities will be considered: (1) the possibility that the particle XP is base-generated in its surface position; (2) the possibility that the entire XP has moved into its surface; and (3) the possibility that the particle head has moved out of its phrase into its surface position.

2.1. *Particles as XPs: Basic problems*

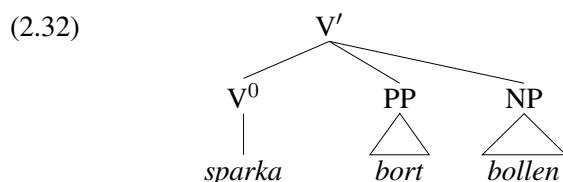
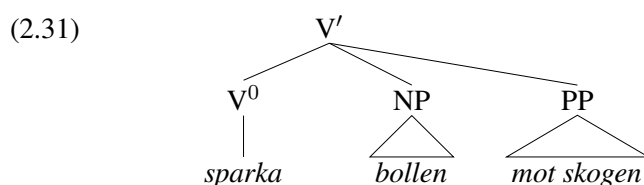
Klima (1965), Emonds (1972), Jackendoff (1973) and many others treat (English) particles as intransitive, projecting prepositions. However, Swedish PPs differ from particles in distribution, even when the two appear to fulfill the

⁵Section 4 of chapter 6 presents some English data concerning the complex particle construction that may be taken as evidence that it is possible for non-projecting words to be attached to V', as in (2.29). In the same section, I also present an alternative analysis which does not force that conclusion.

same function. This was illustrated above in (2.14-2.15), and another example is given in (2.30):

- (2.30) (a) Petra försöker sparka (*mot skogen) bollen
 P. tries kick (*towards forest.the) ball.the
 (mot skogen).
 (towards forest.the)
 ‘Petra tries to kick the ball towards the forest.’
- (b) Petra försöker sparka (**bort**) bollen (*bort).
 P. tries kick (away) ball.the (*away)
 ‘Petra tries to kick the ball away.’

If we assume that the particle *bort* heads a phrase, the difference in distribution is difficult to account for. The structural representations of the sentences in (2.30) would then be (2.31–2.32):



If we adopt the structures above, we allow the PP to be ordered before or after the object NP. This is problematic, as such structures would allow the ungrammatical versions of the sentences in (2.30), repeated here as (2.33):

- (2.33) (a) *Petra sparkar mot skogen bollen.
 P. kicks towards forest.the ball.the
- (b) *Petra sparkar bollen bort.
 P. kicks ball.the away

As *mot skogen* and *bort* in (2.30) have the same syntactic category and the same function, we cannot appeal to those sorts of differences to rule out the

ungrammatical examples in (2.33). It is thus clear that analyzing *bort* in a sentence like (2.30b) as a fully projecting intransitive preposition is highly problematic.

Only the possibility that *bort* is prepositional has been considered here. However, the main point would hold even if *bort* were argued to be an adjective or an adverb, since VP-internal APs and AdvPs follow the direct object (see the examples in (2.44-2.47) below). The problem arises from the fact that *bort* is analyzed as a full phrase; the category of the phrase is less important.

2.2. *Particles as XPs: Transformational analyses*

Because of the obvious problems pointed out in section 2.1, many researchers have attempted to capture the distributional facts with an appeal to transformations. However, a closer look at the data reveals that there is no straightforward movement mechanism that could capture the difference in distribution, given the assumption that particles project XPs. Most movement accounts assume that the particles are intransitive prepositions, so the discussion here will mainly focus on prepositional particles. Recall, however, that not all particles are prepositional in Swedish.

I will discuss some of the basic problems that movement analyses face. The crucial obstacles for the analyses reduce to the following points, which have already been argued for above:

- (2.34)
- Some intransitive prepositions *must*, some *may*, and some *cannot* precede the object.
 - The particles are not singled out as different from other elements by their semantics or grammatical function.

I discuss the problems in (2.34) together with relevant examples in section 2.2.1. For the sake of simplicity, the discussion refers to simple ‘movement rules’ (like those adopted in Emonds 1972) to account for the particle distribution in English. The same data would pose problems for theories where movement is a result of a general operation such as *Move* α , or where movement is forced by the need for feature checking. In section 2.2.2, I discuss in some detail the particular transformational analysis proposed in Nicol (2002).

2.2.1. *General problems*

A great number of transformation-based analyses of verbal particles have been proposed over the years, within Standard Theory, Extended Standard Theory

and different versions of Principles and Parameters Theory; see, for example, Ramchand and Svenonius (2002), Neeleman (2002), Nicol (2002, 1999), Ishikawa (1999), Josefsson (1998), Klipple (1997), Collins and Thráinsson (1996), den Dikken (1995), Svenonius (1994), Taraldsen (1991), Johnson (1991), Guéron (1990), Kayne (1985), Emonds (1972, 1985), Chomsky (1975) and references cited in those works. Although these works do not for the most part treat Swedish specifically, many of them assume that a uniform analysis of Germanic particles is possible (a position which I argue against in chapter 6). The discussion below is not in any sense a complete discussion of each specific movement analysis that has been proposed in the past. Instead, I point to broader problems that need to be solved by any transformational account.⁶

Most analyses assume ‘particle movement’: the particle (and not the object NP) moves. I consider such an analysis first. Let us assume the very simple movement rule in (2.35) (bearing in mind that the intuition captured by (2.35) can be formalized in a variety of ways):

- (2.35) Movement rule:

$$V \text{ NP PP} \implies V \text{ PP}_i \text{ NP } t_i$$

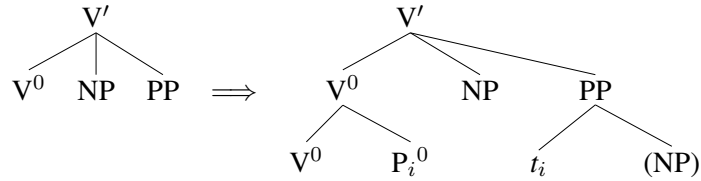
If obligatory, the movement rule in (2.35) would rule out sentences like the grammatical (2.15a), repeated here as (2.36):

- (2.36) Matts kastade soporna [_{PP} i sopkorgen].
 M. threw garbage.the in garbage.can.the
 ‘Matts threw the garbage in the garbage can.’

The rule in (2.35) is obviously not a valid solution, since it rules out grammatical sentences. Let us therefore consider a slightly more complicated movement rule:

⁶For arguments against Kayne (1985) and Guéron (1990), see Johnson (1991); for arguments against den Dikken (1995), see Toivonen (1999) and Ramchand and Svenonius (2002). Furthermore, Groos (1989) provides general arguments against a movement-based account. Her arguments draw upon Dutch, but nevertheless overlap with the arguments that I lay out in this section.

(2.37) Movement rule 2:



The idea here is that the prepositional head P^0 adjoins to the verbal head. Rule (2.37) stipulates that only a head (and not a full phrase) can precede the object NP. However, (2.37) allows stranding of the prepositional object (*skogen* in (2.30a)), which leads to the ungrammatical sentence (2.38):

(2.38) *Petra sparkar mot_i bollen t_i skogen.
 P. kicks towards ball.the forest.the

To rule out sentences like (2.38), we need a constraint preventing transitive prepositions from head-adjoining. This could be formalized in different ways, but to avoid additional problems that could tag along with a specific formalization, we will just use the statement in (2.39):

(2.39) A transitive preposition cannot adjoin to the verb.

The constraint in (2.39) is problematic, since it makes particle movement seem different from other head movement such as verb movement, for example, where there is no difference between transitive and intransitive verbs. In addition, the constraint in (2.39) is not enough to rescue the movement analysis of (2.37), since there are intransitive prepositions which follow the direct object:

- (2.40) (a) Fia ställer glaset där.
 F. stands glass.the there
 ‘Fia puts the glass there.’
 (b) Markus kastade bollen uppåt.
 M. threw ball.the upwards
 ‘Markus threw the ball upwards.’

If words like *dit* and *upp* are intransitive prepositions, *där* and *uppåt* must also be classified as such. The words *där* and *uppåt* are very similar in function and meaning to *dit* and *upp*. Moreover, *uppåt* can take a complement (it is optionally transitive) and form a PP such as *uppåt stigen* ‘up the path’. As the

option of having a complement is usually taken as evidence of prepositionhood (Emonds 1972), the grammaticality of phrases such as *uppåt stigen* indicates that *uppåt* is a preposition. Again, the important thing to note here is that *dit* and *där* are of the *same* category. Whether they are prepositions, adverbs, or something else is actually not so important.⁷

Assuming here that *där* and *uppåt* are intransitive prepositions, the rule in (2.37) generates the ungrammatical examples in (2.41):

- (2.41) (a) *Fia ställer där glaset.
 F. puts there glass.the
 (b) *Markus kastade uppåt bollen.
 M. threw upwards ball.the

The restriction in (2.39) cannot rule out (2.41), since *där* and *uppåt* are not used transitively here. In fact, *där* does not have a transitive use at all.

There are further problems with the head-movement proposal. The hypothesis characterized in (2.37), predicts that (2.43) could be derived from (2.42):

- (2.42) (a) Maria sparkade bollen rakt upp.
 M. kicked ball.the straight up
 ‘Maria kicked the ball straight up.’
 (b) Simon körde bilen ända fram.
 S. drove car.the all.the.way forth
 ‘Simon drove car.the all the way there.’
 (2.43) (a) *Maria sparkade upp_i bollen rakt t_i.
 M. kicked up ball.the straight
 (b) *Simon körde fram_i bilen ända t_i.
 S. drove forth car.the all.the.way

The restriction in (2.39) does not exclude *modified* prepositions, so the examples in (2.43) are incorrectly predicted to be grammatical.

An alternative movement analysis would be to move the direct object across the PP.⁸ The underlying structure is then V-PP-NP and the derived structure is

⁷The locational *här/där* ‘here/there’ and the directional *hit/dit* ‘here/there’ cannot be analyzed as nouns in Swedish. Swedish thus differs from English, where ‘there’ can be a complement of verbs that select for an NP. The Swedish equivalent of ‘leave there’ is thus ungrammatical.

⁸I do not here consider rightward movement. However, it should be obvious that an analysis where the particle or the NP move to the right would encounter problems parallel to the ones sketched in this section.

V-NP-PP, caused by movement of the NP. This analysis runs into the same problems as the analysis positing movement of the intransitive PP. We need to prevent the NP from moving across PPs headed by *bort* in (2.30b) while it has to move across PPs headed by transitive prepositions, modified PPs, and also across PPs headed by certain intransitive prepositions, such as *där* (2.40a).

We could hypothesize that the particles and PPs differ in distribution because particles are not prepositional, but instead adverbial or adjectival. However, as pointed out above, labelling the particles adjectives and adverbs (which head APs or AdvPs) instead of prepositions will not help the situation, since ‘regular’ VP-internal APs and AdvPs cannot precede direct objects any more than full PPs can:

- (2.44) (a) ... och klöst honom blodig.
 and scratched him bloody
 ‘...and scratched him bloody.’ (PAR)
- (b) *... och klöst blodig honom.
 and scratched bloody him
- (2.45) (a) Birgitta strök Runars kinder torra.
 B. stroked R.’s cheeks dry
 ‘Birgitta wiped Runar’s cheeks dry.’ (PAR)
- (b) *Birgitta strök torra Runars kinder.
 B. stroked dry R.’s cheeks
- (2.46) (a) Han skrek sig alldeles brinnande röd...
 he screamed SELF completely burning red
 ‘He screamed himself completely red ...’ (PAR)
- (b) *Han skrek alldeles brinnande röd sig.
 he screamed completely burning red SELF

The examples in (2.44–2.46) contain full APs, and they obligatorily follow the direct object. Some examples of adjectival particles are given in (2.47):

- (2.47) (a) Sandra sparkade **ihjäl** ormen.
 S. kicked to.death snake.the
 ‘Sandra kicked the snake dead.’

- (b) Han knöt **fast** den med tre dubbla
 he tied stuck/tight it with three double
 råbandsknopar och tolv kärringknutar
 square.knots and twelve granny.knots
 'He tied it up tight three double square knots and twelve
 granny knots.' (PAR)
- (c) Jag sitter **sönder** ryggstödet till en stol när
 I sit broken back.support to a chair when
 jag förgäves söker göra det bekvämt för mig.
 I in.vain search make it comfortable for me
 'I break the back of the chair by sitting on it, while in vain
 trying to make it comfortable for myself.' (PAR)

The examples in (2.44-2.47) show that adjectives mirror the prepositions in distribution: the adjectival particles precede the direct object whereas full APs follow it. Likewise, adverbs cannot intervene between the verb and the direct object:

- (2.48) (a) Pelle ville inte läsa boken ordentligt.
 P. wanted not read book.the carefully
 'Pelle did not want to read the book with care.'
- (b) *Pelle ville inte läsa ordentligt boken.
 P. wanted not read carefully book.the

The adverb *ordentligt* cannot precede the object within the VP, and so projecting adverbs also differ from verbal particles.

In sum, an attempt to analyse particles as fully projecting words lead to several interesting problems, and these problems are not trivially solved by an appeal to movement.

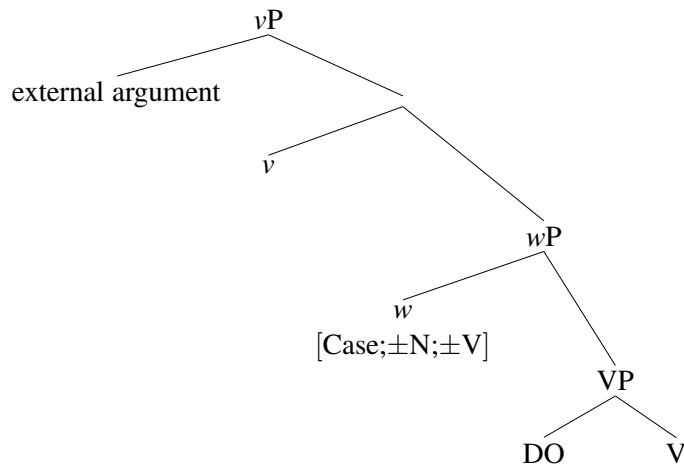
2.2.2. Nicol (2002)

Section 2.2.1 pointed to several general problems that are associated with movement analyses of verbal particles in Swedish. This is not to say that I have shown that a movement analysis would in principle be *impossible*. We can of course add extra machinery and idiosyncratic lexical features which would make it possible to give a transformational analysis of particles. The purpose of the discussion above was not to prove a transformational analysis

to be in principle impossible, but rather to show that such an analysis is not as attractive or straightforward as it might first seem. As mentioned above, there already exist numerous proposals of movement-based analyses of verbal particles. For obvious reasons of space, I cannot do justice to all such proposals here; moreover, many of the proposals employ mechanisms that have been argued against independently and are now considered outdated. However, for the sake of explicitness, I will address a specific analysis here, namely that of Nicol (2002). There are three reasons why I choose Nicol's analysis in particular: (1) It is a recent analysis, which employs ideas that are widely accepted in the transformational literature at the moment (feature checking, VP-shells); (2) Nicol specifically analyzes Swedish (in addition to English); and (3) Nicol's analysis is explicit and clear.

Nicol (2002) employs an Extended VP-Shell Hypothesis (EVPS), which is, as the name reveals, an extension of Larson (1988)'s VP-Shell Hypothesis. Nicol discusses both English and Swedish verbal particles. His main idea is that the particle is inserted under a head *w*, which is embedded in a VP-shell, as shown in (2.49):

(2.49)



Nicol makes the additional formal assumption that “particle insertion comes along with a formal checking feature that is either nominal or verbal” (Nicol 2002:168).⁹ When the particle is nominal, the direct object must move to the

⁹The empirical support Nicol gives for the claim that particles are either verbal or nominal is, to my mind, rather weak. He refers to the fact that particles can occasionally be nominalized (e.g., *ups and downs*) or made into verbs (e.g., *to down something*). I do not find this argument

Specifier of w to erase the nominal checking feature. After that, the verb moves to v . When the particle is verbal, the verbal feature triggers movement of the verb to w , and then the whole verb+particle complex raises to v . The insertion of a nominal particle thus derives a [V–DO–prt] word order, and the insertion of a verbal particle derives a [V–prt–DO] word order. This is the desired result, as both word orders are allowed in English. (For my analysis of English, see chapter 6.3) The discussion here will be limited to the particle with verbal features, which is connected to the [V–prt–DO] word order.

In English (as in Swedish), the pre-object particle cannot be modified:

(2.50) **He threw right out the garbage.*

Nicol offers the following explanation for this (2002, 172):

“Merging V to Part requires direct adjacency of the particle to the verb; we shall take this as a contingent morphological fact – perhaps a diachronic residue, since modern particles were verbal prefixes in Old English, ...”

In other words, the reason why (2.50) is ungrammatical, is that the verb and particle are merged and form a kind of morphological unit.¹⁰

Let us now turn to Nicol’s analysis of Swedish. I will focus on one part of his account: the role of w . As Swedish is verb-second, lexical material can be inserted between the verb and the particle, although the particle always immediately precedes the object. Nicol therefore assumes that the verb never merges with the particle in Swedish (unlike in English).¹¹ Instead, the verb raises directly to v , and then to the verb-second position (which he assumes is COMP). This yields the structure in (2.51) for the sentence in (2.52) (Nicol 2002:179):

(2.51) $[_{CP} D\hat{a} [_{COMP} sparkade] [_{IP} han [_{vP} t_{v-V} [_{w} bort] [_{VP} t_V bollen]]]]$

very compelling, as transfer from one word class to another is quite common in general in English. For example, adjectives can be turned into verbs (*the sky reddened*) and nouns (*I chose this red*).

¹⁰This part of Nicol’s analysis and the analysis of English presented in chapter 6 below are based on the same intuition.

¹¹Since the direct object also does not move, I assume that particles carry neither verbal nor nominal checking features in Swedish, although this is not explicitly spelled out by Nicol. Nicol’s analysis thus involves three options for checking features of particles: they can be associated with nominal features, verbal features or no features at all.

- (2.52) Då sparkade han **bort** bollen.
 then kicked he away ball.the
 ‘Then he kicked the ball away.’

The crucial thing to note is that the verb and the particle are *not* merged in Swedish, although they are in English. This leads to an obvious empirical problem, as pre-object particles cannot be modified in Swedish anymore than they can in English:

- (2.53) *Då sparkade han långt **bort** bollen.
 then kicked he far away ball.the

In Nicol’s analysis, the merger of the verb and the particle under *w* is crucial for ruling out modification of the particle when the particle precedes the direct object. As his analysis of Swedish does not involve such a merger of the verb and the particle, he cannot rule out the ungrammatical example in (2.53).¹² I conclude that Nicol’s analysis does not, as it stands, correctly account for the Swedish facts.

2.3. *Summary*

This section discussed the problems that arise if we postulate that particles head full phrases, like PPs or APs. A base-generated account referring solely to XPs cannot capture the difference in distribution between ‘particle XPs’ and other XPs, since they do not (necessarily) differ in function, but only in form. A movement account runs into several empirical problems, which have been laid out above.

Note that under any kind of movement analysis, some kind of arbitrary lexical specification will be necessary in order to distinguish particles from other intransitive prepositions (recall especially the examples in (2.40)). The data require an analysis where a word needs to be marked for whether or not it is a particle, which is broadly what is assumed under my analysis. However, I specifically propose that each word is marked for whether it projects a phrase

¹²Note that *långt* in (2.53) is what Nicol calls a ‘right’ type adverbial, and not a ‘carefully’ type adverbial. Nicol’s analysis does deal with the ‘carefully’ type of adverbials (this is especially clear in one of Nicol’s unpublished manuscripts). The problem I discuss here only concerns ‘right’ type adverbials. The ‘carefully’ type adverbials cannot modify particles at all, even when they follow the object: **John figured (out) carefully (out) the problem* (Nicol 2002:173). In my view, the latter example is ungrammatical because *out* is not used predicatively here (as is also suggested by Nicol in his unpublished manuscript).

or not. This can be contrasted with a hypothesis according to which all words project (particles also), and some prepositions (and adjectives, etc.) are marked for whether or not they move to some position preceding the object. Under such a proposal, it is completely accidental that the phrases that move happen to be intransitive, unmodified PPs. My analysis is more general, as *both* the distribution of the particles *and* the fact that particles are not phrasal follow from the hypothesis that words are lexically marked for whether or not they project.

3. ARGUMENTS AGAINST A MORPHOLOGICAL ANALYSIS

In the previous section I argued that particles do not project full phrases. I have taken this as evidence that particles are non-projecting words which are syntactically adjoined to the verb. However, the fact that particles do not project phrases would also be explained if the verbs and the particles were combined in the lexicon, as has been proposed by Neeleman and Weerman (1993) for Dutch, and Stiebels and Wunderlich (1994) and Stiebels (1996) for German.¹³ In this section, I will argue that the Swedish verbs and particles are not inserted into c-structure as a single lexical word.¹⁴ The main arguments are:

- (2.54) (i) Verbs and particles can be separated in the c-structure.
- (ii) The particle follows the verb, and morphological constructs are head-final in Swedish.

In this section, I discuss each of the arguments in (2.54) together with relevant examples.

Recall that the finite verb in Swedish generally appears in a functional projection outside the VP (that is, in IP or CP), although the particle must appear within VP. Other lexical material can therefore intervene between the verb and the particle:

- (2.55) (a) Niklas körde förmodligen **dit** bilen.
 N. drove probably there car.the
 ‘Niklas probably drove the car there.’

¹³See Zeller (1999, 2001) and Müller (2002) for discussions of problems with Neeleman and Weerman (1993)’s analysis as it concerns Dutch and German. In section 7.3.3, I argue that a morphological analysis is appropriate for English, which is similar to the proposals of Johnson (1991) and Nicol (2002).

¹⁴There are different notions of what a word is (see, e.g., Matsumoto 1996 and Ackerman and Webelhuth 1998 for discussion). Here, I mean a terminal node in the c-structure tree.

- (b) Jonna läste aldrig **ut** boken.
 J. never read out book.the
 ‘Jonna never finished the book.’
- (c) Slängde Peter **bort** boken?
 threw P. away book.the
 ‘Did Peter throw the book away?’

The examples in (2.55) show that the particle may be separated from the verb. Take the verb *körde* and the particle *dit* in the (a) sentence, for example. If we assume that *körde* and *dit* constitute one single word, the fact that they can be separated is a violation of the principle of lexical integrity, which is widely adopted across theoretical frameworks (see, e.g., Chomsky 1970, Lapointe 1980, Di Sciullo and Williams 1987). Neeleman and Weerman (1993) acknowledge that their proposal violates lexical integrity, but they are willing to give up this notion. In my opinion, the arguments for a morphological treatment of verb-particle combinations are not strong enough to warrant such a step. Two formulations of the lexical integrity principle drawn from the LFG tradition are given in (2.56-2.57):

- (2.56) *The lexical integrity principle* (Bresnan and Mchombo 1995)
 Words are built of different structural elements and by different principles of composition than syntactic phrases.
- (2.57) *The lexical integrity principle* (Bresnan 2001:92)
 Morphologically complete words are leaves of the c-structure tree and each leaf corresponds to one and only one c-structure node.

According to the principle of lexical integrity, the internal structure of lexical constructs is invisible to c-structure syntax, and parts of an individual morphological word cannot be separated in the c-structure.¹⁵ The examples in (2.55) thus show that verbs and particles are not combined in the lexicon.

The second argument against a morphological analysis is based on the derivation of new words from verbs and particles. Morphological constructs are head-final in Swedish. A newly formed compound such as *hundhatt* ‘dog hat’ is necessarily a kind of hatt, not a kind of dog. But the kinds of verb-particle combinations in the examples we have seen until now are not head-final (the particle follows the verbal head). There are examples of verb-particle

¹⁵Although mismatches between c-structure and f-structure ‘words’ are allowed (Andrews (1990), Bresnan and Mchombo (1995), Toivonen (2000b), Bresnan (2001), and references).

combinations where the verb is final, but these are morphologically derived words. Examples are given in (2.58-2.59), where the (a) sentences are the corresponding underived verb-particle combinations:

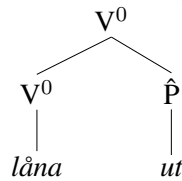
- (2.58) (a) Karin lånade **ut** böckerna.
K. lent out books.the
'Karin lent the books out.'
- (b) Böckerna är/blev **utlånade**.
books.the are/got out.lent
'The books are/got lent out.'
- (c) *Böckerna är/blev lånade **ut**.
books.the are/got lent out
- (d) några **utlånade** böcker
some out.lent books
'some lent out books.'
- (e) *några lånade **ut** böcker
some lent out books
- (f) **Utlåningen** av böcker har ökat.
out.lending.the of books.the has increased
'The lending of books has increased.'
- (g) *Låningen **ut** av böcker har ökat.
lending.the out of books has increased
- (h) ... de ska träffa alla **utlånare** på
they will meet all out.lenders on
kreditmarknaden.
credit.market.the
'... they will meet all the lenders on the credit market.' (PAR)
- (i) *De ska träffa alla lånare **ut** på kreditmarknaden.
they will meet all lenders out on credit.market.the
- (2.59) (a) Kalle skjutsade **hem** flickan.
K. drove home girl.the
'Kalle drove the girl home.'
- (b) Flickan är/blev **hemskjutsad**.
girl.the is/got home.driven
'The girl are/got driven home.'

- (c) ?Flickan är/blev skjutsad **hem**.
girl.the is/got driven home
- (d) den **hemskjutsade** flickan
the home.driven girl
'the girl that has been driven home'
- (e) *den skjutsade **hem** flickans
the driven home girl
- (f) **Hemskjutsningen** av flickan gick bra.
home.driving of girl.the went well
'Driving the girl home went well.'
- (g) *Skjutsningen **hem** av flickan gick bra
driving home of girl.the went well

In the examples above, we see that a verb and a particle can be combined to form adjectival (passive) participles (*utlånade* and *hemskjutsad*) and nouns (*utlåningen*, *utlånare* and *hemskjutsningen*). It sounds a bit funny to say *hemskjutsare* 'home-driver', but it is not ungrammatical. **Skjutsare hem* is impossible. Note the difference in particle-verb ordering: in the derived words the particle precedes the verb, although the particle otherwise follows the verb.¹⁶

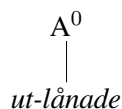
The difference between verb–particle combinations (V+Prt) in the (a) examples in (2.58-2.59) and the particle–head combinations (Prt+X) in the other examples is that the former is a syntactic and the latter a morphological construct, as illustrated in (2.60-2.61) below:

(2.60) c-structure V+Prt (two morphological words):



¹⁶Vinka (1999) reports passive participles such as *stängd av* 'turned off', and one of my informants also (marginally) accepts such examples (in addition to the Standard Swedish examples). Standard Swedish (as well as my own dialect) only allows *avstängd*, and in the PAROLE corpus, I found 195 instances of *avstängd* and no instances of *stängd av*. Although Vinka's dialect is very interesting, it will be set aside here, as it does not pose any problems for the general points made in this chapter. What Vinka's data show is that certain dialects of Swedish do not require all lexical compounds to be head-final.

- (2.61) c-structure $\text{Prt}+\text{X}$ (one morphological word):



In LFG, morphological word formation is assumed to be governed by principles independent of syntactic combinations of words; see again the principle of Lexical Integrity, and see also Kanerva (1987), Bresnan and Mchombo (1995), Matsumoto (1996). It is therefore not surprising that (2.60) is realized differently than (2.61).

The head of a syntactic $\text{V}+\text{Prt}$ combination can be a finite verb (as seen in (2.58a) and (2.59a) and numerous other examples above), a past participle (2.62a), or an infinitive (2.62b-c):

- (2.62) (a) ... för hon och pappa hade redan rivit
 because she and daddy had already ripped
 sönder dom och kastat **bort** dom.
 broken them and thrown away them
 ‘... because she and daddy had already ripped them up and
 thrown them away.’ (PAR)
- (b) Då ska vi be henne att komma **in**.
 then shall we ask her to come in
 ‘Then we’ll ask her to come in.’ (PAR)
- (c) Om folk kan komma **ihåg** ett namn som
 if people can come to.mind a name like
 Schwarzenegger...
 S.
 ‘If people can remember a name like Schwarzenegger...’
 (PAR)

The head of a morphologically derived $\text{Prt}+\text{X}$ combination can be of any word class. We already saw several examples above, and some more examples (which all contain adjectives) are given in (2.63):

- (2.63) (a) **Sönder**brutna eller **bort**kastade vapen låg i
 broken.broken or away.thrown weapons lay in
 bråtar.
 piles.
 ‘Guns that had been broken into pieces or thrown away lay in
 piles.’ (PAR)
- (b) ... det nya datoriserade telefonsystemet styr
 the new computerized telephone.system directs
 den **in**kommande trafiken till rätt tjänsteman.
 the in.coming traffic to right employee.
 ‘...the new computerized phone system directs the incoming
 traffic to the right employee.’ (PAR)
- (c) Man försöker välja lätt **ihå**gkomna namn...
 one tries to.choose easily to.mind.come names
 ‘One tries to choose names that are easily remembered...’
 (PAR)

The examples in (2.63) are clearly the output of derivational morphology, as their word class has changed from verb to adjective. As these examples are lexically derived, the particles precede the heads.

Together, the data in this section show that verbs and particles can combine lexically. However, a lexical verb-particle combination can easily be distinguished from the verb-particle constructs which are the main focus here: lexical combinations are head-final and cannot be separated in the syntax. Importantly, the verb-particle combinations under concern in this work (V+Prt) is a syntactic construct, not a morphological one.

4. PARTICLES AND CLITICS

I have proposed that particles are non-projecting words that are syntactically adjoined to the verb. Single words which are syntactically head-adjoined are often referred to as clitics in the literature (Keyser and Roeper 1992, Jaeggli 1986, Pulleyblank 1986 and others); in fact, Josefsson (1998:149) and Holmberg (1986:201) suggest that the Swedish particles are clitics, or ‘clitic-like’. In what follows, I argue that particles cannot be considered clitics under standard definitions of clitic-hood, since they are not phonologically weak. In order to capture the similarities and differences between particles and prototypical

clitics, I introduce a new typology of words, where the word ‘clitic’ is abandoned as a unifying theoretical term. Instead, words are divided up along two dimensions: syntactic projectivity (whether or not the word projects a phrase) and phonological dependence (whether or not the word is phonologically dependent on another word).

4.1. *Testing particles for clitichood*

The word ‘clitic’ has been used in the linguistics literature to refer to a wide range of elements. Zwicky (1994) and Sadock (1995) show that it is impossible to come up with a definition of clitic that includes all the elements that have been labeled as such (see also (van Riemsdijk 1999a), who makes a similar point). However, there is a strong tendency in the literature to use the label ‘clitic’ for elements which are equivalent to a word as far as the syntax is concerned, but are phonologically dependent on a host; that is, a clitic needs to phonologically attach to another word or phrase, although it is not a lexically bound morpheme of the hosting element. But how do we know if a word is phonologically dependent on another word? Halpern (1995: 14) offers the following ‘rule of thumb’ diagnostics for clitichood: (1) A clitic is (lexically) stressless/accentless; and 2) a clitic occupies one of a characteristic set of positions (second position, adjacent to the predicate of a clause, etc.). In this section, I present data which show that verbal particles do not pass Halpern’s clitichood tests, and so are not clitics.

Swedish particles are stressed (Kjellman 1929, Norén 1996: 214, Platzack 1998: 176, Teleman, Hellberg, and Andersson 1999: Volume 3, 413). Compare (2.64a) to (2.64b), for example:

- (2.64) (a) Johan bröt *áv* pennan.
 J. broke off pencil.the
 ‘Johan broke the pencil in two.’
- (b) Johanna fick pennan *av* Johan.
 J. got pencil.the from J.
 ‘Johanna got the pencil from Johan.’

In (2.64a), the word *av* is used as a particle, and it is stressed (as indicated by the acute accent). In (2.64b), however, *av* is a transitive preposition (with the complement *Johan*), it is not in the particle position and it is not stressed (Kjellman (1929), Hellberg (1976) and Ralph (1987) further discuss the differences between prepositions and particles in Swedish). Since Swedish particles are stressed, they do not fall under Halpern’s clitichood definition.

A second property of clitics is that they need to be adjacent to a particular host. This also does not hold true for the verbal particles in Swedish. The particle and the verb seem to form a semantic unit (Norén 1996), and the ‘natural’ host for the particle would therefore be the verb. As we have already seen above, however, the particle does not need to appear next to the verb. The particle is always next to the verbal position within the VP, but the finite verb is often positioned higher up in the clause, since Swedish is a V2 language. This was discussed above in chapter 1, section 2 and also section 3 of the present chapter. Additional examples are given in (2.65):

- (2.65) (a) Chauffören slängde nonchalant **ut** sin
 driver.the threw nonchalantly out his.REFL
 fimp genom fönstret.
 cigarette.butt through window.the
 ‘The driver nonchalantly threw his cigarette butt out the
 window.’ (PAR)
- (b) ... när jag blev äldre så glömde jag **bort** dom
 when I got older so forgot I away those
 där goda råden.
 there good advice.the
 ‘...when I got older, I forgot those pieces of good advice.’
 (PAR)
- (c) Hon sparkade inte **ut** honom.
 she kicked not out him
 ‘She didn’t kick him out.’ (PAR)

It is clear from the examples in (2.65) that the particle does not cliticize to the verb in the phonological sense. In (2.65a), the adverb *nonchalant* comes in between the verb *slängde* and the particle *ut*. In (2.65b), the subject *jag* intervenes between *glömde* and *bort*. In (2.65c), the negation *inte* comes in between the verb and the particle.

It is also clear that the particles are not proclitics, cliticizing to the direct object. Consider the sentences in (2.66):¹⁷

- (2.66) (a) Boken slängde han **bort**.
 book.the threw he away
 ‘The book is what he threw away.’

¹⁷Thanks to Johan Persson for the example in (2.66b).

- (b) Pennan bröt hon **av**, men suddgummit sparade
 pencil.the broke she off, but eraser.the saved
 hon.
 she
 ‘The pencil she broke in two, but the eraser she saved.’

In (2.66), the direct objects are topicalized and separated from the particles. Together, examples (2.65-2.66) make it clear that the particles do not need a fixed phonological host.

Note also that some particles can function as the main predicate of the clause. This is particularly common in imperative sentences:

- (2.67) (a) **Hit** med smöret!
 here with butter.the
 ‘Give me the butter.’
 (b) **Upp** med händerna!
 up with hands.the
 ‘Hands up!’

The particles in (2.67) are stressed, and they are clearly not cliticized to the predicate (since they *are* the predicates) or the direct object.¹⁸

A clitic is necessarily either a proclitic or an enclitic. The Swedish particles are neither, as is clear from the examples above: in (2.66), the particle has nothing on its right, and in (2.67), it has nothing on its left.

There is a further diagnostic that can be used to argue that an element is phonologically connected to another element: morphophonological alternations. The indefinite articles in English provide an example. They alternate between *a* and *an* preceding consonants and vowels, respectively. The Swedish particles do not undergo any such alternation, which might be expected if they were phonologically dependent.

To conclude, Swedish particles do not pass the traditional clitic-hood tests: they are not phonologically ‘weak’, nor do they need to appear next to a given host, or in second position. The particles should therefore not be analyzed as clitics, although they are non-projecting words which head-adjoin syntactically.

¹⁸I do not provide a full analysis here of the type of expressions illustrated by (2.67). It is possible that *hit* and *upp*, as they are used in (2.67) are in fact best analyzed as full PPs.

4.2. *A typology of words*

The definition of a clitic adopted here is that a clitic is a syntactically independent (i.e., not morphologically bound) word which is phonologically dependent on another word. As mentioned above, the word ‘clitic’ has been used in the literature with other definitions as well (see Zwicky 1994 for an overview of definitions of clitics). In fact, some authors define clitics as non-projecting heads, adjoined to another head (see Keyser and Roeper 1992, for example). A situation where the same label is used in connection with various distinct definitions should clearly be avoided. Instead of dividing words into clitics and non-clitics, I propose that words should be divided according to two parameters: (1) whether they project phrases, and (2) whether they are phonologically dependent. Words can then be realized in four different ways in the phrase structure, as in Table 2.1. Swedish particles are non-projecting words which are not phonologically dependent; that is, they belong to type 3 in Table 2.1. In Table 2.2 we see a mini-typology, making use of the new classification. The formal status of non-projecting elements will be spelled out in detail in the following chapters, mainly focussing on the Swedish particles. I will devote the rest of this section to a brief discussion of some of the other cross-linguistic data referred to in Table 2.2.

Table 2.1. The projection/dependence matrix

	non-projecting	projecting
phonologically dependent	1	2
not phonologically dependent	3	4

Table 2.2. A mini-typology of words

	NON-PROJECTING	PROJECTING
PHON. DEP.	French ‘clitic’ pronouns Serbo-Croatian pronouns and auxiliaries	Kwakwala and Yagua determiners English reduced auxiliaries Swedish genitive marker Finnish, Russian and Bulgarian question particles
PHON. INDEP.	Swedish verbal particles Yoruba weak pronouns	English verbs Yoruba strong pronouns Estonian question particles

4.2.1. *Phonologically dependent and non-projecting*

Several factors show that French clitic pronouns¹⁹ are phonologically dependent. First, they are unstressed. Second, they alternate with the allomorph *l* when they immediately precede a vowel:²⁰

- (2.68) (a) Je la/*l' vois.
 I her see
 'I see her.'
- (b) L'/*La as-tu vu?
 her have-you seen
 'Have you seen him?'

Third, the clitic pronouns never appear alone without any morphological material to lean on, as shown in the examples in (2.69), taken from van Riemsdijk (1999a: 3):

- (2.69) (a) Qui as-tu vu?
 who haveyou seen
 'Who did you see?'
- (b) *Le/*la/*les. [*intended as an answer to (a)*]
 him/ her/ them

The ungrammaticality of (2.69b) lends support to the claim that the pronouns are phonologically dependent.

French clitic pronouns always appear as single words: they cannot be modified. This indicates that they are non-projecting heads. Furthermore, the clitic pronouns differ in distribution from full object NPs:

- (2.70) (a) Je la/*Marie vois.
 I her/ M. see
 'I see her.'

¹⁹The French pronouns under discussion here are normally analyzed as clitics (Kayne (1975), Haegeman (1996), Zwart (1996) and references in those works). However, they have also been analyzed as bound morphemes by Miller (1992) and Miller and Sag (1995, 1997). For further discussion, see Hirschbühler and Labelle (1999a,b).

²⁰The examples in (2.68) and (2.70) are adapted from Zwart (1996: 588). I have changed the masculine *le* in Zwart's examples to feminine *la*, since an unstressed schwa (the final vowel in *le*) is often dropped independently in many varieties of French. Thanks to Luc Baronian for help with these examples.

- (b) Je vois Marie/*la.
 I see M./ her
 'I see Marie.'

The pronoun *la* and the proper name *Marie* have the same function in (2.70): they are both direct objects of the verb *voir* 'see'. Yet they differ in distribution. This fact is explained if we assume that they differ not only phonologically but also in phrase structural status: fully projecting objects appear in the complement position of the verb, whereas non-projecting pronouns head-adjoin to the left of I^0 .

The Serbo-Croatian 'clitic' auxiliaries and pronouns also fall into the non-projecting phonologically dependent class. For data and discussion, see Progovac (1996) and Radanović-Kocić (1996), who offer two different analyses of the clitics. Both analyses differ from the present account of the French clitics, but the data are compatible with such an analysis.

4.2.2. Phonologically dependent and projecting

Kwakwala and Yagua determiners (which consist of a demonstrative or a possessor, sometimes preceded by a case marker) project DPs, and are phonologically dependent on a host. An interesting fact about both Kwakwala and Yagua is that although the determiners take an NP complement on the right, they are phonologically 'enclitic', that is, dependent on a host on the left (Anderson 1984, 1993, Payne and Payne 1990, Spencer 1991). A Kwakwala example from Anderson (1984) is given in (2.71), where = denotes phonological attachment and [] marks syntactic constituency:

- (2.71) $k^wix?id[=ida \ bEg^wanEma][=x=a \ q'asa][=s=is$
 clubbed=the man=OBJ=the otter=INSTR=his
 $t'Elwag^wayu]$
 club
 'The man clubbed the otter with his club.'

The following examples from Yagua (Payne and Payne 1990:365) show that it does not matter what the syntactic category of the phonological host is:

- (2.72) (a) $sapúúchiy \ \text{Pauro} \ \text{roorivyimuní} \ \text{Anita}$
 $sa-púúchiy \ \text{Pauro} \ \text{rooriy-viimu-}[nú \ \text{Anita}]$
 3SG-lead/carry Paul house-inside-3SG Anita
 'Paul leads/carries Anita inside a/the house.'

- (b) siimyimaa Tomáásara jásuchee
 sa-jimyiy-maa Tomáása-[**rà** jásuuchee]
 3SG-eat-PERFECT Tom-INANIMATE manioc
 ‘Tom has eaten the manioc.’
- (c) raa jasítya jáádiñíí jiñuvu
 ray-ǵ jasítya jáádiy-[**níí** jiy-nuvu]
 1SG-IRREALIS defeather first-3SG 2SG-kill(noun)
 ‘I will defeather your kill first.’

In (2.71-2.72), we see that the determiners, which (at least under some analyses) project a DP, are phonologically dependent on a host to their left, and that host is not restricted for syntactic category. In (2.72a), the determiner is adjoined to a postposition, in (2.72b) to a noun, and in (2.72c) to an adverb. Although the determiners attach to whatever precedes them, nothing can intervene between the enclitic and the nominal object (Payne and Payne 1990: 366).

Another class of words that are phonologically dependent even though they project phrases are English auxiliaries (Nordlinger and Sadler 2000, Bender and Sag 1999, Barron 1998, Sadler 1997, van der Leeuw 1997, Sadock 1991, Spencer 1991, Inkelas 1989, Kaisse 1985). It has been noted that there are systematic differences between two groups of reduced auxiliaries in English. Here we will focus on the group that Inkelas labels ‘clitics’; that is, the “idiosyncratic, lexically listed bound forms” and not reduced forms which are “simply the derived surface form of function words in unstressed phrasal position” (1989:296). Inkelas lists the following forms of auxiliaries in English:

- | | | |
|--------|---------------|-------------|
| (2.73) | stressed form | clitic form |
| | has | ’s |
| | have | ’v |
| | is | ’s |
| | will | ’l |

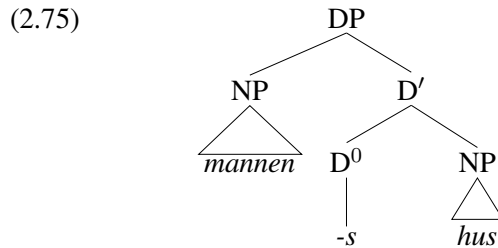
Inkelas notes that a clitic auxiliary cannot appear phrase-initially:

- (2.74) **L Eric ever renew his ACLU membership?*
 (intended: *Will Eric ever renew his ACLU membership?*)

The English ‘clitic’ auxiliaries are phonologically dependent on a host to their left. Given the additional standard assumption that English auxiliaries occupy

I^0 , which projects an IP, we see that English auxiliaries are similar to the Kwakwaka and Yagua determiners, in that they are projecting, phonologically dependent words.²¹

The Swedish genitive marker *-s* is a phonologically dependent projecting head which projects a DP, as in (2.75). The representation in (2.75) is adapted from Norde (1997: 228):



According to standard analyses of the Swedish genitive, the possessor is located in the specifier position of DP, whereas the genitive marker *-s* is in D^0 . This is similar to the structure that Abney (1987) and Barker (1995: 6) assume for English. If the possessor is a full phrase, the genitive marker goes at the end of that phrase, as we see in example (2.76), taken from Norde (1997: 68):

- (2.76) kungen av Danmarks slott
 king.the of Denmark-s castle
 ‘the king of Denmark’s castle’

For further discussion of the Swedish genitive, see Johannessen (1989), Delsing (1991), Perridon (1994) and Norde (1997: 63–71).

The Finnish question particle *-ko/-kö* is a projecting head C^0 which is phonologically dependent. For evidence, see Kanerva (1987), Vainikka (1989) and Rudin, King, and Izvorsli (1995). For the Russian and Bulgarian particle *li*, see Rudin, King, and Izvorsli (1995).

4.2.3. *Phonologically independent and non-projecting*

As noted in the previous chapter, Swedish particles are not phonologically dependent, although they are non-projecting. Other examples of such words can

²¹Sadler (1997) and Barron (1998) argue that some English auxiliaries have in fact lost their status as independent c-structure words, and that they are now morphologically bound morphemes, bound to certain subject pronouns. It is, however, uncontroversial that at least some of the auxiliaries in English are phonologically bound but syntactically projecting.

be found in pronominal systems cross-linguistically. I will give examples of Yoruba pronouns here, but see also the pronominal systems of Germanic and Romance, as characterized by Cardinaletti and Starke (1996, 1999).²²

Yoruba pronouns are traditionally divided into *weak* and *strong* forms (Bamgboṣe 1966, 1980, Pulleyblank 1986). Some examples of the two pronominal sets are given in Table 2.3 (Pulleyblank 1986: 43):

Table 2.3. Yoruba pronouns

Strong series		Weak series	
èmí lọ	‘I went’	mo lọ	‘I went’
àwá lọ	‘we went’	a lọ	‘we went’

There are several important differences between the two types of pronouns. The strong pronouns can be modified, whereas the weak pronouns cannot. Strong pronouns have the same syntactic distribution as nonpronominal nouns. Weak pronouns, however, are more restricted: they cannot head a cleft construction, and they cannot occur in topic position. These differences can be accounted for if we analyze the strong pronouns as projecting words and weak pronouns as non-projecting words.

4.2.4. Phonologically independent and projecting

The final group in the projection/dependence matrix consists of projecting words which are not phonologically dependent on a host. This group is the least problematic one, in that it falls neatly into the assumptions of X'-theory, which will be discussed further in chapter 3.

5. SUMMARY

Verbal particles have two main characteristics which distinguish them from other words and phrases: (1) They cannot take modifiers and complements. (2) They must be adjacent to the verbal position in the VP. These facts fall neatly out of an analysis where the particles are non-projecting words that are syntactically adjoined to the verbal head:

²²The ‘weak’ pronouns of Cardinaletti and Starke can be analyzed as phonologically independent non-projecting words.



The difference between particles and other words is thus purely structural: non-particles project phrases whereas particles do not. Importantly, the definition of Swedish particles is not tied to any one syntactic category or grammatical function.

This chapter considered three alternatives to the proposed analysis. First, we considered the possibility that particles do project full phrases, just like other words. This approach was rejected, since there is no criterion by which we can distinguish particles from other words if we do not assume a structural difference between them. At first glance, it might look like the problems posed here can be easily solved by employing the mechanism of movement. The discussion above pointed to several general problems that face movement-based analyses.

As a second analysis, we considered the possibility that particles are morphologically adjoined to verbs in the lexicon. This hypothesis was rejected for two reasons. First, verbs and particles can be separated in the syntax. Second, morphological words are head-final in Swedish, but verbs generally precede their particles.

A third alternative would be to treat particles as clitics. Clitics are often represented in the phrase-structure as non-projecting, head-adjoined structures, such as the structure we see in (2.77). However, the Swedish verbal particles are not prototypical clitics, since they are not phonologically dependent on another word. I have therefore proposed an alternative way to look at clitics, as illustrated by the projection/dependence matrix in Table 2.1. The classification in Table 2.1 takes seriously the observation arrived at in my analysis of Swedish particles and also noted previously by researchers working on clitics (see the discussion in Klavans 1985): whether a word is phonologically dependent is orthogonal to whether it projects a phrase.

It has previously been pointed out that there is no precise, agreed-upon definition of what a clitic is. The projection/dependence matrix helps classify different types of words, some of which are ‘clitic-like’ and some of which are not. The non-projecting, phonologically dependent words are prototypical clitics. The non-projecting, phonologically independent words and the projecting, phonologically dependent words fall in between the prototypical cli-

tics and completely independent words. Finally, the projecting, phonologically independent words share nothing in common with clitics.

CHAPTER 3

PHRASE STRUCTURE

1. INTRODUCTION

This chapter is concerned with the LFG constituent structure theory in general, and non-projecting words within that theory in particular. C-structure representations in LFG are constrained by X' -theory (Chomsky 1970, Jackendoff 1977, Bresnan 1977, 1982a). In that sense, c-structure representations resemble the phrase structural representations of various other syntactic theories; for example, Government and Binding Theory, some versions of the Minimalist Program, and the Optimality Theoretic syntax developed in Grimshaw (1997).

A reasonable question to ask is the following: If most theories have a theory of phrase structure, why have I chosen to cast my analysis of non-projecting words in LFG in particular? There are several reasons for this. First of all, it is generally a good idea to choose a particular theory for the sake of concreteness. Instead of making reference to some more general theory of phrase structure which encompasses ideas formalized in various theories, I specifically refer to the theory of phrase structure within LFG and can thereby make my proposals more precise. Second, I find the theory of phrase structure encompassed within the general LFG model of grammar especially appealing for my present purposes. LFG specifically separates its theory of phrase structure from theories of other types of grammatical information. In LFG, phrase structure is modelled solely on the c-structure. C-structure represents the hierarchical organization of words and phrases within a sentence, and it also represents the linear order of constituents. However, c-structure is not used to model predicate-argument structure or semantics. In particular, LFG does not adopt any c-structure principle equivalent of the *Projection Principle* of Government and Binding Theory, and it is therefore not the case that the selectional restrictions of a verb need

to be reflected in particular c-structure configurations.¹ Generalizations concerning thematic roles, grammatical functions and compositional semantics are modelled in the argument structure, the functional structure and the semantic structure, respectively (see chapter 1, section 1). The different levels are independent, though they are related through mapping principles. (For the formal representation of the different levels of syntax in LFG, as well as the mapping between those levels, see Bresnan (1982b), Kaplan and Bresnan (1982), Sells (1985), Kaplan (1995), Dalrymple, Kaplan, Maxwell, and Zaenen (1995), Falk (2001), Bresnan (2001), Dalrymple (2001), and references cited in those works.) Given this general architecture, it is possible that a given c-structure representation mirrors certain thematic properties of the head. However, this is an *indirect* consequence of the mapping between levels, since no c-structure principle says anything directly about thematic representations.

Recall from previous chapters that verbal particles differ from other words and phrases only in their phrase structural representation: they are not connected to any particular grammatical function or any particular semantics. Verbal particles thus seem to call for an architecture of the grammar where phrase structural representations are not crucially connected to semantics, grammatical functions, or theta roles. Since LFG provides exactly such an architecture, it is especially well-suited for modelling non-projecting words. This does not mean, of course, that it is impossible to model in other frameworks the basic intuition that particles are different from other words only with respect to phrase structure. In fact, some researchers have already explored this possibility in other theories of grammar, as will be discussed below in section 8.

This chapter reviews and modifies the theory of c-structure in LFG. Since syntactic generalizations can be modelled on a-structure and f-structure as well as on c-structure, the burden on phrase structure in LFG is not as great as it is in some other theories. However, c-structure still hosts a lot of important information. In many languages, specific phrase structure positions are tied to given grammatical functions. For example, the specifier position of IP in English is associated with subjects. It is important to explore the nature of c-structure in order to understand its role in expressing grammatical relations, but also in order to understand how the superficial sentence structure is constrained.

The LFG X' -theory shares much in common with the formulations of X' -

¹The Projection Principle ensures that lexical items appear in the necessary phrase structure positions (with respect to θ -marking, for example) at all levels of representation (D-Structure, S-structure, and LF, for GB). The formulation of Chomsky (1981: 38) is given in (i), where L_i and L_j are levels of phrase structural representation:

(i) If α selects [= ' θ -marks'] β in γ at L_i , then α selects β in γ at L_j .

theory adopted in other frameworks. Much of the discussion in this chapter (especially section 2) will be familiar also to readers who lack expertise in LFG, as many of the constraints and principles adopted here overlap with those of Chomsky (1970), Jackendoff (1977) and Bresnan (1977). This chapter builds directly on Bresnan's (2001: chapter 6) version of X' -theory for LFG, and a large part of the chapter reviews the assumptions laid out and motivated there. Some aspects of the previous formulations are vague, so I here strive to make the LFG X' -theory more explicit. In order to do so, I propose certain principles or constraints that are less general than the original ones. It could perhaps be argued that I thereby create a theory which is less 'elegant'. However, with constraints that are explicit and highly restrictive, the theory becomes easier to test, and thereby also empirically falsifiable. My revisions will therefore make it more feasible to test whether X' -theory actually provides real insight into how phrase structure is universally restricted.

The first goal of this chapter is thus to discuss the LFG X' -theory. A second important goal is to make room for non-projecting words within the theory of phrase structure. In order to do so, I need to consider not only principles relevant for X' -structures, but also the inventory of syntactic categories. In addition, I revise the principles which govern the mapping between constituent and functional structure.

2. X' -STRUCTURE

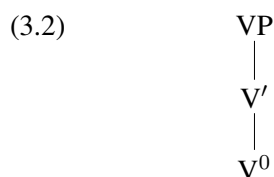
Phrase structure is constrained by X' -theory, but, as was pointed out above, the present analysis of particles seems to violate traditional versions of this theory: particles appear to be heads, as they consist of only a single word, but they are unlike heads in that they do not project phrases. In section 3, I posit head-adjunction as one of the permitted adjunction structures in the theory of phrase structure. Before that, this section will review X' -theory (specifically, the version laid out in Bresnan 2001). This section also discusses how the X' -constraints fit into a general theory of grammar; I will specifically focus on how X' -theory constrains the acquisition of phrase structure.

Bresnan (2001:99) adopts the following well-known endocentric constraints on phrase structure rules:

- (3.1) (a) $XP \rightarrow X', YP$
 (b) $X' \rightarrow YP, X^0$

These phrase structure rules are not meant to be rules generating structures, but rather constraints on possible structures. The rules in this chapter are intended as universal constraints on possible structures (schematic rules). I will later make use of rules as constraints on language-specific structures.

The schema in (3.1) dictates that each category will be realized in three levels. For example, V^0 projects a phrase V' , which projects a VP:



An X^0 head shares properties in common with the phrasal category it projects.

It is commonly assumed that syntactic category labels such as N and V do not denote linguistic primitives. Bresnan (2001:100, 120) assumes that the categories can be defined by the primitive features in (3.3) (see Chomsky 1970, Jackendoff 1977: chapter 3, and Muysken and van Riemsdijk 1986 for further discussions of how categories can be defined featurally):

(3.3) **Kinds of categories:**

	'predicative'	'transitive'	
V	+	+	verbal
P	—	+	pre- or postpositional
N	—	—	nominal
A	+	—	adjectival

Predicative categories require an external subject of predication, and transitive categories may take an object or a direct complement function. X^0 , X' and XP share the same predicative and transitive feature values, since each head X^0 projects a phrase X' , and each X' projects a phrase XP.

The lexical categories (L) in (3.3), V, P, N, and A are adopted here (A can be an adjective or an adverb). In addition, we adopt the following inventory of familiar functional categories (F): C ('complementizer'), I ('inflection'), and D ('determiner').

This system is in many ways similar to other versions of X' -theory: the familiar parts are the endocentric principles in (3.1) together with the classification in (3.3), with the added functional categories. The LFG X' -theory also diverges in some ways from other versions of X' -theory. For example, LFG

allows non-headed structures (we will see plenty of examples of such structures below). In addition, LFG allows for an exocentric and non-projective category *S*. The variable *X* in (3.1) thus does not range over *S*. (The category *S* will not be relevant elsewhere in this work; I mention it here for the sake of completeness.) In a way, the inclusion of *S* makes for a weaker theory, but its presence is supported by evidence from a large number of languages, such as Tagalog (Kroeger 1993), Warlpiri (Simpson 1991), and Wambaya (Nordlinger 1998) (see also Bresnan 2001 for discussion). *S* is a member of the inventory of universally available categories, but it does not conform to endocentric principles, in that it lacks a categorial head. The syntactic category of *S* is thus not determined by that of its head. Although *S* is often appealed to in non-configurational languages, it can also dominate configurational structures, adopting here the following definition of configurationality: a language is configurational if it has a VP, or some other projecting category distinguishing the subject position from the complement positions. For a thorough discussion of definitions of configurationality, see Nordlinger (1998).

Many languages have a subject-predicate structure like the one in (3.4), Welsh and Tagalog being examples (Sadler 1998a,b, Kroeger 1993: 11–12):



Configurational or not, *S* is not endocentric, since it lacks a categorial head.

Since LFG allows for non-headed structures and the category *S*, the endocentric principles in (3.1) cannot be absolute. That is, they cannot be postulated as inviolable, universal principles. Bresnan (2001) addresses the issue with an appeal to the notion of markedness:

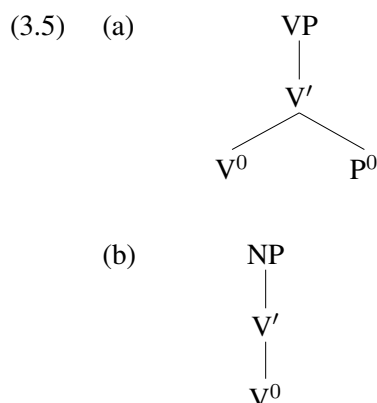
“Any c-structure pattern can be considered unmarked if it is an instantiation of these universal endocentric constraints. By this means our theory allows the presence of marked constructions of irregular form and content alongside the instantiations of the universal endocentric patterns.” (Bresnan 2001:101)

In Bresnan’s system, structures that are in accordance with the endocentric principles need not be specified in a given language. A language only needs to specify the kinds of structures that override or add to the structures allowed by the universal principles. In that sense, less endocentric structures are marked.

The theory that will be developed here differs from that of Bresnan (2001) in that it does not make crucial use of the notion of markedness. Bresnan’s

theory *allows* structures which do not conform to her X'-theory, although such structures will be considered marked. The present approach, however, does not allow structures that directly violate X'-theory. Instead of referring to the principles of X'-theory as 'unmarked', they are here assumed to be universal. They are universally available to the language learner, and they cannot be directly violated, in the sense that a language cannot contain a highly specific hierarchical structure that obeys rule other than those of X'-theory. X'-theory in this way constrains the inventory of universally available structures.

A couple of example structures will clarify how the theory adopted here is more restrictive than that of Bresnan (2001). In Bresnan's theory, structures such as those in (3.5) would be allowed (though marked):



If the familiar X'-constraints are interpreted the way I propose here, the structures in (3.5) are ruled out. One might ask, when would structures such as those in (3.5) ever be proposed? Though rare, proposals for unorthodox structures can be found in the literature on verbal particles, and also the literature on mixed categories. Whether or not the structures in (3.5) are attested is of course an empirical question. It should be clear that the system argued for here is testable (and thereby falsifiable): clear counterexamples would require a revision of the theory. However, it is less clear what it would take to test and falsify X'-theory under the view laid out in Bresnan (2001). In this sense, the theory laid out here is more precise.

The view taken here is that the universal structures which are specified by X'-theory can be 'unlearned', based on positive evidence. Let me briefly lay out the theory of acquisition that lies behind this claim. I adopt the view that UG provides an initial state which is maximally restrictive. This view is convincingly argued for by Hale and Reiss in various papers (e.g., Hale and Reiss

1996, 1998, 2000, 2001). Hale and Reiss's arguments crucially rely on the assumption that no negative evidence is available to the child. Negative evidence is taken to mean evidence which directly tells a child that a specific utterance is ungrammatical. The 'no negative evidence'-hypothesis is what lies behind the Subset Principle. The Subset Principle states that a child will opt for the most restrictive hypothesis possible, as long as this hypothesis accounts for the data.² The Subset Principle prevents the learner from making hypotheses involving overly broad generalizations which can only be corrected with negative evidence. Once (and if) the learner gets *positive evidence* that the present hypothesis is too restrictive, s/he loosens it up. Hale and Reiss are mainly concerned with phonological acquisition, but their arguments extend quite readily to the acquisition of phrase structure. In phonology, a maximally restrictive initial state means a full feature inventory: the grammar is initially maximally specific. That this would be an instantiation of the Subset Principle might seem counterintuitive: In what sense is 'more features' a subset of 'fewer features'? As Hale and Reiss (1996) put it: "fewer features equal more things" (120). A maximally restrictive initial state involves a highly specified, very restrictive grammar, which corresponds to a small set of permissible expressions. Once the learner gets positive evidence that his/her grammar is too restrictive, the grammar is modified by relaxing the restrictions. The idea here is that X'-theory is part of the theory of the maximally restrictive initial state, which is loosened up only when the learner encounters positive evidence that his/her language may violate certain X'-principles. In addition, at the initial state, all categories (functional and lexical) are available, and the phrase structure is fully configurational.

Universal Grammar (UG) provides a few endocentric phrase structure principles, seven basic projecting syntactic categories, and the exocentric category S. These have been mentioned briefly above, and will be discussed in more detail in section 3. In addition, UG provides a number of principles which

²The Subset Principle should thus not necessarily be interpreted as a principle of UG. If the effect of the Subset Principle indeed follows from the "no negative evidence"-hypothesis, it is a descriptive generalization, rather than a principle. The "no negative evidence"-hypothesis and the Subset Principle are standardly adopted in generative grammar (see Berwick 1985, Manzini and Wexler 1987, Wexler 1991, Marcus 1993, and references cited in those works), although there is much disagreement in the literature concerning these issues. Research that disputes aspects of these views include Bohannon and Stanowicz (1988), Morgan, Bonamo, and Travis (1995), Brent (1993), Pullum (1996), Seidenberg (1997), Lasnik (2000). It should be noted, however, that the model of X'-theory developed in this chapter is not incompatible with other views of acquisition: my intent is only to show that the present theory does not clash with standard generative views.

constrain the c-structure to f-structure mapping (Bresnan 2001). These mapping principles will be discussed in section 4.

I assume that the language learner's initial hypothesis is that the grammar s/he is learning employs completely endocentric structures. The learner rejects this hypothesis only when direct evidence contradicts it. This view does not involve any 'unmarked' structures that do not need to be specified for a language. All the machinery needed for a given language is specified for that language. Some of the structures will be of the highly endocentric kind specified by UG, whereas other structures will be more permissive—they will allow for a flatter structure under the exocentric category S. Such a structure will be less elaborate than a more fully endocentric one. In this sense, structures can be seen as a 'subset' of what UG allows, summarized in Table 3.1.

Table 3.1. Acquisition of structure

initial state	any one specific grammar
strictly endocentric phrase structure	may depart from endocentricity
all categories	a subset of the available categories
mapping principles	the relevant mapping principles

Non-configurationality has to be *learned* in a way that configurationality does not. The learner initially attempts to assign a strictly configurational structure onto the linguistic string. Strict configurationality constrains the word order. Once it becomes clear through positive evidence that several word orders are allowed, the learner unlearns the strict configurationality and allows a freer, flatter structure. Non-configurationality is thus the special (or 'marked') option, in a sense. Note that if the learner initially assumed a flat structure, no positive evidence would ever contradict that hypothesis.

Let us consider a concrete example: Imagine a language which has a VP which contains an object NP. The object must be adjacent to the verb. If a learner assumes that there is no VP, and the object and the verb do not need to be adjacent s/he will never be confronted with counterevidence to that. An object next to the verb would not contradict the child's initial hypothesis. In other words, if the child adopts a less restrictive hypothesis, no evidence will ever show that s/he is wrong. The view that configurationality is the child's initial hypothesis is in accordance with the fact that non-configurationality seems to be rare among the languages of the world.

In the learnability model that I have in mind, frequencies of occurrence of specific inputs is not significant. I assume that the learning strategy is *one-memory limited*; see Pinker (1984: 31) and Osherson, Stob, and Weinstein (1982). However, many recent theories of learnability involve statistical information (see, e.g., Brent and Cartwright 1996, Seidenberg 1997, Christiansen and Curtin 1999, Boersma and Hayes 2001), and in such models, the advantage of a maximally restrictive initial state is not clear. However, I am not aware of any support for the claim that theories assuming an unrestrictive initial state are superior. In either case, it is important to note that the specifics of the X' -theory laid out in this chapter are not in principle dependent on any given learning theory. The goal of the discussion above is mainly to show that the theory laid out here is not problematic even for a very rigid take on acquisition.

3. X' -PRINCIPLES

I adopt the structural constraints in (3.1), repeated here as (3.6). Recall that X does not include the exocentric category S .

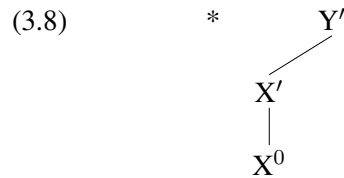
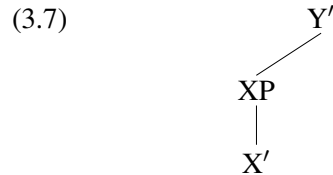
- (3.6) (a) $XP \rightarrow X', YP^*, X \neq S$
 (b) $X' \rightarrow X^0, YP^*, X \neq S$

The Kleene star is present,³ because it is assumed here that UG contains no binary branching requirement. It might seem that a binary branching requirement would make the grammar more restrictive. However, such a requirement has been argued on empirical grounds to be untenable. See the discussion below. Multiple specifiers might be ruled out by some independent constraint.

Again, I depart from Bresnan (2001) as to how the principles should be interpreted. In Bresnan's system, the constraints can be violated freely if they are contradicted by language specific constraints, or if they go against Economy (which will be discussed below in section 6 and also in Appendix A). However, I hypothesize that they can be violated in one direction and not the other: The X' -constraints are to be interpreted as constraints on *projections*. If an X^0 is present, it necessarily projects an X' , and if an X' is present, it necessarily projects an XP . Moreover, an X^0 category can *only* project an X' , and an X' can only project an XP . However, the presence of an XP does not entail

³I use the Kleene star notation in (3.6), but since all nodes are optional in LFG, the Kleene plus notation could also be used.

the presence of an X' , and an X' does not entail the presence of an X^0 .⁴ So, the structure in (3.7) is allowed (even if X' does not dominate an X^0), but the structure in (3.8) is not:



In other words, the X' -constraints are constraints on *projections*, and the effect is that they can be ‘violated’ in one direction and not the other.

The following syntactic categories are available:

- (3.9) F: C, I, D
 L: V, A, P, N

The functional (F) and the lexical (L) categories cannot freely combine. Functional categories are often considered to be ‘extensions’ of lexical categories (Grimshaw 1991, 2000, Bresnan 1995, 2001). In LFG, the term ‘co-head’ is used for such extended structures: If a c-structure node A maps into the same f-structure as a node B of a different category label, A and B are co-heads (annotated $\uparrow=\downarrow$). For example, if an auxiliary of category I^0 maps into the same f-structure as a verb of category V^0 , they are co-heads. I propose that functional categories are constrained by the following principles:

(3.10) **Constraints on functional categories:**

- (a) $C' \rightarrow C^0 \quad IP$
 $\uparrow=\downarrow \quad \uparrow=\downarrow$
- (b) $I' \rightarrow I^0 \quad LP$
 $\uparrow=\downarrow \quad \uparrow=\downarrow$

⁴As we will see in section 4.6 below, an empty X^0 will be pruned away by Economy, even if an X' is present.

$$(c) \quad D' \rightarrow D^0 \quad NP$$

$$\quad \quad \quad \uparrow=\downarrow \quad \uparrow=\downarrow$$

The LP in (3.10b) is intended to as a short for Lexical Phrase. The constraint in (3.10b) restricts the complement of I^0 to lexical categories.

The constraints in (3.10) do not force the presence of the functional categories CP, IP and DP, nor do they force those functional categories to have co-heads at all. The role of the rules in (3.10) is instead to constrain the possible complements of functional categories. (3.10) also requires that when functional and lexical categories are co-heads, the functional category dominates the lexical XP. This is due to (3.10) in combination with the constraint on complements of lexical categories, to be discussed below. The mapping in (3.11a) is thus possible, but (3.11b) is not:

$$(3.11) \quad (a) \quad \begin{array}{c} D' \\ | \\ \uparrow=\downarrow \\ NP \end{array}$$

$$(b) \quad \begin{array}{c} N' \\ | \\ \uparrow=\downarrow \\ DP \end{array}$$

Furthermore, the co-head specifications do not allow a C^0 to take any co-head complement except IP, and D^0 can only take an NP co-head complement.

Let us now turn to non-projecting categories. A non-projecting category involves less endocentric structure and will only be posited if there is direct evidence for it. Again, the initial hypothesis is that a category conforms to (3.6). Recall the notational convention adopted here: Projecting categories are represented as X^0 (X-zero), whereas non-projecting categories are \hat{X} (X-roof):

$$(3.12) \quad X^0: \quad V^0, P^0, A^0, N^0, C^0, I^0, D^0 \quad \textbf{projecting categories}$$

$$\hat{X}: \quad \hat{V}, \hat{P}, \hat{A}, \hat{N}, \hat{C}, \hat{I}, \hat{D} \quad \textbf{non-projecting categories}$$

In addition to the structures in (3.6), I assume that the following adjunction structures are allowed:

$$(3.13) \quad (a) \quad XP \rightarrow XP, YP^*$$

$$(b) \quad X^0 \rightarrow X^0, \hat{Y}^*$$

Notice that the adjunction structure in (3.14) is not permitted (I here again depart from the proposal in Bresnan 2001):

$$(3.14) \quad X' \rightarrow X', YP \text{ (not permitted)}$$

In other words, X' -adjunction is not assumed to be allowed (see Travis (1984) for evidence against X' -adjunction). However, adjunction to X^0 is allowed by (3.13). This is of course crucial in order to permit the kind of structure that is required for verbal particles.

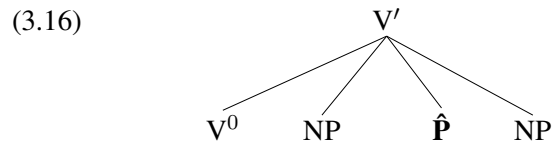
Given only the possibility of the two adjunction structures in (3.13), the following generalization emerges:

$$(3.15) \quad \textit{Adjunction Identity:} \\ \text{Same adjoins to same.}$$

X^0 and \hat{X} categories count as the same for adjunction, as they are identical in that they can directly dominate lexical material (although they differ with respect to projection).

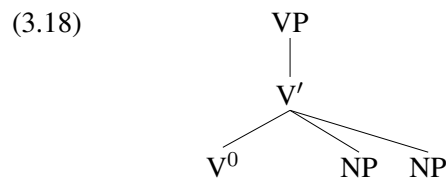
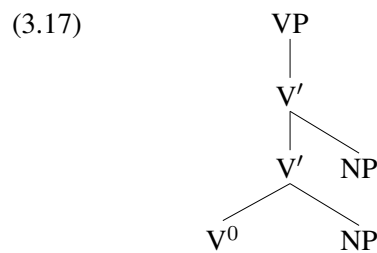
Why should the generalization in (3.15) be true? Something like (3.15) has been assumed across frameworks for a long time, implicitly or explicitly, so many linguists seem to share the intuition (see, e.g., Sells 2000:19, van Riemsdijk 1999a, Platzack 1998, Sadler 1998b,a, Keyser and Roeper 1992, Chomsky 1986, Jaeggli 1986, Pulleyblank 1986, and many others). Chapter 2, section 4 discussed phonologically deficient words in need of a phonological host. In parallel, it seems natural to think about non-projecting words as *syntactically* deficient words which need a syntactic host, as suggested by Joan Bresnan (p.c.). Empirical evidence for the existence of non-projecting words were presented in Chapter 2. However, why not assume that such words are simply adjoined at the X' -level? Non-projecting words gravitate towards head positions (the Swedish verbal particles provide a clear example of this), and this is what lies behind the intuition that many linguists share (as evident in the literature on clitics): They are head-adjoined.⁵ Postulating that X' -theory dictates non-projecting words to be head-adjoined is a strong hypothesis. This position is of course empirically falsifiable, and future research could determine whether or not it is true. For example, if it is shown that structures like (3.16) exist, that would falsify the hypothesis that non-projecting words must be head-adjoined:

⁵Section 3 of chapter 4 provides evidence that Swedish particles are head-adjoined.



This prediction will be discussed further in chapter 6, section 4, since the English complex particle constructions at first glance appear to provide evidence that structures such as the one in (3.16) actually do exist.

The Adjunction Identity hypothesis in (3.15) causes problems for a generalization which has been taken to be a fundamental principle by some researchers (see, e.g., Kayne 1984): phrase structure should be binary branching. We know that certain verbal heads may take more than one complement. Given the assumptions outlined so far, two possibilities emerge:



The structure in (3.17) obeys binary branching, but it does not obey (3.15), since an NP has adjoined to a bar-level category (V'). The structure in (3.18), however, is not binary branching, but it obeys (3.15); only the flatter structure in (3.18) is therefore allowed under the present assumptions.⁶

I do not know of any convincing empirical arguments for adopting binary branching as a basic principle of grammar. On the other hand, Travis (1984),

⁶I am ignoring here VP-shells as a possible structure for ditransitives (Larson 1988). Jackendoff (1990a) presents several arguments against Larson's VP-shells, and Jackendoff (2002) argues against a VP-shell treatment of the English verbal particles. See also Bresnan (1998, 2001), who shows that the binding data which Larson uses as evidence for his proposal is best treated with reference to linear order and hierarchical prominence. Note also that such structures lack motivation in a framework like LFG, where grammatical functions and theta-roles are not modelled primarily in the c-structure, but instead in f- and a-structure.

Jackendoff (1990a, 2002), and Carrier and Randall (1992) argue against a general constraint requiring binary branching, and Barss and Lasnik (1986) provide arguments against the specific structure in (3.17). The arguments for binary branching are typically based on notions of theoretical elegance (see, e.g., Chomsky 1995: chapter 4), or else the arguments refer to anaphoric binding, semantic compositionality, or other phenomena that are not modelled on c-structure, but instead at a-structure, f-structure or s(ematic)-structure in LFG.⁷ Binary branching is therefore not generally taken to constrain c-structure in LFG, and I will not add (3.14) to the adjunction constraints in (3.13).

It should now be clear that X^0 categories (that is, heads that *do* project) cannot adjoin; only \hat{X} (non-projecting) words are allowed to head-adjoin. This is because projecting words must be immediately dominated by an X' , which must be dominated by an XP, and XPs can only be adjoined to other XPs, not to X^0 s.

4. C-STRUCTURE TO F-STRUCTURE MAPPINGS

In LFG, grammatical functions are stated at f-structure. Bresnan (2001,97) develops the following classification of grammatical functions:

- (3.19) *argument functions*: SUBJ, OBJ, OBJ _{θ} , OBL _{θ} , COMPL
 non-argument functions: TOP, FOC, ADJ

- (3.20) *discourse functions*: TOP, FOC, SUBJ
 non-discourse functions: OBJ, OBJ _{θ} , OBL _{θ} , COMPL, ADJ

COMPL designates the predicate complements COMP (which contains a subject) and XCOMP (which shares its subject with a higher clause).

The featural information of each lexical entry included in the c-structural representation of a given sentence maps onto the f-structure. The mapping

⁷For example, Kayne (1981) argues for binary branching within the VP to explain how the notion of *unambiguous paths* can replace the more conventional notion of c-command. His arguments all crucially rely on the notion of government, the ECP and the Case Filter. Tree-based government does not play a role in LFG. The ECP does not have an equivalent in LFG, as LFG avoids the use of empty category for the most part and the distribution of the empty categories that have been proposed are constrained by independent principles and not by any principle which specifically refers to such categories. Finally, LFG also does not adopt the Case Filter. Instead of structural Case, grammatical functions play a crucial role in LFG, and the appearance of a phrase which bears a certain function in relation to a verb is ensured by the Completeness and Coherence conditions, which are defined with reference to the f-structure (chapter 1).

from c-structure to f-structure is constrained by the Uniqueness Condition, which ensures that no feature attribute (e.g., NUM) can have two different values (e.g., SG and PL) in the same f-structure:

- (3.21) **Uniqueness Condition**
Every attribute has a unique value.

However, two lexical entries can map their information into the same f-structure, provided that they do not contribute conflicting featural information.

The c-structure to f-structure mapping is further constrained by Bresnan's (2001) "universal principles of endocentric structure-function association":

- (3.22) Bresnan (2001: 102):
- a. C-structure heads are f-structure heads.
 - b. Specifiers of functional categories are the grammaticalized discourse functions.
 - c. Complements of functional categories are f-structure co-heads.
 - d. Complements of lexical categories are the non-discourse argument functions.
 - e. Constituents adjoined to phrasal constituents are non-argument functions or not annotated.

Bresnan defines these principles as being defaults, which can be overridden by language-specific rules. Principle (a) ensures that a head in the c-structure is annotated with ($\uparrow=\downarrow$), and thus maps into the same f-structure as its mother. Principle (b) restricts the specifiers of functional categories to TOP, FOC and SUBJ. Note that the discourse functions are syntactic ('grammaticalized') entities, not discourse entities (see Bresnan 2001). Principle (c) states that complements of functional categories must be co-heads. That is, complements of functional categories map into the same f-structure as their mother. Principle (d) restricts the complements of lexical categories to OBJ, OBJ _{θ} , OBL _{θ} and COMPL. Principle (e) states that if a constituent adjoined to a phrasal constituent is annotated, it cannot be an argument function. However, it also can be left unannotated (Bresnan 2001: chapter 9 gives motivation for the possibility of not annotating nodes).

Bresnan's principles are adopted here as they stand, except for (3.22c), which is replaced by (3.10), repeated here as (3.23):

(3.23) **Constraints on complements of functional categories:**

- (a) $C' \rightarrow C^0 \quad IP$
 $\quad \quad \quad \uparrow=\downarrow \quad \uparrow=\downarrow$
- (b) $I' \rightarrow I^0 \quad LP$
 $\quad \quad \quad \uparrow=\downarrow \quad \uparrow=\downarrow$
- (c) $D' \rightarrow D^0 \quad NP$
 $\quad \quad \quad \uparrow=\downarrow \quad \uparrow=\downarrow$

The principles in (3.23) allow for fewer possibilities than the original principle in (3.22c).

The head-adjoined mapping possibilities (that is, the mapping possibilities of non-projecting words) are also restricted. I propose the constraint in (3.24):

(3.24) *Non-projecting words:*

Words adjoined to heads are co-heads or argument functions.

Examples we have already seen above show that non-projecting words can correspond to argument functions. In chapters 4–5, I argue that the Swedish aspectual particles are co-heads. Only TOP, FOC and ADJ are excluded from head-adjunction by (3.24).⁸ Recall that non-projecting words are often called ‘clitics’ in the literature. It has often been noted that clitics cannot be topicalized or focussed, which is consistent with (3.24).

The mapping principles are unidirectional. Principle (3.22b) specifies that specifiers of functional categories are necessarily TOP, FOC, or SUBJ. However, a grammaticalized discourse function is not necessarily a specifier; it can

⁸Although we have not seen examples of non-projecting ADJUNCTS, there is reason to believe that they might exist. Certain common English adverbs, such as *really*, might serve as examples. Other examples are the Swedish (modal) discourse particles *ju*, *väl* and *nog*. These words are traditionally referred to as particles, since they are short, unable to have modifiers or complements, and their syntactic distribution is different from that of other adverbials (Aijmer 1977, Platzack 1998). These particles are similar to the German *ja* and *doch*, and they are often described as ‘pragmatic connectives’ (Andersson 1975, Aijmer 1977). See also Zwicky (1985) for further examples. If it is shown that these kinds of particles are indeed non-projecting words, then (3.24) needs to be modified to allow for this. It is not clear that these adverbs are head-adjoined. If further research show that these words are, indeed, non-projecting but not head-adjoined, then the restrictions on non-projecting words assumed here are too strong. Note that even if future research on adverbs show that it is not true that non-projecting words are necessarily head-adjoined, it might still be true that head-adjoined words are necessarily non-projecting.

also be adjoined to some XP. The principles are inviolable, in the sense that *if* the grammaticalized discourse functions are tied to a specific phrase-structural position in a language, that position will be a specifier of a functional category. Likewise, if the non-discourse argument functions are phrase-structurally defined, they will appear as complements of lexical categories. However, grammatical functions are not necessarily phrase-structurally defined. In a language which has a non-configurational S, for example, the mapping principles are not applicable. See Nordlinger (1998), Lee (1999) and Sharma (1999) for discussions of how morphological case markers can determine grammatical functions.

The mapping principles put very specific constraints on how c-structures map onto f-structures. (For example, the mapping principle (e) constrains non-projecting words, so that words adjoined to heads cannot have a focus, topic or adjunct function.) Whether the mapping principles are adequate as they stand is of course an empirical question. If true counterexamples are found,⁹ the exact formulation of the principle must be modified until they correctly cover the cross-linguistic data. Again, this is the case under the present assumptions, but not in Bresnan's system, where the mapping principles can be overridden by language-specific rules.

5. LINEAR ORDER

UG does not say anything about linear order. For notational convenience, I normally conflate the ordering and the dominance generalizations within a specific language in a phrase structure rule by removing the comma. However, it should be understood that these two types of information are distinct (McCawley 1972, Falk 1983, Gazdar, Klein, Pullum, and Sag 1985). In order to specifically address linear order to the exclusion of dominance, I will use the following standard notation:

(3.25) SUBJ < OBJ

(3.25) should be read: 'the subject precedes the object'. It has been argued by Stowell (1981) that linear ordering constraints and the universal constraints of X'-theory together render language-specific phrase structure rules unnecessary.

⁹For example, Icelandic subjects can be sisters of V⁰, according to some researchers (see Sells 2001, and also Rögnvaldsson 1984). If this is indeed the correct analysis, it would present a counterexample to the mapping principle in (3.22d).

However, I will continue to use phrase structure rules in order to specify how language-specific phrase structures are constrained.

Even though UG does not involve specific constraints on how elements should be ordered, the nature of X' -theory itself limits the possible orderings; especially taken together with the universal mapping principles. For example, non-projecting words must be head-adjoined. The non-projecting word may precede or follow the head, this is determined by the language-particular ordering principles. However, *adjacency* to the head is still required (assuming that the head is overtly expressed). In other words, a theory of hierarchical structure with restrictions on how elements can be combined has indirect effects on the word order. The X' -principles together with the universal mapping principles thus influence patterns seen in word order cross-linguistically.

6. ECONOMY OF EXPRESSION

Most syntactic frameworks make reference to the notion of Economy in one way or another; see Grimshaw (1993, 2001a,b) for Optimality Theory, Bresnan (2001) for LFG, and Chomsky (1989, 1991, 1994, 1995), Collins (1997), Bošković (1997), and others for the Minimalist Program. The basic intuition behind Economy can be summarized as ‘avoid superfluous operations and structure’. There is much disagreement as to exactly what status Economy should have in the grammar. Is Economy a grammatical principle or simply an epiphenomenon of other grammatical principles? Or perhaps Economy plays no role at all in the grammar? These are important questions, but they are beyond the scope of this work. For convenience, I will in what follows treat Economy as a principle of grammar.

The following formulation of the Economy Principle will be adopted here:

(3.26) **Economy of Expression**

All syntactic phrase structure nodes are optional and not used unless required by X' -constraints or Completeness.

The definition of Completeness is repeated here:

(3.27) **Completeness Condition** (Kaplan and Bresnan 1982: 211)

An f-structure is *locally complete* if and only if it contains all the governable grammatical functions that its predicate governs. An f-structure is *complete* if and only if all its subsidiary f-structures are locally complete.

In other words, Completeness ensures that every argument required by a given predicate is present in the f-structure of that predicate.

I further assume that Economy is restricted in the following way:

- (3.28) Economy holds only over c-structures with identical f-structures, semantic interpretations, and lexical forms.

Together, (3.26) and (3.28) have the effect that superfluous c-structure nodes are pruned away if they are devoid of content.

Appendix A further discusses Economy. Particularly, the specific formulation of Economy of Expression given here is motivated in the appendix. (3.26) and (3.28) will be assumed throughout this work, but it should be noted that Potts (2002) has shown that it is in fact not necessary to appeal to Economy in order to analyze Swedish verbal particles, even when the general analysis proposed here is maintained.

7. SUMMARY OF THE C-STRUCTURE THEORY

The goal of the previous sections of this chapter has been to review, modify and expand the LFG X' -theory. An underlying assumption here is that UG provides a set of tools (categories, constraints and principles), and each grammar needs to conform to UG in the sense that it cannot contradict or add to the machinery provided. Some of the machinery can be unlearned in the following ways:

- A specific grammar can have equally many or fewer categories than UG; never more.
- A specific grammar can be less endocentric than UG.
- A language-specific phrase structure rule can never carry annotations that are not specified by the universal principles, but a specific grammar can ignore one or more of the configurational mapping principles provided by UG.

I will here briefly summarize the specific principles and constraints that are adopted in this work.

Constraints on X' -structures

Our X' -theory allows the following endocentric X' -structures:

- (3.29) (a) $XP \rightarrow X', YP^*, X \neq S$

$$(b) \quad X' \rightarrow X^0, YP^*, X \neq S$$

In addition, we allow the adjunction structures in (3.30):

$$(3.30) \quad (a) \quad XP \rightarrow XP, YP^* \\ (b) \quad X^0 \rightarrow X^0, Y^*$$

Adjunction is not allowed at the X' -level.

Syntactic categories

The universal inventory of syntactic categories includes the following categories:

$$(3.31) \quad F: \quad C, I, D \\ L: \quad V, A, P, N$$

C-structure to f-structure mappings

The structure-function mapping is constrained by the following principles:

$$(3.32) \quad \text{Mapping principles:}$$

- C-structure heads are f-structure heads.
- Specifiers of functional categories are the grammaticalized discourse functions.
- Complements of lexical categories are the non-discourse argument functions.
- Constituents adjoined to phrasal constituents are non-argument functions or not annotated.
- Words adjoined to heads are co-heads or argument functions.
- Complements of functional categories are restricted by the following constraints:

C'	\rightarrow	C^0	IP
		$\uparrow=\downarrow$	$\uparrow=\downarrow$
I'	\rightarrow	I^0	LP
		$\uparrow=\downarrow$	$\uparrow=\downarrow$
D'	\rightarrow	D^0	NP
		$\uparrow=\downarrow$	$\uparrow=\downarrow$

Economy(3.33) *Economy of Expression*

All syntactic phrase structure nodes are optional and are not used unless required by X' -constraints or Completeness.

Economy cannot affect any information external to the c-structure.

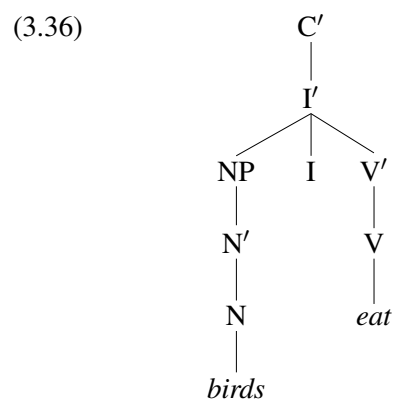
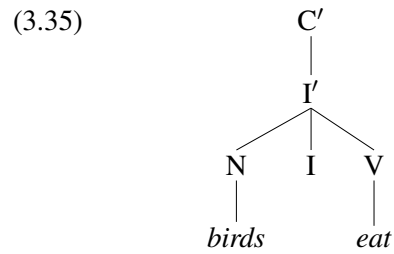
8. NON-PROJECTING WORDS IN OTHER FRAMEWORKS

In chapter 2, it was argued on empirical grounds that Swedish particles are best analyzed as non-projecting words in the syntax. The previous sections of this chapter have been concerned with how such words can be incorporated into the X' -theory of LFG. However, since the conclusion that non-projecting words do exist is based on empirical evidence, it should hold true across theoretical frameworks. In fact, elements which can be compared to my non-projecting words have previously been proposed in frameworks other than LFG. In this section, I provide brief discussions of three proposals which appeal to the possibility of allowing for non-projecting words in the phrase-structure. First, I discuss the proposal of Baltin (1989), which is cast within Government and Binding theory. Then I turn to two Head-Driven Phrase Structure Grammar proposals: Sag's (1987) analysis of English verbal complements, and Abeillé and Godard's (2000) account of French complements. I will point to a few problems which have to be solved, but those problems do not seem insurmountable to me. In essence, then, the proposals by Baltin, Sag and Abeille and Godard show that it is in principle possible to appeal to non-projecting words also in frameworks other than LFG.

8.1. *Principles and Parameters Theory: Baltin (1989)*

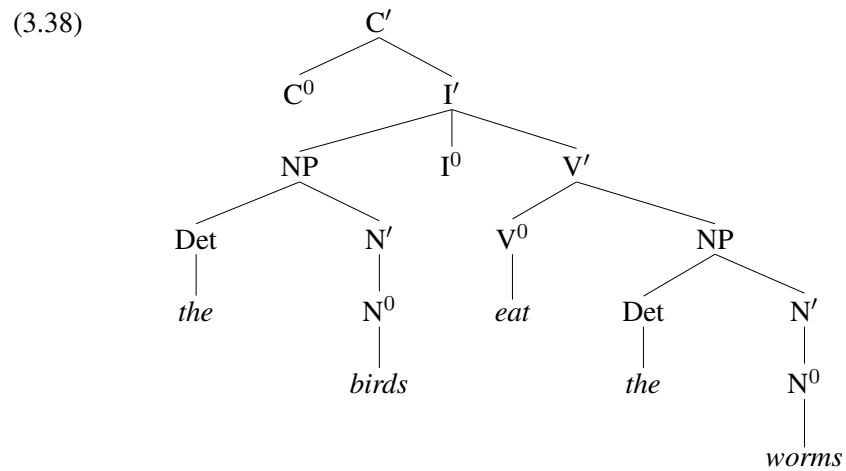
Baltin (1989) lays out a proposal cast in the Government-Binding theory of Chomsky (1981). He suggests that no superfluous non-branching structure occurs in a phrase-marker. In his system, the structure of (3.34) is (3.35) rather than (3.36). Examples (3.34-3.38) are taken from Baltin (1989: 1). I use tree diagrams, whereas he uses bracket notation:

(3.34) *Birds eat*



The structure of a sentence like (3.37), however, would be (3.38):¹⁰

(3.37) *The birds eat the worms.*



¹⁰Baltin includes the complementizer *that* in C^0 in the structure that corresponds to (3.38) here. I assume that is a mistake, as there is no *that* in (3.37), but the mistake has no consequences for Baltin's proposal or the discussion here.

The phrase structure trees in (3.35) and (3.38) would not be permitted by the LFG X' -theory presented above. For example, there would be no I^0 , since I^0 is not filled with lexical material, and the N^0 and V^0 in (3.35) would necessarily be dominated by intermediate and maximal projections. Also, only words marked as such can be non-projecting, whereas Baltin proposes that all words can be non-projecting. However, Baltin's theory and the theory outlined here are similar in one important respect: non-projecting words are allowed, and particles can be analyzed as such words.

Baltin makes several crucial assumptions. First, maximal projections only appear when they contain specifiers. Second, ordering restrictions are not stipulated. Instead, ordering restrictions are due to independent principles of the grammar. For example, NP objects must be immediately adjacent to the verb in English. This follows from the following theoretical assumptions:

- (3.39)
- The Case Filter: A lexical N must receive Case.
 - Case assignment takes place under government.
 - In English, the Case assigner and Case assignee must be adjacent.

Baltin's definition of government goes as follows:

- (3.40) A governs B if B is contained within the first maximal projection dominating A and A and B bear the same argument index.

A head indexes each of its complements.

Baltin rejects Emonds's (1972) idea of particle movement, although he adopts Emonds's proposal that particles are intransitive prepositions. Baltin assumes that unmodified intransitive prepositions are plain non-projecting Ps that are not governed by any ordering constraint (since such constraints do not exist). In GB, prepositions may assign Case. Baltin proposes that when particles intervene between the verb and the direct object, the particle (which is a preposition) assigns Case to the DO. When the particle is dominated by a maximal projection, as in *she threw the garbage right out*, the particle cannot assign Case to the object NP, since the DO is not contained within the first maximal projection (PP) that dominates P (by the definition of *government*). A modified particle cannot precede the object, since a full PP intervening between the verb and the object would block Case assignment from the verb (this follows from the adjacency requirement).

Although our analyses are cast within different frameworks, they are quite similar, as both proposals adopt the idea that syntactic structures are sometimes non-projecting, and we both assume that particles do not project phrases. My proposal differs from Baltin's in that I propose that particles are necessarily head-adjoined. Another important difference is that I assume that there are restrictions on word order that are independent of other syntactic principles. Although the ordering relations between particles and direct object fall out of Baltin's independent syntactic principles, the ordering of verbs and direct objects poses a problem. Nothing in Baltin's account prevents verbs from following objects, just like (in his account) a non-projecting particle can precede or follow the object it case marks. This is an undesirable consequence, since (3.41) is ungrammatical in English:

(3.41) **Sam the ball kicked.*

A further problem is that Baltin's analysis will not extend easily to Swedish. First, not all intransitive prepositions can precede direct objects (see examples (2.40-2.41)). Since prepositions can assign Case, and since intransitive prepositions do not project phrases, all intransitive prepositions should be able to precede direct objects, following Baltin's analysis. Second, particles (that is, non-projecting words) necessarily precede the object in Swedish (examples (2.9-2.14)). If there are no ordering restrictions, as Baltin proposes, the Swedish particles should also be able to *follow* the objects. Third, not all particles are prepositional in Swedish. As illustrated in (2.4-2.7), adjectives, nouns and verbs can also be particles. However, nouns and adjectives cannot assign Case, so in a sentence like (3.42), the object NP is left without Case and should be ungrammatical:

(3.42) Janne sparkade inte **sönder** leksaken.
 J. kicked not broken toy.the
 'Janne didn't kick the toy broken.'

Some of these problems are solved if we assume that there is no adjacency requirement for Case assignment in Swedish. But then we cannot explain why *only* particles (and not projecting PPs, for example) can precede the direct objects.

I will not discuss Baltin's proposal further here, since many aspects of the theory he adopts have now been abandoned within the Principles and Parameters framework; for example, the theory of Case assignment has been replaced

by a theory of Case checking. However, I do want to mention here that the attempt to do away with extra structure has recently been revived under the name Bare Phrase Structure (Chomsky 1994). Bare Phrase Structure is as of yet not a fully articulated theory, and I will therefore not attempt to speculate here what such an analysis would look like. Note, however, that some of the basic ideas of that approach are compatible with the views argued for here, given that non-projecting structure is allowed for (in fact favored) by Bare Phrase Structure. In constructing such a theory, the challenge will be to differentiate between projecting and non-projecting intransitive prepositions, keeping in mind that the difference between particles and other words is purely structural, separate from grammatical function or syntactic category.

8.2. *HPSG: Sag (1987) and Abeillé and Godard (2000)*

This section discusses two Head-Driven Phrase Structure Grammar (HPSG) proposals which try to capture linguistic elements similar to the ones that I have discussed under the label ‘non-projecting words’. The first proposal (Sag 1987) analyzes English verbal particles, whereas the second (Abeillé and Godard 2000) is concerned with verbal complements in French. HPSG does not have a separate level of c-structure and does not adopt X'-theory (however, see the discussion in Pollard and Sag 1994: 362–363), so the formal HPSG analyses are necessarily quite different from the LFG analysis.

8.2.1. *Sag (1987)*

Sag (1987) discusses verbal particles in English within the theoretical framework of HPSG. As mentioned above, HPSG does not adopt X'-theory. However, Sag uses a feature, LEX, which distinguishes between words and phrases. [LEX: +] refers to lexical categories, and [LEX: –] refers to nonlexical categories. Lexical forms are specified [LEX: +], and mother nodes of phrasal constituents are [LEX: –].¹¹ Sag also posits two linear precedence (LP) rules for English (1987:324):¹²

¹¹ See also Sadler and Arnold (1994) for further discussion of the [LEX] feature.

¹² The symbol < is used to denote linear precedence rules, regardless of the obliqueness hierarchy. The symbol << denotes *hierarchical* linear precedence rules. They require a constituent to precede another constituent only if the former is higher on the obliqueness hierarchy than the latter (less oblique than the latter) Sag (1987: 323).

- (3.43) LP1: HEAD[LEX: +] < {COMPLEMENTS, ADJUNCTS}
 ‘Lexical heads must precede complements and adjuncts.’
- LP2: COMPLEMENT[HEAD:[MAJ: ~V]] < X[LEX: -]
 ‘All complements other than VPs and Ss must precede more oblique phrasal categories.’

The formulation of LP rules in (3.43) makes sure that the order of complements obeys the obliqueness hierarchy for phrases, but words (marked [LEX: +]) are exempt from this requirement.

Sag does not discuss the Swedish data, but his analysis could be extended to Swedish if we added the extra LP rule in (3.44):

- (3.44) LP3: [LEX: +] < [LEX: -] (Swedish)

This rule is not an optimal solution, since Sag tries to appeal to the obliqueness hierarchy precisely in order to get away from rules such as the one in (3.44). However, it seems clear that it is necessary to posit a rule like (3.44) for a language like Swedish, where the particle always precedes the direct object.

Let us briefly consider the obliqueness hierarchy which Sag appeals to in order to capture the word order facts of English (1987, 303):

- (3.45) SUBJECTS > DIRECT OBJECTS > SECOND OBJECTS >
 NONARGUMENTS

Sag’s appeal to the hierarchy is problematic, because of the way we determine where an element should be placed on the obliqueness hierarchy: The word order is supposed to be determined by the obliqueness hierarchy and this is specified on the SUBCAT list (the argument list of a lexical entry), but the way we determine the order of elements on the SUBCAT list is through the word order. This leads to a problem of circularity.

Consider (3.46-3.47) for illustration:

- (3.46) *Mary sent the flowers out.*

- (3.47) *Mary sent John out the flowers.*

In (3.46), the NP *the flowers* is a less oblique argument than the PP *out*, whereas in (3.47), the NP *the flowers* is a *more* oblique argument than *out*. As far as I can tell, the only way we can determine this is through the word order, which is supposed to be determined by the obliqueness hierarchy.

These are general issues that any theory of argument realization that appeals to the notion of obliqueness need to deal with, and not specific problems for Sag (1987) (see Rappaport Hovav and Levin 2000 for a survey and discussion of different hierarchy proposals). The main point to note is that Sag's analysis shows that with a [LEX] feature it is in principle possible to appeal to non-projecting words within HPSG.

8.2.2. Abeillé and Godard (2000)

Abeillé and Godard (2000) (henceforth A&G) introduce a two-value feature WEIGHT, with the values *lite* and *nonlite*. I present some of their data and main conclusions below, and then I suggest that the words that they call *lite* can be thought of as non-projecting.

A&G discuss word order in French. They note that complements in French are not in general ordered with respect to each other:¹³

- (3.48) (a) Paul donne un livre à son fils/ donne à son fils
 P. gives a book to his son gives to his son
 un livre.
 a book
 'Paul gives a book to his son.'
- (b) Cette musique rend mon fils fou de joie/ rend
 this music makes my son crazy of joy makes
 fou de joie mon fils.
 crazy of joy my son
 'This music makes my son really happy.'

However, bare common nouns must precede phrasal complements:

- (3.49) (a) La course donne soif à Jean/ * donne á Jean
 the race gives thirst to J. gives to J.
 soif.
 thirst
 'The race makes Jean thirsty.'

¹³All the examples in this section are adapted from Abeillé and Godard (2000). I have added word-by-word glosses.

- (b) Ce livre fait plaisir à Marie/ * fait à
 this book makes pleasure to M. makes to
 Marie plaisir.
 M. pleasure
 'This book gives Marie pleasure.'

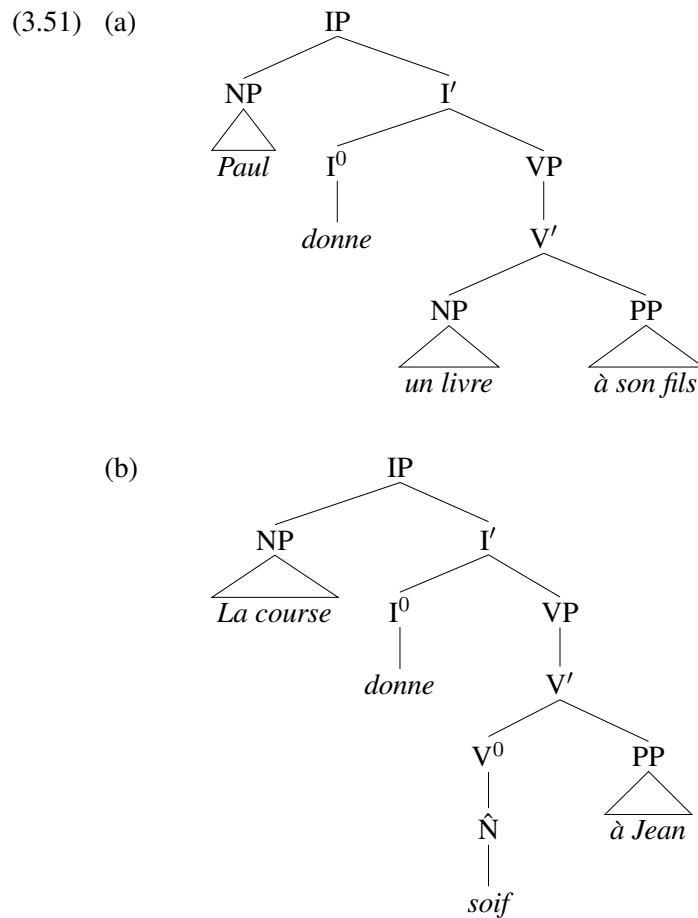
If we add material to the bare noun, the ordering is free. This is illustrated in (3.50). Example (3.50a) includes a determiner and (3.50b) includes a complement. In (3.50c), the noun is modified and in (3.50d), the noun is conjoined with another noun:

- (3.50) (a) La course donne [une grande soif] à Jean/ donne
 the race gives a great thirst to J. gives
 à Jean [une grande soif].
 to J a great thirst
 'The race makes Jean very thirsty.'
- (b) Ce livre fait [le plaisir de sa vie] à Marie/
 this book makes the pleasure of her life to M.
 fait à Marie [le plaisir de sa vie].
 makes to M. the pleasure of her life
 'This book gives the pleasure of her life to Marie.'
- (c) La course donne [vraiment soif] à Jean/ donne à
 the race gives really thirst to J. gives to
 Jean [vraiment soif].
 J. really thirst
 'The race makes Jean really thirsty.'
- (d) La vitesse fait [peur et plaisir] à Marie/
 the speed makes fear and pleasure to M.
 fait à Marie [peur et plaisir].
 makes to M. fear and pleasure
 'Speed gives Marie fear and pleasure.'

A&G propose that the bare nouns in (3.49) are *lite*, whereas all the complements in (3.48) and (3.50) are *nonlite*.

The parallel between A&Gs proposal and my proposal is obvious: we both recognize the difference between full-fledged phrases and smaller elements. A&G assume that the difference lies in a [WEIGHT] feature, whereas I attribute

the difference to whether or not a word projects a phrase. A&G note that *lite* complements must precede *nonlite* complements. They get this through an ordering constraint requiring *lite* elements to precede *nonlite* elements. In my account, the ordering of elements is explained by the fact that non-projecting words must adjoin to a head, as illustrated in (3.51) ((3.51a) corresponds to (3.48a), and (3.51b) corresponds to (3.49a)):



Following Pollock (1989), I assume that the tensed verbal element is hosted by I^0 . Ordering restrictions hold within V^0 : The verb precedes other material, if present. Within V' , V^0 must precede the verbal complements, which are not ordered with respect to each other. These ordering restrictions, together with the assumption that '*lite*' elements are head-adjoined, get the correct ordering generalizations: verb-*lite*-*nonlite*.

A&G conclude that there is a “*lite* cluster around the head” (2000: 354). Within their analysis, this is an arbitrary fact. Their formalism could just as well express the opposite generalization, which would be that *lite* elements appear as far away from the head as possible. On the X' -account adopted here, the clustering of *lite* elements around the head is not accidental: non-projecting words are adjacent to the head because they must be head-adjoined.

9. CONCLUSION

The proposal developed so far centers around a minor reorganization of X' -theory, one shown to have large-scale and welcome consequences for description: Some syntactically independent (i.e., not morphologically bound) words do not project phrases. We need to make room for such words in our theory of phrase structure. The X' -theory that I have presented in this chapter allows for non-projecting words in the syntax, but it also restricts the distribution of such words, in that non-projecting words must be adjoined to a head. Many of the assumptions laid out here are directly imported from the theory of phrase structure developed in Bresnan (2001). However, there are some differences between the two versions of X' -theory, the main difference being that the present theory is more restrictive. Bresnan allows for a language to employ *any* type of structure, although certain structures will be considered ‘marked’. The new version of X' -theory makes clearer predictions, and is therefore easier to test empirically.

This chapter focussed on the specific theory of phrase structure that is assumed within LFG. The idea that non-projecting words exist has been explored in other theories of phrase structure as well, as we saw in section 8. However, the proposals discussed in that section involve making assumptions that are unconventional within their respective frameworks. The verbal particles and other *lite* categories (to use Abeillé and Godard’s term) call for an analysis where the c-structure is thought of as a separate level of grammar, not dependent on semantic notions, or grammatical functions. This is natural in the LFG architecture of grammar, but not so natural in other frameworks. In Principles and Parameters, information about syntactic categories, grammatical functions, thematic roles, and semantic relations are all expressed in tree-configurational terms, so it is difficult to tease apart facts that are relevant only to one type of linguistic information. HPSG also conflates syntactic and semantic information, and constituent structure is not recognized as an independent level of representation. Although various scholars have indeed previously appealed to

(some form of) non-projecting words across frameworks, the multi-structure architecture of LFG syntax is particularly well-suited for separating out information which is relevant only at one level; in this case, the c-structure level.

CHAPTER 4

VERBAL PARTICLES IN THE SWEDISH VP

This chapter discusses Swedish VP-internal syntax in general, but focusses on verbal particles. I will show that Swedish is easily accounted for within the theory laid out in the previous chapter. The ordering of the particles in relation to the VP-internal XPs follows straightforwardly from the assumption that the particles are head-adjoined to V^0 . Sections 1 and 2 lay out the c-structure specifications, the lexical specifications and the c- to f-structure mapping principles for the Swedish VP. Section 3 presents evidence that the particles are attached at the V^0 -level, rather than the V' -level. Section 4 addresses the possibility of recursion and the appearance of multiple particles. Section 5 discusses the notion of Economy, which will be shown to play an important role in the analysis. Finally, section 6 presents two types of expression which appear to go against the generalization concerning the ordering of particles and direct objects.

1. THE C-STRUCTURE

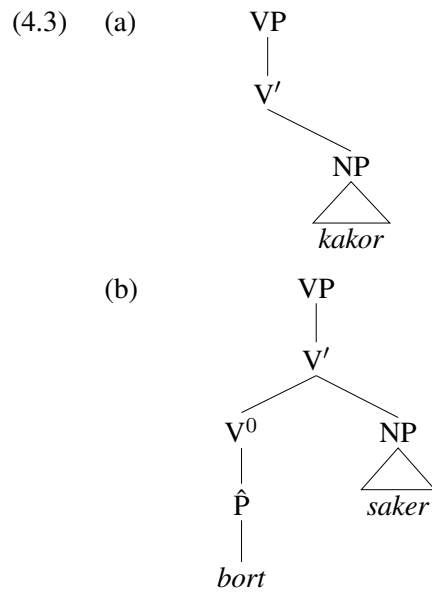
Recall from chapters 1–2 that verbal particles immediately follow the verbal position in Swedish. This follows from the following Swedish-specific constraint (recall that the linear order generalizations can be separated from the dominance relations, although the two are conflated here):

$$(4.1) \quad V^0 \rightarrow V^0 \hat{X}, \hat{X} \text{ is a lexical category}$$

The constraint in (4.1) specifies that verbal particles adjoin to V^0 . Only lexical categories (P, A, V, N) can adjoin to V^0 in Swedish.

By Economy of Expression, a V^0 node which does not contain lexical material will not be present. The VP structures of the sentences in (4.2) are thus (4.3). Recall from chapter 1.2 that *inte* and *ofta* mark the left edge of the VP:

- (4.2) (a) Daniel äter inte [_{VP} kakor].
 D. eats not cookies
 ‘Daniel doesn’t eat cookies.’
- (b) Sofia kastar ofta [_{VP} **bort** saker].
 S. throws often away things
 ‘Sofia often throw things away.’



By (4.1), a particle attaches to V^0 . Particles thereby force a V^0 node. This is true even when there is no pre-terminal V^0 filled with lexical material, as in (4.3b).

The rule in (4.1) specifically singles out V^0 -adjunction, so the particle in (4.2b) cannot adjoin to C^0 or I^0 , even if the verb is hosted by one of those nodes. The example in (4.4) is therefore ruled out:

- (4.4) *Sofia kastar **bort** ofta [_{VP} saker].
 S. throws away ofta things

Any lexical category (not just prepositions) can adjoin to V^0 . This was illustrated in (2.4-2.7) above, and some more examples are given in (4.5-4.8):

(4.5) Preposition:

Torsten slog **i** champagne i glasen.
 T. poured in champagne in glasses.the
 ‘Torsten poured champagne into the glasses.’ (PAR)

(4.6) Adjective:

... tvååriga Adrian fick riva **sönder** det
 two-year-old Adrian got rip broken the
 silverfärgade bandet.
 silver.colored ribbon
 ‘...the two-year-old Adrian got to rip the silver-colored
 ribbon.’ (PAR)

(4.7) Noun:

Fem av föräldrarna höll **tal**.
 five of parents.the held speech
 ‘Five of the parents made a speech.’ (PAR)

(4.8) Verb:

Gamle farbror Adrian lät **bygga** den lilla villan.
 old uncle A. let build the little house
 ‘Old Uncle Adrian had the little house built.’ (PAR)

The examples above contain particles of four syntactic categories. Prepositional and adjectival particles have already appeared in numerous examples above (and see also chapter 5), but non-projecting nouns and verbs which appear in the particle position have not received much attention so far. In chapter 2, I refer to the Swedish grammatical tradition, where it is assumed that nouns and verbs can be particles. Let us now take a closer look at verbal and nominal particles.

How do we know that *tal* in (4.7) is a particle? Why not simply treat it as a normal object NP? The reason why these nouns are generally considered particles is that they show the traditional particle properties. First, they bear the same stress. Second, they appear in the particle position. A third piece of evidence that these nominals are particles come from the existential construction. Recall from section 1 of chapter 2 that the existential construction has an

expletive subject, and the logical subject is in object position. Idiomatic verb-nominal particle combinations can appear in this construction, as illustrated in example (4.9b), which was pointed out to me by an anonymous reviewer:

- (4.9) (a) Ett repertoarmöte skall äga **rum**.
 a repertoire.meeting will own room
 ‘A repertoire meeting will take place.’
 (b) Det skall äga **rum** ett repertoarmöte.
 it will own room a repertoire.meeting
 ‘A repertoire meeting will take place.’

The nominal *rum* patterns with other particles, in that it appears before the logical subject *ett repertoarmöte* in the existential sentence in (4.9b).

A fourth reason why nominals such as *tal* in (4.7) are considered particles is that they consist of a single word. Plain singular nouns such as *tal* in *hålla tal* (example 4.7) or *bil* in *köra bil* (example (2.7)) are not normally permitted in Swedish (or English):

- (4.10) *Han älskar **bil**.
 he loves car

In order for (4.10) to be grammatical, we need to add an article, like *en* ‘a’, or a possessive pronoun, like *min* ‘my’; or else we can pluralize the noun, *bilar* ‘cars’. The ‘bare’ nature of the nouns exemplified in (4.7) and (2.7) is explained if we assume that they are particles; that is, non-projecting words. But if *bil* can be a particle, why is (4.10) ungrammatical? The occurrence of nominal particles is highly restricted. Other examples include *köpa hus* ‘buy house’ and *skaffa barn* ‘get child’. In all of these examples, the reading of the noun is highly generic, rather than specific. Consider (4.11):

- (4.11) (a) Lena höll **tal** på festen.
 L. held speech on party.the
 ‘Lena spoke at the party.’
 (b) Lena höll ett tal på festen.
 L. held a speech at party.the
 ‘Lena made a speech at the party.’
 (c) Lena höll flera tal på festen.
 L. held several speeches at party.the
 ‘Lena made several speeches at the party.’

Example (4.11a), where *tal* is a particle, makes it clear that Lena engaged in public speaking at the party, but leaves it vague whether she gave one or more speeches. Examples (4.11b-c), where *tal* is not a particle, are not left vague in that way. Let us consider one more example:

- (4.12) Kalle kan inte köra **bil**.
 K. can not drive car
 ‘Kalle cannot drive.’

The example in (4.12) crucially means that Kalle cannot drive at all; it does not mean that there is one particular car that he cannot drive.

Nominal particles can be compared to incorporated nouns. Asudeh and Mikkelsen (2000) discuss nominals in Danish that are interestingly similar (though not identical) to the Swedish nominal particles, and they compare the Danish phenomenon to noun incorporation. They refer to the discussion of noun incorporation in Mithun (1984), where incorporated nouns are characterized as follows:

“...a V stem and a N stem are combined to form an intransitive predicate denoting a unitary concept. The compound is more than a description; it is the name of an institutionalized activity or state. The IN [incorporated noun – I.T.] loses its individual salience both semantically and syntactically. It no longer refers to a specific entity; instead, it simply narrows the scope of the V. It is thus unaccompanied by markers of definiteness or number, or by demonstratives.” (Mithun 1984: 856)

(The quote above refers specifically to Mithun’s noun incorporation of type I.) It is striking that Mithun’s description of noun incorporation seems to hold over the Swedish nominal particles as well: the verb and nominal particle together denote an institutionalized activity (such as *car-driving*, but not *car-loving*), and the particle is not marked for number or definiteness. The two phenomena are clearly distinct, however, since the particle is not morphologically incorporated into the verb (see chapter 2.3).

For further discussion on the types of bare nouns that I treat as particles, see Platzack (1994), who provides further examples of these types of nouns: *sparka boll* ‘kick ball’, *åka tåg* ‘ride train’ and *jaga älg* ‘hunt moose’. Platzack adopts the Minimalist Program for his account, and he argues that bare nominals are incorporated at LF. Our analyses are cast in different theoretical frameworks, but the (LF) structure Platzack proposes is still quite similar to the structure I propose for particles.

Let us now turn to verbs which are particles. Above in chapter 2 is an example of the verbal particle *gällande* (example (2.6)), which is normally considered a particle. Example (4.8) illustrate a different kind of particle of the category verb; this verb is part of what Taraldsen (1991) calls the *la*-causative. Taraldsen argues that the *la*-causative construction mirrors the verb-particle constructions in the Scandinavian languages. His main argument for this is that the verb which is the complement of the causative verb ‘let’ appears in the same position as the particle in each language. In Swedish, the infinitive precedes the direct object, in Danish it follows the object, and in Norwegian, its placement is optional. If Taraldsen is right, the infinitive should be treated as a non-projecting word, on a par with the prepositional particles. A piece of evidence that supports this assumption is the fact that the infinitive in the *la*-causative construction is necessarily a plain infinitive, and cannot appear with the infinitive marker *att*:

- (4.13) Gamle farbror Adrian lät (*att) bygga den lilla
 old uncle A. let to build the little
 villan.
 house
 ‘Old Uncle Adrian had the little house built.’ (PAR)

If verbs in the *la*-causative construction are particles, then verbs differ from non-projecting words drawn from other word classes in an important respect: only a limited subset of all adjectives and prepositions can be particles, whereas any verb with the appropriate semantics can appear in the *la*-causative construction. If these verbs are, indeed, non-projecting, then it appears to be a general property of verbs that they are marked as optionally projecting words. A further observation that may appear problematic is that these verbs seem to be able to take complements (e.g., *den lilla villan* in (4.8)). However, the verb *bygga* does not take the DP as its own complement; the DP is an argument of *lät bygga*, which is a complex predicate. The DP is thus in the normal object position at c-structure, and it maps onto the object function of the complex predicate at f-structure.

I adopt the traditional assumption that verbal and nominal elements such as the ones discussed above are particles. However, this is an area of Swedish grammar that has not yet received much attention, and so deserves further research. It is of course in no way crucial for my analysis that the verbs and nouns be considered particles. I propose that Swedish verbal particles are non-projecting words that are head-adjoined to the verb. I leave it to future research

to determine whether nouns and verbs such as the ones discussed in this section are true particles, alongside prepositions and adjectives (and adverbs, which are here classified as a sub-type of adjectives).

My analysis allows a word of any lexical category to be non-projecting. However, recall that it is not the case that *all* words have the option of not projecting a phrase. For example, some but not all preposition can be particles. Compare (4.14), which contains non-projecting secondary predicates to (4.15) where the secondary predicates project phrases:

- (4.14) (a) Jonas lade (**dit**) boken (*dit).
 J. lay there book.the there
 ‘Jonas put the book there.’
 (b) Olle sparkade (**ihjäl**) ormen (*ihjäl).
 O. kicked to.death snake.the to.death
 ‘Olle kicked the snake to death.’
- (4.15) (a) Jonas lade (*där) boken (där).
 J. put there book.the there
 ‘Jonas put the book there.’
 (b) Olle sparkade (*blodig) ormen (blodig).
 O. kicked bloody snake.the bloody
 ‘Olle kicked the snake bloody.’

The (partial) lexical representations for *dit*, *där*, *ihjäl* and *blodig* are given in (4.16). Recall that ‘plain X’ (in this case P) is used to indicate that a word optionally projects:

- (4.16) (a) *dit*: P (↑ PRED)=‘there’
 (↑ CASE)=OBL_{dir}
 (b) *där*: P⁰ (↑ PRED)=‘there’
 (↑ CASE)=OBL_{loc}
 (c) *ihjäl*: Â (↑ PRED)=‘dead’
 (d) *blodig*: A⁰ (↑ PRED)=‘bloody’

The word *ihjäl* never projects, and the words *där* and *blodig* always project full phrases. The word *dit*, on the other hand, sometimes projects a phrase but sometimes it does not. In (4.17), it is modified and projects a full phrase:

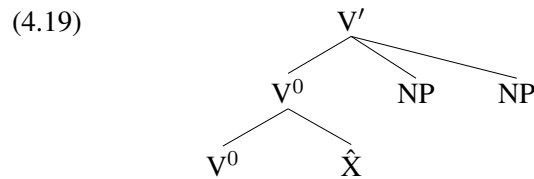
- (4.17) Alexander offrade där till gudarna, de trofasta
 A. sacrificed there to gods.the, the faithful
 grekiska gudarna som hade fört dem [_{PP}
 Greek gods who had brought them
 ända dit].
 all.the.way there
 ‘Alexander made offerings to the gods there, the faithful
 Greek gods, that had brought them all the way there.’ (PAR)

Words like *dit* which optionally project will be discussed further in section 5 below.

Let us now turn to phrases with more than one object. The rule in (4.18) constrains the distribution of verbal (V') complements:

- (4.18) $V' \rightarrow V^0 \text{ NP NP XP}$

The combination of (4.18) and (4.1) allows the following structure in Swedish:

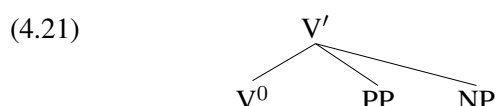


The structure in (4.19) would be a particle cooccurring with two objects. Swedish indeed allows for such phrases. Examples adapted from Teleman, Hellberg, and Andersson (1999: Volume 3, 422) are given in (4.20):

- (4.20) (a) sätta **på** barnen varma tröjor
 set on.PRT children.the warm sweaters.the
 ‘put warm sweaters on the children’
 (b) kasta **av** sig kläderna
 throw off.PRT SELF clothes.the
 ‘throw one’s clothes off’
 (c) ta **ifrån** eleven pennan
 take from.PRT student.the pen.the
 ‘take the pen from the student’

- (d) säga **till** personalen att komma
 say to.PRT staff.the to come
 ‘tell the staff to come’

The structure for the examples in (4.20) is crucially not (4.21):



There are several facts which show that *på*, *av*, *ifrån* and *till* in (4.20) are particles and not transitive prepositions. First, they are stressed, just like regular particles. Prepositional intonation is impossible. Second, the double NPs in phrases like (4.20) can alternate with NP-PP structures, just like regular double NPs, and the particle is unaffected. The examples in (4.22) show the NP-NP/NP-PP alternation with double object verbs without particles, and the examples in (4.23-4.24) show that double object constructions with particles behave the same way:

- (4.22) (a) John gav flickan pengarna.
 J. gave girl.the money.the
 ‘John gave the girl the money.’
 (b) John gav pengarna åt flickan.
 J. gave money.the to girl.the
 ‘John gave the money to the girl.’
- (4.23) (a) Maria satte **på** pojken kläderna.
 M. put on boy.the clothes.the
 ‘Maria put the clothes on the boy.’
 (b) Maria satte **på** kläderna på pojken.
 M. set on clothes.the on boy.the
 ‘Maria put the clothes on the boy.’
- (4.24) (a) Hunden sliter **av** husse mössan.
 dog.the tears off dog.owner hat.the
 ‘The dog tears the hat off of the dog owner.’

- (b) ... och slita **av** mössan på husse.
 and tear off hat.the on dog.owner
 ‘...and tear the hat off of the dog owner.’ (PAR)

The preposition *på* in the post-object PPs in (4.23b) and (4.24b) is here bleached of its lexical meaning.

Third, particles in double object constructions behave like normal particles in that they prefix to the verbal adjective in adjectival passive formations:

- (4.25) (a) Dom tog **ifrån** fången friheten.
 they took from prisoner.the freedom.the
 ‘They deprived the prisoner of his freedom.’
 (b) Fången blev **ifråntagen** friheten.
 prisoner.the was from.taken freedom.the
 ‘The prisoner was deprived of his freedom.’

The examples above clearly show that particles can indeed cooccur with double NP objects.

2. THE STRUCTURE–FUNCTION MAPPING

This section briefly outlines the structure–function mapping within the Swedish VP. Further discussion, examples, and motivation for the annotation of the particles will be given in chapter 5. The annotated V' rule in Swedish is (4.26):

$$(4.26) \quad V' \rightarrow V^0 \quad NP \quad NP \quad XP \\
\uparrow=\downarrow \quad (\uparrow \text{ OBJ})=\downarrow \quad (\uparrow \text{ OBJ}_\theta)=\downarrow$$

The V^0 head is annotated $\uparrow=\downarrow$ by the mapping principle in (3.32a). The category and the function of the XP will depend on the lexical specification of the verbal head, and the mapping principle (3.32c), which states that complements of lexical categories are non-discourse argument functions.

The phrase-structure rule in (4.1) was left unannotated. The annotated version is given in (4.27):

$$(4.27) \quad V^0 \rightarrow V^0 \quad \hat{X} \quad (\hat{X} \text{ is a lexical category}) \\
\uparrow=\downarrow \quad \uparrow=\downarrow \\
\vee (\uparrow \text{ XCOMP})=\downarrow$$

Resultative particles are annotated $(\uparrow \text{XCOMP})=\downarrow$, and aspectual particles are annotated $\uparrow=\downarrow$, as will be discussed in chapter 5.¹

Non-projecting nouns and verbs form *complex predicates* with the verbal head, and are annotated $\uparrow=\downarrow$. Consider the examples in (4.28), where (4.28a) is a noun and (4.28b) is a verb:

- (4.28) (a) Mamma kör ofta **bil**.
 mom drives often car
 ‘Mom often drives (cars).’
- (b) Lisa lät **riva** garaget.
 L. let tear garage.the
 ‘Lisa had the garage torn down.’

The expressions *köra bil* and *låta riva* are of course complex predicates of different types: (4.28a) resembles noun incorporation (as discussed above), whereas (4.28b) is a causative. For discussions of complex predicates in LFG, see Butt (1995), Matsumoto (1996), Andrews and Manning (1999), Ackerman and Webelhuth (1998), Webelhuth and Ackerman (2001), and for analyses of causatives, see Alsina (1996) and Matsumoto (1996).

3. HEAD-ADJUNCTION

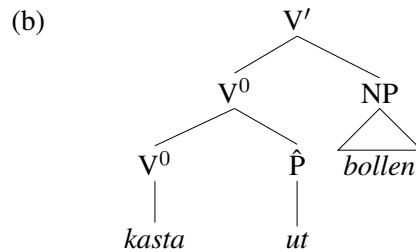
We now return to the claim that the verbal particles are head-adjoined to V^0 . Most data that we have seen so far are compatible with both structures in (4.29):

- (4.29) (a)
-
- ```

 V'
 /|\
 V^0 P̂ NP
 | | |
 kasta ut bollen

```

<sup>1</sup>I treat all predicative particles as XCOMPS. Another possibility is that the adjectival particles are XCOMPS and the prepositional ones are obliques. The predicative status of the prepositional particles would then be modelled in the semantics only, and not in the syntax. For a discussion of phrasal XCOMPS and obliques, see Bresnan (2001, Chapter 12).



This section presents data supporting the structure in (4.29b): The verb and the particle form a constituent which excludes the NP object.

### 3.1. Topicalization

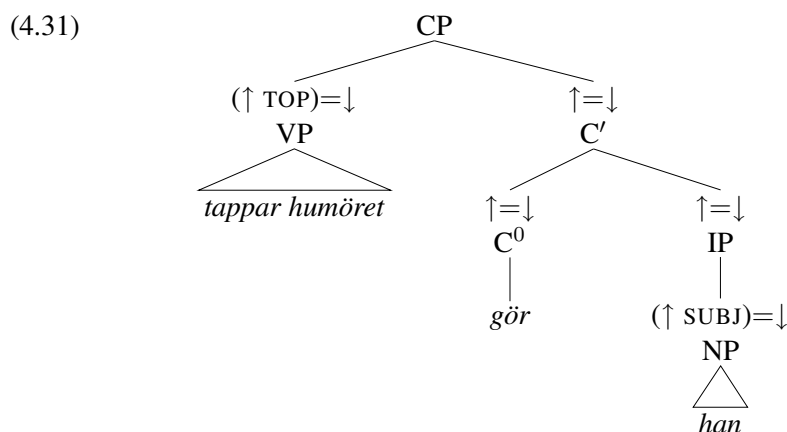
Topicalization is normally considered a solid constituency-test: only constituents can appear in the topic position. This section will show that topicalization data support the structural representation in (4.29b) above, but let me first briefly present some facts concerning VP-topicalization in Swedish.

When a VP is topicalized in Swedish, an auxiliary verb *göra* ‘to do’ is necessary, even though Swedish does not normally have English-style *do*-support:

- (4.30) (a) Tappar humöret gör han bara om han inte får  
loses temper.the does he only if he not gets  
mat.  
food  
‘Lose his temper he only does if he doesn’t get food.’ (PAR)
- (b) Trivs i studion gör han dock.  
likes.it in studio.the does he however  
‘He does, however, enjoy himself in the studio.’ (PAR)
- (c) ... erkände den gjorde hon inte.  
admitted it did she not  
‘... admit it she did not. (PAR)
- (d) Men applåderade gjorde vi ändå.  
but applauded did we anyway.  
‘But applaud we did anyway.’ (PAR)

Both the auxiliary *göra* and the topicalized verb are tense-marked in Swedish, although only the auxiliary verb is tensed in English. Tensed verbs normally appear in  $I^0$  or  $C^0$  in Swedish, but in topicalization structures, we find a tensed

verb in  $V^0$ , like in subordinate clauses.<sup>2</sup> The structure I assume for a topicalized VP is given in (4.31); I illustrate using example (4.30a):



The topicalized phrase is a specifier of CP, the auxiliary verb is a  $C^0$ , and the subject is a specifier of IP.

Let us now turn to data that involve particles. Many speakers only allow topicalization of a full VP. However, some speakers allow topicalization of a verb and a particle together, as shown in (4.32), which corresponds to (4.33):

- (4.32) (a) %Sköt **ner** gjorde hon [<sub>VP</sub> alla fienderna].  
 shot down did she all enemies.the  
 ‘Shoot down she did all the enemies.’
- (b) %Åt **upp** gjorde hon [<sub>VP</sub> hela kakan].  
 ate up did she whole cake.the  
 ‘Eat up she did the whole cake.’
- (4.33) (a) Hon sköt **ner** alla fienderna.  
 she shot down all enemies.the  
 ‘She shot down all the enemies.’
- (b) Hon åt **upp** hela kakan.  
 she ate up whole cake.the  
 ‘She finished the whole cake.’

<sup>2</sup>It is clear that the topicalized VPs in (4.30) are indeed VPs, and not IPs, even though the verb is tensed. There are two facts that show this. First, the subject is in SpecIP, and it is not part of the topicalized structure. Second, the negation marks the left edge of the VP, and it is left behind (as we see in (4.30c)).

In (4.32), the object NP appears in its normal VP-internal position, although the verb and the particle are topicalized. This fact would be difficult to explain if we assumed a flat structure such as that in (4.29a) where the verb and the particle do not form a constituent, whereas it is natural if the verb is adjoined to  $V^0$ , as in (4.29b).

For some speakers, the verb can be topicalized alone if no particle is present (4.34), but a verb cannot be topicalized if a particle remains in the VP (4.35):

- (4.34) (a) %Sköt gjorde hon [<sub>VP</sub> alla fienderna].  
           shot did she all enemies.the  
           ‘Shoot she did all the enemies.’  
       (b) %Åt gjorde hon [<sub>VP</sub> hela kakan].  
           ate did she whole cake.the  
           ‘Eat she did the whole cake.’
- (4.35) (a) \*Sköt gjorde hon [<sub>VP</sub> **ner** alla fienderna].  
           shot did she down all enemies.the  
       (b) \*Åt gjorde hon [<sub>VP</sub> **upp** hela kakan].  
           ate did she up whole cake.the

If the verb and the particle did not form a constituent, the contrast between (4.34) and (4.35) would be difficult to explain. Note that even speakers who dislike the examples in (4.32) and (4.34) strongly prefer them over the examples in (4.35). The generalization seems to be that all speakers can topicalize a full VP, some can topicalize a full  $V^0$ , but no one can topicalize only part of  $V^0$ .

### 3.2. Conjunction

A verb-particle combination can be conjoined with other  $V^0$ s, as (4.36) shows:

- (4.36) (a) ... den kvinna som björnen slagit **ner** och dödat  
           the woman that bear.the beaten down and killed  
           i dungen vid stranden.  
           in grove.the by beach.the  
           ‘... the woman that the bear had beaten down and killed in  
           the grove by the beach.’ (PAR)

- (b) Genomsnittstiden för att visa **upp** och auktionera  
 average.time.the for to show up and auction  
**ut** ett objekt är en minut.  
 out an object is one minute  
 ‘The average time it takes to show and auction out an object  
 is one minute. (PAR)
- (c) En ny helig tjur i stället för den som  
 a new sacred bull in stead of that which  
 perserna påstods ha dödat, ätit **upp**,  
 Persians.the claimed.PASSIVE have killed, eaten up,  
 och ersatt med en eländig åsna.  
 and replaced with a miserable donkey  
 ‘A new, sacred bull instead of the one that the Persians were  
 claimed to have killed, eaten, and replaced with a miserable  
 donkey.’ (PAR)
- (d) IOK har tystat **ner** och begravt dopingfall  
 IOK has silenced down and buried doping.cases  
 tidigare.  
 before  
 ‘IOK has silenced and buried doping cases before.’ (PAR)
- (e) Jag tycker att det är svårt att klä **på** och ta  
 I think that it is hard to dress on and take  
**av** honom kläderna.  
 off him clothes.the  
 ‘I think it is hard to dress and undress him.’

Given the standard assumption that only constituents can conjoin, the data in (4.36) shows that the verb and the particle are dominated by a  $V^0$ .

### 3.3. Summary

The  $X'$ -theory of the previous chapter allows non-projecting words to surface only if they are adjoined to a head. This claim was derived from the theoretically appealing assumption that elements can only adjoin to elements of the same level of projection: XPs adjoin to phrases,  $\hat{X}$  adjoins to heads. Since the Swedish verbal particles always appear immediately to the right of the verbal position within the VP, I proposed that the particle is right-adjoined to  $V^0$ . This

section has provided data from topicalization and coordination which support the claim that the verb and the particle form a constituent under  $V^0$ .

#### 4. RECURSION

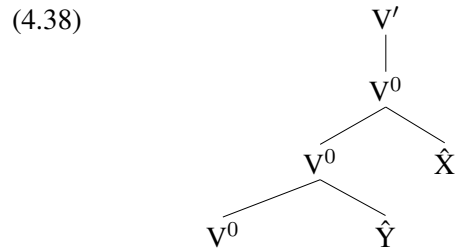
Consider again the language-specific phrase structure rule which restricts the distribution of particles in Swedish:

$$(4.37) \quad V^0 \rightarrow V^0 \quad \hat{X} \quad (\hat{X} \text{ is a lexical category})$$

$$\quad \quad \quad \uparrow=\downarrow \quad \quad \uparrow=\downarrow$$

$$\quad \quad \quad \vee (\uparrow \text{ XCOMP})=\downarrow$$

Note that the rule in (4.37) is recursive, and thus allows Swedish to have structures such as (4.38):



It is important that our theory of phrase structure permits recursive head-adjunction, since we find such structures cross-linguistically. An example from a language other than Swedish comes from Sadler (2000), who shows that recursive head-adjunction occurs in Welsh. However, examples with more than one particle are not commonly found in Swedish. This is because the grammatical functions of the particles are very limited; they are either co-heads or resultative predicates. The fact that each clause only contains one resultative predicate follows from the Uniqueness Condition. Two resultative particles in the same clause would contribute two values to the XCOMP's PRED attribute, in violation of Uniqueness, which states that every attribute has a unique value. The co-heads either form a kind of complex predicate ('drive-car', 'let-build'), or else they mark aspect. Two aspect markers cannot cooccur, because they would contribute conflicting aspectual features to the f-structure, as I will show in section 5.2 below.

However, it is not obvious why aspectual markers cannot cooccur with nominal particles:

- (4.39) \*Han körde **på** bil.  
he drove on car

The intended meaning of the example in (4.39) is something like ‘he kept on driving’, which seems semantically plausible, but the sentence is nonetheless ungrammatical. Note that (4.40) also is ungrammatical, even though (4.41-4.42) are both fine:<sup>3</sup>

- (4.40) \*Han körde **på** bilen.  
he drove on car.the

- (4.41) Han körde **på**.  
he drove on  
‘He kept driving.’

- (4.42) Han körde bilen.  
he drove car.the  
‘He drove the car.’

The example in (4.41) contains the aspectual particle *på*, and (4.42) contains a full NP object. The two cannot be combined, as we saw in (4.40). We obviously do not want our phrase structure principles to rule out (4.40), since there are plenty of grammatical sentences which include a particle and an object NP. It seems to be a general fact that aspectual *på* does not cooccur with a direct object. Interestingly, this is true for English aspectual *on* as well (as noted by Jackendoff 2002 and others).

Although semantic restrictions make them rare, there are examples of sentences with more than one particle:<sup>4</sup>

- (4.43) Sara lät **bygga ut** huset.  
S. let build.PRT out.PRT house.the  
‘Sara had the house made bigger.’

- (4.44) Hon körde **bil upp**.  
she drove car.PRT up.PRT  
‘She drove up.’

<sup>3</sup>The example in (4.40) is actually grammatical on the reading ‘he hit the car (with another car)’. This is not the intended reading here.

<sup>4</sup>If you think (4.44) sounds a bit odd, imagine it as a possible answer to the question ‘How did she get up to your house?’, talking to a person who lives on a hill.



An unmodified *upp* ‘up’ does not head a PP in Swedish, and therefore it cannot follow a non-particle nominal (an NP):

- (4.45)      Hon körde (**upp**) bilen    (\*upp).  
                  she drove (up) car.the (\*up)  
                  ‘She drove the car up.’

The contrast between (4.44) and (4.45) is telling: The particle *upp* cannot appear after an NP, so we know that *bil* in (4.44) must be a particle. The examples in (4.43) and (4.44) both contain two particles, which shows that double particles are possible in Swedish, although their occurrence is limited by other factors, such as the Uniqueness Condition.

## 5. ECONOMY AND SWEDISH PARTICLES

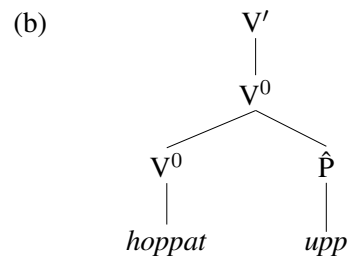
This section addresses some data that have so far been left unexplained by the analysis presented above. We will see that the Economy principle plays an important role in the analysis of the relevant data.

Recall that some words, *dit* and *upp*, for example, optionally project a phrase. The VP of a sentence like the one in (4.46) should therefore have two possible realizations, (4.47a) and (4.47b):

- (4.46)      Kalle hade hoppat upp.  
                  K.    had    jumped up  
                  ‘Kalle had jumped up.’

- (4.47) (a)
- 
- ```

graph TD
    V_prime[V'] --- V0[V^0]
    V_prime --- PP[PP]
    V0 --- hoppat[hoppat]
    PP --- P_prime[P']
    P_prime --- P0[P^0]
    P0 --- upp[upp]
  
```



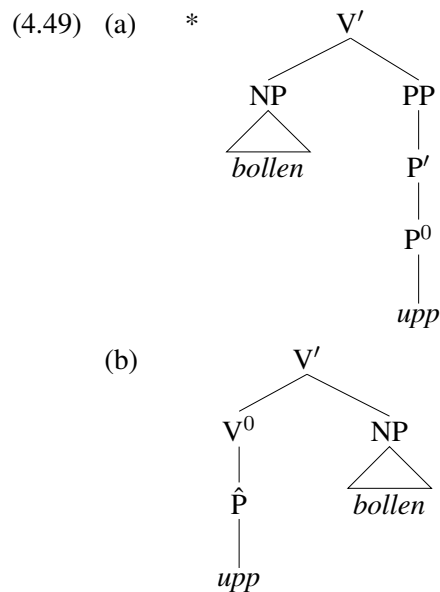
X'-theory does not determine which structure is correct, and neither do the lexical specifications for *upp*, since *upp* optionally projects. However, consider again the Economy principle, repeated below as (4.48):

(4.48) **Economy of Expression**

All syntactic phrase structure nodes are optional and are not used unless required by X'-constraints or Completeness.

Economy favors (4.47b) over (4.47a), since (4.47a) involves more structure.

The fact that Economy decides between the structures in (4.47) is arguably not very interesting, since the linguistic string is identical in both cases, and it is therefore difficult to determine which structure is correct. Let us therefore turn to transitive verbs, where the difference in structure makes a difference in word order. Consider the structures in (4.49), where *bollen* is an object and *upp* is an optionally projecting preposition:



Economy favors the structure in (4.49b), and the object is therefore predicted to follow *upp* in the surface string. This is correct, as (4.50) shows:

- (4.50) (a) Jan sparkar upp bollen.
 J. kicks up ball.the
 ‘Jan kicks the ball up.’
 (b) *Jan sparkar bollen upp.
 J. kicks ball.the up

The Economy principle is crucial in order to understand these data. Without Economy, the ungrammaticality of (4.50b) would be unexplained.

Note that Economy does not pose a problem for modified prepositions, since Economy only holds over structures which correspond to the same f-structure representations:

- (4.51) Jan sparkar bollen rakt upp.
 J. kicks ball.the straight up
 Jan kicks the ball straight up.’

It is clear that *upp* in (4.51) projects a phrase since it follows the direct object *bollen*. However, no more economical representation is possible, since *upp* is modified. A modified particle will thus never ‘compete’ with an unmodified one.

The data from the Swedish particles show that if all other things are equal, Economy favors non-projecting structures over projecting structures. The transitive structure in particular provides evidence that an Economy principle is warranted in the grammar.⁵

6. WORD ORDER: APPARENT PROBLEMS

In Chapter 1, it was stated as a robust generalization that (unmodified) verbal particles immediately follow the verbal position in the VP in Swedish. In other words, particles always precede direct objects. However, it is possible to find examples which seem to contradict this generalization. Many such examples are due to dialectal variation. There are, for example, Swedish dialects spoken in Finland, where words that correspond to verbal particles in other dialects

⁵Potts (2002) argues that the problem discussed here and in Toivonen (2001b) (the problem of lack of optionality in Swedish) is possible to solve without reference to Economy.

of Swedish appear after the direct object. Kvist Darnell and Wide (2002) discuss the dialectal variation of verbal particles in Swedish, and they provide examples such as the one in (4.52):

- (4.52) Men musiken håller fortfarande det hela ihop,...
 but music.the holds still the whole together
 ‘But the music still holds everything together,...’

I will not discuss this dialectal variation further here, but note that in the theory assumed here, dialects where the ‘particles’ follow the direct object actually do not have particles at all. In other words, the words that correspond to particles in Standard Swedish project full phrases in these dialects (cf., the analysis of Danish given in 6.1).

However, not all problematic examples can be attributed to dialectal variation. There are two different types of phrases that at first seem particularly puzzling: (1) modifying particles; and (2) particles as they appear in the *directed motion construction*. Each type will be discussed in turn below.

6.1. *Particles as modifiers*

When a word like *ner* and *fram* (i.e., a word that normally has particle status) is immediately followed by a prepositional phrase, it can sometimes follow the direct object:

- (4.53) (a) ... och drev huvudet ner genom skuldrorna.
 and drove head.the down through shoulders.the
 ‘...and pushed the head down through the shoulders.’ (PAR)
 (b) ... han ledde henne fram till dyschan.
 he led her forth to bed.the
 ‘.. he led her over to the bed.’ (PAR)

In many cases, then, two different word orders are possible:

- (4.54) (a) Han kastade **ut** böckerna genom fönstret.
 he threw out books.the through window.the
 ‘He threw the books out through the window.’
 (b) Han kastade böckerna ut genom fönstret.
 he threw books.the out through window.the
 ‘He threw the books out through the window.’

The examples in (4.54) can be compared to (4.55), where the (b) example is ungrammatical:

- (4.55) (a) Han kastade **ut** böckerna.
 he threw out books.the
 ‘He threw the books out.’
 (b) *Han kastade böckerna ut.
 he threw books.the out

Why is (4.54b) acceptable, even though (4.55b) is not?⁶

Examples (4.53–4.54) do not show that the positioning of particles in Swedish is in general optional, since the two word orders are possible only when an extra PP is present. I therefore propose that the ‘particles’ in sentences like (4.53) and (4.54b) are projecting PPs, which modify the following PP.

There are also additional data to support the hypothesis that a word like *ut* in (4.54b) is a full PP. First, words that are lexically marked as obligatorily non-projecting cannot appear between a direct object and a PP:

- (4.56) *Hästen sparkade musen ihjäl i stallet.
 horse.the kicked mouse.the to.death in stable.the

Note that (4.57) is well-formed:

- (4.57) Hästen sparkade **ihjäl** musen i stallet.
 horse.the kicked to.death mouse.the in stable.the
 ‘The horse kicked the mouse to death in the stable.’

If the post-object ‘particle’ is a full PP, that explains why obligatorily non-projecting words cannot appear in that position.⁷

Additional evidence that *ut* in (4.54b) is a full PP comes from the fact that the pre-PP word can be modified:

⁶Some speakers show a clear preference for (4.54a) over (4.54b), but the same speakers also prefer (4.54b) over (4.55b).

⁷There is probably a further reason which explains why (4.56) is ill-formed: the word *ihjäl* cannot be interpreted as a modifier of *i huset*, as will be discussed in connection with (4.59) below.

- (4.58) Han slängde soporna rakt ner i
 he threw garbage.the right down in
 sopkorgen.
 garbage.can.the
 ‘He threw the garbage right down into the garbage can.’

Since the ‘particle’ that appears between the object and the PP cannot be one of the words that never projects, and since it can be modified, I conclude that it is a fully projecting word.

Let us now turn to the claim that words such as *ut* in (4.54b) *modifies* the following PP. This claim is supported by the fact that the example is ungrammatical if the following PP is not present, as exemplified by (4.55b) above and by numerous other examples in this work. This is not surprising if the *ut* is analyzed as a modifier, but is otherwise puzzling.

It is furthermore important to consider the interpretation of the relevant sentences. If the word in question cannot be interpreted as a modifier of the following PP, then it cannot follow the direct object:

- (4.59) (a) Han kastade **ner** böckerna genom fönstret.
 he threw down books.the through window.the
 ‘He threw down the books through the window.’
 (b) #Han kastade böckerna ner genom fönstret.
 he threw books.the down through window.the

Example (4.59a) describes a situation where someone inside a building throws books out the window, intending them to land on the ground outside. Example (4.59b) is not acceptable under this interpretation, since *ner* is not modifying *genom fönstret*, but rather the VP. The sentence in (4.59b) is generally odd. However, speakers do accept it when presented with a scenario where *ner* can modify *genom fönstret*. Such a scenario would be one where there is a window in the ceiling and someone throws books down from the roof, through that window. The contrast in interpretation between (4.59a) and (4.59b) shows that a ‘particle’ appears in between the direct object and a PP only when modifying the PP.

To conclude the discussion, examples such as those in (4.53) are not a problem for the claim that Swedish particles precede the direct object. The particle-like words in (4.53) do not have the semantics which is typical of Swedish particles (see chapter 5), since they modify the PP. Moreover, they project phrases and are therefore not particles at all, under the definition adopted here.

6.2. *The Directed Motion Construction*

This section discusses a construction which I call the ‘directed motion construction’ (DMC; Toivonen 2000a, 2002a). The DMC at first appears to contradict the generalization that particles precede direct objects in Swedish. However, a closer examination reveals that the DMC is a ‘constructional idiom’ (in the sense of Jackendoff 1990b) similar to the English *way* construction (Jackendoff 1990b, Marantz 1992, Goldberg 1995, Levin and Rappaport Hovav 1995). Examples of the *way* construction are given in (4.60):

- (4.60) (a) *Trafficant blusters his way through trial.*
(CNN web site; February 28, 2002)
- (b) *Sarah wrangles her way across America.*
(Science News Online web site; Spring 2002)
- (c) *High-steppin’ our way through this game day*
(The Miami Herald web site; September 22, 2002)

The Swedish DMC is exemplified by the sentences in (4.61):

- (4.61) (a) Alexander högg sig genom trängseln med
A. cut SELF through crowd.the with
sitt svärd.
his.REFLEXIVE sword
‘Alexander cut his way through the crowd with his sword.’
(PAR)
- (b) Så jag fick smyga mig nerför trapporna igen ...
so I got sneak me down stairs again
‘So I had to sneak down the stairs again...’ (PAR)

The skeletal structure of the DMC is given in (4.62):

- (4.62) [SUBJECT [VERB REFLEXIVE OBLIQUE]]

As we see, the DMC is very similar to the *way* construction, but instead of the reflexive possessor and the word *way* found in the English construction, the Swedish DMC has a plain reflexive pronoun. The DMC is examined in detail in Toivonen (2000a) and Toivonen (2002a). A summary of the properties of the DMC is given in (4.63):

- (4.63) • The meaning involves the sense of directed motion.

- The verb denotes the means by which the motion is performed.
- The motion is volitional.
- Each element is necessarily present.
- The reflexive is not a thematic argument of the verb.
- The oblique must encode a path.

The DMC always has the word order indicated in (4.62). This is true even if the oblique consists of (or contains) what looks like a particle:

- (4.64) (a) Magistratens samtliga ledamöter bröt upp och
 city.council.the's all members broke up and
 armbågade sig ut ur auktionslokalen.
 elbowed SIG out of auction.facility.the
 'All the members of the city council left and elbowed their
 way out of the auction rooms.' (PAR)
- (b) ... började den långsamt gnaga sig ut ...
 began it slowly gnaw SELF out
 '...it slowly began to gnaw it's way out...' (PAR)

The object *sig* in (4.64) precedes the word *ut*, which is an optionally projecting word in Swedish. This goes against the generalization that unmodified optionally projecting words always precede the direct object in Swedish.

The DMC at first appears to pose a problem for the view of particles developed here, since the word order does not follow the generalization that 'particles' immediately follows the verb in Swedish. However, a careful analysis of the DMC reveals that it has certain unique properties, which indicates that it has a special status in the grammar. In addition to the characteristics listed in (4.63), the DMC is special in that *its meaning cannot be tied to any one of its parts*. This was argued extensively in Toivonen (2002a), and I will not repeat all the arguments here. However, one important piece of evidence is that none of the constituents (the subject, the verb, the reflexive or the oblique, cf. (4.62)) can be left out without either rendering the sentence ungrammatical, or else altering the meaning significantly.⁸ Another important point argued in

⁸For argumentation and evidence similar to that of Toivonen (2000a) and Toivonen (2002a), see the accounts of the English *way* construction in Jackendoff (1990b: chapter 10) and Goldberg (1995: chapter 9). See also Seland (2001) for a discussion of a similar construction in Norwegian; a construction which she calls 'the Norwegian reflexive caused motion construction'.

Toivonen (2002a) is that the oblique in the DMC is not a resultative predicate. The fact that the oblique is not resultative adds to the explanation for why it must project a phrase. This will become clear in the discussion of ‘Condition P’ in chapter 5.1.

In Toivonen (2002a), I present two different formalizations of the DMC: a construction and a lexical rule. The details of the two analyses are not relevant for the present work. Three points are important here: First, the DMC has a special status in the grammar; it is a ‘constructional idiom’, since the meaning cannot be tied to any one of its parts. Second, the oblique (which may be a ‘particle’) is not a resultative predicate. Third, both the lexical rule analysis and the constructional analysis developed in Toivonen (2002a) treats the DMC oblique as a full PP, even when it consists of a single word. It follows from the final point that words that can never project a phrase will not occur in the DMC, and this predication is indeed correct.

In sum, then, the DMC does not constitute a counterexample to the word order generalization that holds for clauses with particles. Non-projecting words in fact never occur in the DMC.

6.3. Discussion

This section has been devoted to examples that seem to contradict the general claim about particles and word order: that Swedish verbal particles immediately follow the verbal position in the VP. Two different sets of problematic examples were discussed. First, examples where an optionally projecting word modifies a PP were considered (section 6.1). Second, ‘particles’ as they appear in the DMC were discussed (section 6.2). Both of these cases were argued to differ in important ways from the types of examples considered elsewhere in this book. Crucially, I claim that both types of phrases actually involve fully projecting words. Therefore, they do not have the option of adjoining to V^0 , and they must follow the direct object when there is one.

There are also some other types of expressions where words that optionally project do not appear immediately after the verbal position. This can be exemplified with the expression *se...ut* ‘to look (like something)’:

- (4.65) (a) Killen i baksätet ser dum ut.
 guy.the in back.seat.the sees stupid out
 ‘The guy in the back seat looks stupid.’ (PAR)
- (b) *Killen i baksätet ser **ut** dum.
 guy.the in backseat.the sees out stupid

These types of expression are always idiomatically composed: The fact that the verb *se* and the preposition *ut* can be combined to create the meaning ‘to look (like something)’ is lexically stored information. As we see in (4.65), part of the stored lexical information can also be whether the word in question projects or not. In the case of *se ut*, the lexical entry includes the information that only the projecting *ut* is permitted. This is not a problem for the account of Swedish particles developed here. In fact, data like (4.65) supports the general view developed here: if the information concerning the projectivity of a given word (e.g., *ut*) is lexically stored, we expect lexical items, such as *se ut*, to be able to make use of that information.

7. SUMMARY

The Swedish VP-structure is easily modelled within the general LFG architecture and the specific c-structure theory laid out in chapter 3. Swedish verbal particles immediately follow the verbal position within the VP and they cannot take complements or modifiers. These facts are explained by their structural realization: they are non-projecting words which are adjoined to V^0 . In chapter 3, I hypothesized that non-projecting words head-adjoin, and this chapter presented topicalization and conjunction data which confirm that the head-adjunction hypothesis holds for Swedish particles.

Non-projecting verbs and nouns are not as well-studied as adjectival and, especially, prepositional particles. Non-projecting verbs and nouns were addressed in this chapter. I assume that they form complex predicates with the verbal head. In the discussion of verbs and nouns, it became clear that particles of distinct verb classes differ from each other significantly in what type of role they play in the clause and how they contribute to the sentence semantically. In fact, the only reason why all these words are grouped together is that they are alike in their structural properties. No matter what their role in the sentence is, the particles are all non-projecting words.

The Economy principle proved to be particularly important for our treatment of particles. We saw that the Swedish verbal particles provide straightforward empirical evidence which motivates the existence of an Economy principle in the grammar.

Finally, this chapter discussed particles that act as modifiers and particles in the directed motion construction. These are interesting as they appear to violate the claim that particles precede the direct object (when the verb is transitive). I argued that the apparent counterexamples are in fact not problematic, as they

involve fully projecting words, which do not have the option of adjoining to V^0 .

CHAPTER 5

THE MEANING OF SWEDISH PARTICLES

The previous chapters have focussed on the structural realization of the verbal particles, and I have argued for a quite simple c-structure. However, particles and verb-particle combinations have some intricate semantic properties, and this has led many previous researchers to assume a more complicated syntactic realization. We will see in this chapter that the LFG architecture makes it possible to account for the semantics without complicating the c-structure.

Swedish particles have two main semantic functions: they are either resultative predicates or aspect markers. The resultative particles are discussed in section 1. Much of the material treated in section 1 is also discussed in Toivonen (1999). The aspectual particles are discussed in section 2. Verb-particle combinations can also be idiomatic, as we will see in section 3. Some idiomatic particles are resultative predicates, some are aspectual markers, and sometimes it is not possible to determine the function of the particle within the idiomatic verb-particle complex. In the last case, the verb-particle combinations are analyzed as complex predicates.

1. RESULTATIVE PARTICLES

Particles often denote a location:

- (5.1) (a) Han lade **ner** boken.
he laid down book.the
'He put the book down.'
- (b) ... när hon ville köra **hem** honom.
when she wanted drive home him
'... when she wanted to drive him home.' (PAR)

The particles in (5.1) denote the end location of the direct object, a function which can also be expressed with full PPs:

- (5.2) (a) Han lade boken på bordet.
 he laid book.the on table.the
 'He put the book on the table.'
- (b) Sam skulle köra honom till arbetet.
 S. would drive him to work.the
 'Sam would drive him to work.' (PAR)

The particle *ner* in (5.1a) denotes the location of the object, and the same function is fulfilled by the PP *på bordet* in (5.2a). Similarly, the particle *hem* in (5.1b) has the same function as *till arbetet* in (5.2b).

The particle *ner* 'down' does not denote as specific a location as *hem* 'home' does. It is common for particles to leave the location vague. Typical uses of the particle *i* 'in' are illustrated in (5.3):

- (5.3) (a) Och jag [...] skulle förstås som alltid ramla i
 And I would of.course as always fall in
 med kläderna på, ...
 with clothes.the on
 'And I [...] would of course as always fall in with my clothes
 on, ...' (PAR)
- (b) Han hoppade i.
 he jumped in
 'He jumped in (understood: into the water).' (PAR)
- (c) ... och hällde i te åt dem.
 and poured in tea for them
 '... and poured tea for them.' (PAR)
- (d) Han utlovade t.ex. två dollar för att skruva i en
 he promised e.g. two dollars for to screw in a
 glödlampa.
 lightbulb
 'He promised for example two dollars to screw in a
 lightbulb.' (PAR)

The particle *i* in each sentence in (5.3) indicates that there is a location (typically an enclosure) where the object (in transitive sentences) or the subject (in

intransitive sentences) ends up after the activity denoted by the verb is completed. The specific location is often understood from the context, but it is not openly expressed.

This section discusses the use of particles as locations, understood or specific. In section 1.1, I argue that the location the particle denotes is necessarily a resultative end state, which can be a location or a property. In section 1.2, I show how the generalization arrived at in 1.1 can be captured while keeping the syntactic representation simple. Finally, section 1.3 discusses resultatives which are predicated of the subject.

1.1. *Condition P*

This section shows that optionally projecting words *must* project under certain circumstances, even if they are not modified. In particular, I will demonstrate that in order for a place expression to fill the particle position, it must denote a resultative end state. Let us first consider two typical particle examples in (5.4):

- (5.4) (a) Han la **ner** boken i knät.
 he laid down book.the in lap.the
 ‘He put the book down in his lap.’ (PAR)
- (b) ... så du bara kan sparka **ut** mig och pojken!
 so you just can kick out me and boy.the
 ‘...so that you can just kick me and the boy out!’ (PAR)

In (5.4), the particles denotes the location of the objects. The particles *ner* and *ut* at first appear to be mere directional obliques, but I will argue here that they are in fact resultative predicates, and that a word *must* be a resultative in order for it to appear in the particle position (setting aside idiomatic and aspectual particles). Specifically, the particle position can only be filled when the condition in (5.5), which I call *Condition P*, holds:¹

¹Condition P pertains to both subjects of intransitives and objects of transitives, but I will focus on the objects of transitives, as the presence of an object makes it clear whether or not a word is a particle.

(5.5) **Condition P:**

The particle position can be filled with a place expression or an adjective only when that place expression or adjective denotes the *end state* of the entity denoted by the object (transitive clauses) or subject (intransitive clauses), and when this end state is the *direct result* of the activity denoted by the verb.

I will present several arguments for Condition P below, but note first that Swedish differentiates between *locational* and *directional* place expressions, as shown in (5.6). A note on terminology: I use *locational* to distinguish stative place expressions from directional place expressions. I use *locative* to refer to any kind of place expression, locational or directional.

- (5.6) (a) Elin sitter här.
E. sits here.LOC
'Elin sits here.'
- (b) Elin sprang hit.
E. ran here.DIR('hither')
'Elin ran here.'
- (c) Elin leker hemma.
E. plays hom.LOC
'Elin plays at home.'
- (d) Elin kommer hem.
E. comes home.DIR
'Elin comes home.'

The one-word place expressions *här* and *hemma* denote fixed locations, whereas *hit* and *hem* denote directions. Now consider the examples in (5.7-5.8):

- (5.7) (a) Maria slänger (**dit**) bollen (dit).
M. throws (there.DIR) ball.the (there.DIR)
'Maria throws the ball there.'
- (b) Maria skjutsar (**hem**) henne (hem).
M. drives (home) her (home)
'Maria drives her home.'

- (5.8) (a) Elin förvarar (*där) kakorna (där).
 E. keeps (*there.LOC) cookies.the (there.LOC)
 ‘Elin keeps the cookies there.’
- (b) Elin lämnar (*hemma) barnet (hemma).
 E. leaves (*home.LOC) child.the (home.LOC)
 ‘Elin leaves the child at home.’

A superficial comparison of (5.7-5.8) would lead to the conclusion that directional place expressions may appear in the particle position, whereas locationals cannot. I will argue that this is not the correct conclusion. Instead, the right generalization is that the particle position can only be filled when Condition P holds. There is thus a difference in meaning between *Maria slänger dit bollen* and *Maria slänger bollen dit*: the word *dit* in the former sentence denotes the end state of the object, whereas *dit* in the latter sentence denotes the direction of the activity.

This section presents five arguments for Condition P. First, adjectival particles must denote results. Second, particles cannot precede the direct object unless Condition P holds. Third, the particle position can be filled even with a verb which normally selects for a *locational* place expression, if Condition P holds. Fourth, there is often a clear difference in meaning depending on the positioning of the place expression. Fifth, Swedish has a productive resultative construction with a filled particle position.

First, let us consider adjectival particles. The examples in (5.9) include the adjectival particle *lös*:

- (5.9) (a) Då ska universitetet och Chalmers öppna dörrarna
 then will university.the and C. open doors.the
 och släppa **lös** forskarna på stan.
 and let free researchers.the on town.the
 ‘Then the university and Chalmers will open the doors and let the researchers out on the town.’ (PAR)
- (b) ... och rycker **lös** meningar ur sina
 and pulls free sentences out.of their
 sammanhang.
 contexts
 ‘... and pulls sentences out of their context. (PAR)

The adjective *lös* ‘free, loose’ is used as a particle in (5.9), but *lös* does not have to be a particle, as we see in (5.10):

- (5.10) (a) ... pojken har minst en skruv lös, sa
 boy has at.least one screw loose, said
 Thorstvedt.
 T.
 'The boy has at least one screw loose, said Thorstvedt. (PAR)
- (b) Det springer en vargliknande hund lös på
 there runs a wolf.like dog free on
 Stocksundsbron.
 S.bridge
 'A dog who looks like a wolf is running free on the
 Stocksund bridge.' (PAR)

In (5.10), the adjective *lös* is used depictively, so we know that it *can* be used that way. A depictive reading is not, however, possible when *lös* is a particle, as in (5.9). In fact, *all* adjectival particles must be resultatives, in accordance with Condition P. I will not list more examples here, since many have already been cited in previous chapters. As the reader can check, all the adjectival particles cited in previous chapters are resultatives (see, for example, 1.4, 2.5, 2.47, 2.62a, and 3.42).

The second argument for Condition P comes from examples where the particle position cannot be filled:

- (5.11) (a) James Bond förföljde mannen hem.
 J. B. followed man.the home.DIR
 'James bond followed the man home.'
- (b) *James Bond förföljde **hem** mannen.
 J. B. followed home.DIR man.the

There are two Swedish words that both translate into English 'follow': *följa* and *förfölja*. *Följa* means 'follow, accompany', whereas *förfölja* means 'follow, pursue'. The place expression *hem* in (5.11) is directional. If it were the case that all directionals which do not obligatorily project can appear in the particle position, then (5.11b) should be grammatical, which it is not (*hem* does not have to project, as shown above in (5.7b)). Condition P does not hold in (5.11): even though it might be true that the man is at home after James Bond has followed him, this is not a direct result of the fact that he was followed. In other words, the fact that Bond followed the man did not cause the man to get home. Given this, we would not expect *hem* 'home' to appear in the particle position.

The third argument for Condition P concerns verbs which generally select for locational place expressions. The verbs *lägga* ‘to lay’ and *hänga* ‘to hang’ are examples:

- (5.12) (a) Matts lägger boken där.
 M. lays book.the there.LOC
 ‘Matts puts the book there.’
- (b) Göran hänger tavlan uppe på väggen.
 G. hangs painting.the up.LOC on wall.the
 ‘Göran hangs the painting up on the wall.’

The words *där* and *uppe* are locational place expressions. The location where the book is put in (5.12a) and the painting is hung in (5.12b) can be seen as the resultative end states of the objects, brought about by the action denoted by the verb. Interestingly, the sentences in (5.13) are also permitted:

- (5.13) (a) Matts lägger **dit** boken.
 M. lays there.DIR book.the
 ‘Matts puts the book there.’
- (b) Göran hänger **upp** tavlan på väggen.
 G. hangs up.DIR painting.the on wall.the
 ‘Göran hangs up the painting on the wall.’

The examples in (5.13) show that the particle position can be filled together with verbs that potentially fulfill Condition P, even if those verbs normally take locational arguments.

An important question is whether there is a meaning difference between the sentences in (5.12) and the ones in (5.13). The example in (5.12b) invites a different reading than (5.13b): (5.12b), but not (5.13b), creates an image where *Göran* is on the wall (or, more naturally, on a scaffold by the wall) while he is hanging the painting. The place expressions in (5.12) can thus modify the whole VP and simply add information about the location, whereas the place expressions in (5.13) specifically denote the resultative end state of the direct object, so in (5.13) Göran does not have to be on a scaffold but could be on the floor. The place expressions in (5.12) also differ in form from the place expressions in (5.13): *där* and *uppe* are locational and *dit* and *upp* are directional.

The two different interpretations are very close in the examples we have seen so far, and the readings are difficult to tease apart since they (often) describe the same situation in the world. There are, however, sentences where the distinction is much clearer, as we see in (5.14-5.15). These examples differ from (5.12–5.13) in that the place expressions that follow the object are directional:

- (5.14) (a) Hans tog **hem** bussen.
 H. took home bus.the
 ‘Hans brought home the bus.’
 (b) Hans tog bussen hem.
 H. took bus.the home
 ‘Hans took the bus home.’
- (5.15) (a) Peter tog **ner** hissen.
 P. took down elevator.the
 ‘Peter brought down the elevator.’
 (b) Peter tog hissen ner.
 P. took elevator.the down
 ‘Peter took the elevator down.’
- (5.16) (a) Flickan tog **tillbaka** stigen.
 girl.the took back path.the
 ‘The girl took back the path.’
 (b) Flickan tog stigen tillbaka.
 girl.the took path.the back
 ‘The girl took the path back.’

The (a) sentences entail that the object is at the location denoted by the particle after the event has taken place (according to Condition P). The ‘transportation sentences’ in the (b) examples do not have this interpretation. In (5.14a), the bus necessarily ends up at home, but (5.14b) simply means that Hans rode the bus home. The example in (5.16a) only has the reading that the girl repossessed the path, whereas the (b) example describes the more likely scenario where the girl walked back on the path. The (b) examples are arguably subject-predicated results, and will be discussed further in section 1.3 below (see also Toivonen 2002c).

A final piece of evidence for Condition P comes from the fact that a particle can be added to VPs that do not normally take directional or locational complements. A resultative interpretation is then forced, so that the meaning is roughly the following: subject did *verb* to *object* and the end result of *verb* is that the object is *particle*. Some examples are given in (5.17):

- (5.17) (a) Ulla charmade **hem** Per.
 U. charmed home P.
 ‘Ulla charmed Per home.’
 (b) Han pratade **hit** mannen.
 he talked here man.the
 ‘He talked the man here.’

Sentence (5.17a) has the interpretation that Ulla charmed Per and the result of that is that he is at home (probably Ulla’s home). Similarly, the result of the talking in (5.17b) is that the man is ‘here’. The objects *Per* and *mannen* are not thematic objects of the verb. Sentences such as those in (5.17) are not fixed expressions, but freely coined.

The word order is crucial for the interpretation. In (5.18), the place expressions follow the obbject, and the examples are ungrammatical:²

- (5.18) (a) *Ulla charmade Per hem/hemma.
 U. charmed P. home.DIR/LOC
 (a) *Han pratade mannen hit/här.
 he talked man.the here.DIR/here.LOC

The resultative reading of the particles is thus productive, in the sense that a particle can be added to a verb and an object to force the Condition P reading.

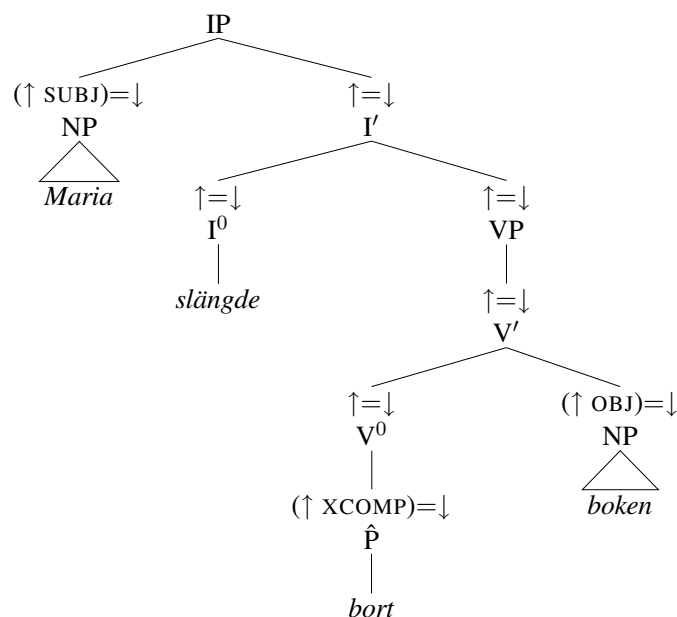
1.2. Lexical and syntactic representation

It was argued above that the locative particles in Swedish are resultative predicates, predicated of the object. The particle thus maps into an f-structure XCOMP. The c-structure and f-structure representations of (5.19) are given in (5.20) and (5.21):

²That is, they are ungrammatical with respect to the intended interpretation. One of the four sentences, *Ulla charmade Per hemma*, would be grammatical if it the intended meaning was that Ulla charmed Per while they were at home. All the other sentences are ungrammatical.

- (5.19) Maria slängde **bort** boken.
 M. threw away book.the
 ‘Maria threw the book away.’

(5.20)



(5.21)

PRED	'throw <(↑ SUBJ) (↑ OBJ)(↑ XCOMP)>'								
TENSE	PAST								
SUBJ	['Maria']								
OBJ	<table> <tr> <td>PRED</td> <td colspan="2">'book'</td> </tr> <tr> <td>DEF</td> <td colspan="2">+</td> </tr> </table>			PRED	'book'		DEF	+	
PRED	'book'								
DEF	+								
XCOMP	<table> <tr> <td>PRED</td> <td colspan="2">'away'</td> </tr> <tr> <td>SUBJ</td> <td colspan="2">[]</td> </tr> </table>			PRED	'away'		SUBJ	[]	
PRED	'away'								
SUBJ	[]								

Note that the XCOMP subject is the same as the matrix object ('Maria threw the book, and the book was away').

It might seem odd that *slänga* 'to throw' has an XCOMP in its lexical entry. After all, it is possible to use *slänga* with just an object, as we see in (5.22):

- (5.22) Jag kan inte med att slänga dem.
 I can not with to throw them
 'I can't stand to throw them out/away.' (PAR)

The sentence in (5.22) is grammatical even though it does not include a locative. For the particular verb *slänga* 'to throw', we could posit a lexical entry with an optional XCOMP. However, this is not a suitable solution for all verbs that can appear with resultative particles. Consider especially the examples given in (5.17), where the resultative interpretation is forced by the presence of the particle, and does not seem to have anything to do with the basic argument structure of the verb. More such examples are given in (5.23):

- (5.23) (a) ... de lurar inte **dit** honom.
 they trick him there not
 '≈...they don't get him to go there by tricking him.' (PAR)
- (b) ... det var en annan person som lockat **dit**
 it was an other person who tempted there
 henne.
 her
 '...it was another person who had tempted her (to go) there.'
 (PAR)
- (c) Men vi ska inte förklara **bort** förlusten.
 but we shall not explain away loss.the
 'But we will not explain the loss away.' (PAR)
- (d) Du tjarar **ihjäl** oss.
 you nag to.death us
 'You nag us to death.' (PAR)
- (e) ... att tjata **fram** en akut ryggoperation.
 to nag forth an urgent back.operation
 '...to bring about an important back operation through nagging.' (PAR)

Sentences such as the ones in (5.17) and (5.23) are productively coined. This is captured here with the lexical rule in (5.24).³ As part of the derived lexical

³Carrier and Randall (1992) also take a lexical rule approach to resultatives, but see Jackendoff (1990b: chapter 10), Goldberg (1995: chapter 8) and Verspoor (1998) for constructional accounts. For a discussion of lexical rules versus constructions, see Toivonen (2002a).

entry, I give a simplified semantic representation drawing upon the formalization of Lexical Conceptual Structure (LCS) developed in Jackendoff (1983, 1990b):⁴

(5.24) **Resultative rule – transitives:**

$$\begin{aligned}
 & \text{'verb}_a \text{' } \rightarrow \\
 & \text{'verb}_b \text{' } (\uparrow \text{ PRED}) = \text{'...} < (\uparrow \text{ SUBJ}_1) (\uparrow \text{ OBJ}_2) (\uparrow \text{ XCOMP}_3) > \text{' } \\
 & \vee (\uparrow \text{ PRED}) = \text{'...} < (\uparrow \text{ SUBJ}_1) (\uparrow \text{ XCOMP}_3) > \text{' } (\uparrow \text{ OBJ}_2) \\
 & (\uparrow \text{ XCOMP SUBJ}) = (\uparrow \text{ OBJ}) \\
 & \text{LCS: } \left[\begin{array}{l} \text{CAUSE } ([1], [\text{BE } ([2], [3])]) \\ [\text{BY } [\text{VERB } ([1], \dots)]] \end{array} \right]
 \end{aligned}$$

The lexical correspondence rule in (5.24) states that any given verb may correspond to a verb with a subject and two syntactic complements; an object and an XCOMP, where the XCOMP's subject is linked to the matrix object. The object may or may not be a thematic argument of the verb, as indicated by the fact that the object can be *inside* the angle brackets (thematic argument) or *outside* the angle brackets (not a thematic argument). This rule captures the generalization we are interested in: It is possible to productively insert a verb in a certain argument frame and get a resultative reading. The LCS simply says that by performing the activity denoted by the verb, the subject makes the object be X (X = state or location denoted by the XCOMP). For concreteness, let us look at the LCS of (5.19) (repeated below as (5.25)):

- (5.25) Maria slängde **bort** boken.
 M. threw away book.the
 'Maria threw the book away.'

(5.26) **LCS:** $\left[\begin{array}{l} \text{CAUSE } ([\text{MARIA}], [\text{BE } ([\text{BOOK}], [\text{AWAY}])]) \\ [\text{BY } [\text{THROW } ([\text{MARIA}], [\text{BOOK}])]] \end{array} \right]$

The LCS in (5.26) captures the notion that Maria threw the book, and the result of the throwing activity is that the book is away.

The lexical rule in (5.24) does not make special reference to particles *per se*. Anything that can be annotated as an XCOMP in the c-structure can express the end location according to the rule. Swedish particles that are place expressions are XCOMPS, so the lexical rule in (5.24) can be satisfied with a particle. The

⁴A note on the notation: the numerical indices indicate which argument is connected to which grammatical function. Jackendoff's LCS representations have previously been incorporated into LFG by Butt (1995), Broadwell (2000), Toivonen (2002b), Wilson (1999), and others.

XCOMP function can of course also be filled by a full post-object XP, as in the following examples:

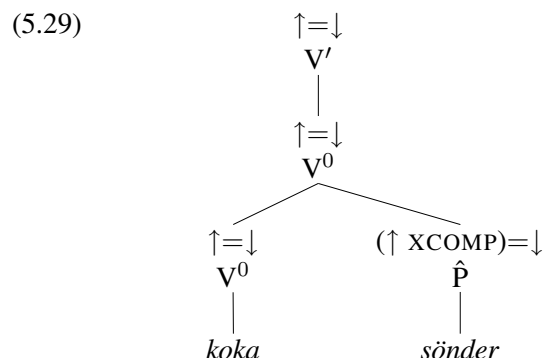
- (5.27) (a) Dela ananasen i småbitar och skär även
 divide pineapple.the in little.pieces and cut also
 mangon i bitar.
 mango.the in pieces
 'Cut the pineapple into little pieces and also cut the mango into pieces.' (PAR)
- (b) Han ruskade mej vaken med hotelser.
 he shook me awake with threats
 'He shook me awake under threats.' (PAR)

The resultative predicates in (5.27a) are PPs, and the resultative predicate in (5.27b) is an AP.

Until now, the focus has been on resultative particles in transitive sentences, because it is easy to tell whether or not a word is a particle in those sentences (since the particle always precedes the direct object). Resultative particles can of course also appear in intransitive sentences, as we see in (5.28):

- (5.28) (a) Potatisen kan koka **sönder**.
 potato.the can boil broken
 'The potatoes may boil until they break.'
- (a) Pojken ramlade **ner**.
 boy.the fell down
 'The boy fell down.'

The c-structure representation of the VP in (5.28a) is (5.29):



A resultative XCOMP can be added to an intransitive verb by the following lexical rule:

- (5.30) **Resultative rule – intransitives:**
 ‘*verb_a*’ →
 ‘*verb_b*’ (↑ PRED)= ‘...<(↑ SUBJ₁)(↑ XCOMP₃)>’
 (↑ XCOMP SUBJ)=(↑ SUBJ)
 LCS: $\left[\begin{array}{l} \text{CAUSE} ([1],[\text{BE} ([1],[3])) \\ [\text{BY} [\text{VERB}_b ([1])]] \end{array} \right]$

The rule in (5.24) and the rule in (5.30) can be collapsed into a single rule, but I am keeping them separate for the sake of clarity. The LCS in (5.30) conveys the following notion: The subject performs the activity denoted by the verb, and the result is that the subject is X (X = state or location denoted by the XCOMP). The example in (5.28a) has the LCS representation given in (5.31):

- (5.31) $\left[\begin{array}{l} \text{CAUSE} ([\text{POTATOES}],[\text{BE} ([\text{POTATOES}],[\text{BROKEN}])) \\ [\text{BY} [\text{BOIL} ([\text{POTATOES}])] \end{array} \right]$

As is well-known, a resultative secondary predicate used together with an intransitive verb often calls for a so-called *fake reflexive* (Simpson 1983, Levin and Rappaport 1989, Jackendoff 1990b, Carrier and Randall 1992, Levin and Rappaport Hovav 1995). This is seen in examples like *laugh oneself silly* and *cry oneself to sleep*. Two examples from Swedish are given in (5.32); (5.32a) has a full PP result, and (5.32b) has a particle result:

- (5.32) (a) Jag måste ha gråtit mig till sömns.
 I must have cried me to sleep
 ‘I must have cried myself to sleep. (PAR)
 (b) Folk skulle ju kunna skratta ihjäl sig.
 people could surely be.able laugh to.death SELF
 ‘People could obviously laugh themselves to death.’ (PAR)

Resultatives with fake reflexives have received much attention in the literature. The basic generalization for English is that unaccusative verbs do not need a fake reflexive whereas unergatives do (Simpson 1983, Levin and Rappaport 1989). As far as I can tell, this generalization is true for Swedish as well. Note that resultatives with fake reflexives are compatible with the lexical rule given for transitives in (5.24): We can think of *Dora shouted herself hoarse* (an

example taken from Levin and Rappaport Hovav 1995: 35) as ‘Dora shouted, and as a result she was hoarse’.

The topic of resultatives in general, and fake reflexives and athematic objects in resultative constructions in particular, is well-researched, yet controversial. The discussion given here is simply meant to illustrate and clarify the Swedish facts, as they concern verbal particles. The lexical correspondence rules should therefore be taken as skeletal descriptions given for the sake of clarity, rather than complete analyses. This section has mainly focussed on the *syntax* of resultatives, but a large body of promising research argues that a semantic account is in fact preferable; see, e.g., Van Valin (1990: 254–55), Goldberg (1995:180–98), Jackendoff (1997b), Wechsler (1997), and Rappaport Hovav and Levin (2001).

1.3. *Results predicated of subjects*

We will now take a closer look at cases where the place expression cannot be expressed with a particle.⁵ An example was given in (5.11), repeated here as (5.33):

- (5.33) (a) James Bond förföljde mannen hem.
 J. B. followed man.the home.DIR
 ‘James bond followed the man home.’
 (b) *James Bond förföljde **hem** mannen.
 J. B. followed home.DIR man.the

The place expression *hem* cannot be expressed as a particle in (5.33), since Condition P does not hold. The goal of this section is to examine such examples in both Swedish and English.

Wechsler (1997) discusses some examples from English which are similar to (5.33), although he does not use examples that include particles (1997, 313):

- (5.34) (a) *The wise men followed the star out of Bethlehem.*
 (b) *The sailors managed to catch a breeze and ride it clear of the rocks.*

Verspoor (1997) also gives several examples:

- (5.35) (a) *John danced mazurkas across the room.*

⁵This topic is also addressed in Toivonen (2002c).

- (b) *John swam laps to exhaustion.*
- (c) *The children played leapfrog across the park.*

Wechsler argues that the results in (5.34) are predicated of the *subjects*. The PP *out of Bethlehem* in (5.34) is not predicated of *the star*, as the star does not end up outside Bethlehem. Similarly, the breeze does not end up clear of the rocks in (5.34b). Instead, the wise men go out of Bethlehem, and the sailors get clear of the rocks. These examples are then counterexamples to the Direct Object Restriction (DOR; Levin and Rappaport Hovav 1995, Simpson 1983) which states that the resultative of a transitive clause must be predicated of the object. Wechsler (and also Verspoor (1997), Rappaport Hovav and Levin (2001)) concludes that the DOR is incorrect: There *are* subject-predicated resultatives in transitive sentences.

The transportation sentences in the (b) examples of (5.14-5.16) given above also exemplify subject-predicated place expressions. The examples are repeated here:

- (5.36) (a) Hans tog bussen hem.
H. took bus.the home
'Hans took the bus home.'
- (b) Peter tog hissen ner.
P. took elevator.the down
'Peter took the elevator down.'
- (c) Flickan tog stigen tillbaka.
girl.the took path.the back
'The girl took the path back.'

The place expressions in the transportation examples in (5.36) are unambiguously subject-predicated in Swedish, whereas the English translations are ambiguous. In English, the place expressions describe the end location of either the subject or the object. In (5.36a-b), it is hard to tease apart the two readings, since both the subject (Hans, Peter) and the means of transportation (the bus, the elevator) are at the end point when the activity is completed. However, in (5.36c), it is clear that the object does not end up at the end location, since *the path* is not the means of transportation.

Now consider the (a) examples of (5.14-5.16) above (repeated here as (5.37)) where the place expressions are particles and unambiguously object-

predicated in both Swedish and English:⁶

- (5.37) (a) Hans tog **hem** bussen.
 H. took home bus.the
 ‘Hans took home the bus.’
- (b) Peter tog **ner** hissen.
 P. took down elevator.the
 ‘Peter took down the elevator.’
- (c) Flickan tog **tillbaka** stigen.
 girl.the took back path.the
 ‘The girl took back the path.’

After the activity is completed, the objects in (5.37) are at the place denoted by the particle: The bus is home (5.37a); the elevator is down (5.37b); and the path is back (5.37c).

The following descriptive generalizations emerge from the data in (5.33-5.37):⁷

- (5.38) (i) There are both subject-predicated and object-predicated resultatives in transitive sentences (Wechsler 1997, Rappaport Hovav and Levin 2001).
- (ii) Resultative particles (\hat{X}) in transitive sentences can only be predicated of the object.
- (iii) Swedish only: Optionally projecting words are predicated of the subject when they project (X^0).
- (iv) English only: Optionally projecting words are predicated of the subject or the object when they project (X^0).

When a word is modified, it always projects, whether it is predicated of a subject or an object. The generalizations of (5.38) are repeated in Table 5.1 with references to relevant examples.

⁶Note again that example (5.37c) is odd (in both Swedish and English). It is not ungrammatical, but it has the unlikely reading where the girl is reclaiming the path.

⁷In the discussion below, I use ‘particle’ to mean words that are traditionally called particles and precede the direct object. I adopt this use throughout this section, although the formal nature of such words in English is actually different from that of the Swedish particles, as will be discussed in chapter 6.3.

Table 5.1. Predication in Swedish and English

	V ⁰	particle	object NP	PP
SWEDISH		object-predicated (5.37)		subject-predicated (5.36)
ENGLISH		object-predicated (5.37)		subject- or object-predicated (5.36)

Generalization (5.38:i) can be formally captured by changing the control specification in the lexical rule for transitive resultatives from OBJ to CGF, where CGF stands for CORE GRAMMATICAL FUNCTION:⁸

(5.39) **Resultative rule – transitives: (old)**

$$\begin{aligned}
 & \text{'verb}_a \text{' } \rightarrow \\
 & \text{'verb}_b \text{' } (\uparrow \text{ PRED}) = \text{'...} < (\uparrow \text{ SUBJ}_1) (\uparrow \text{ OBJ}_2) (\uparrow \text{ XCOMP}_3) > \text{' } \\
 & \vee (\uparrow \text{ PRED}) = \text{'...} < (\uparrow \text{ SUBJ}_1) (\uparrow \text{ XCOMP}_3) > (\uparrow \text{ OBJ}_2) \text{' } \\
 & (\uparrow \text{ XCOMP SUBJ}) = (\uparrow \text{ OBJ})
 \end{aligned}$$

(5.40) **Resultative rule – transitives: (modified version)**

$$\begin{aligned}
 & \text{'verb}_a \text{' } \rightarrow \\
 & \text{'verb}_b \text{' } (\uparrow \text{ PRED}) = \text{'...} < (\uparrow \text{ SUBJ}_1) (\uparrow \text{ OBJ}_2) (\uparrow \text{ XCOMP}_3) > \text{' } \\
 & \vee (\uparrow \text{ PRED}) = \text{'...} < (\uparrow \text{ SUBJ}_1) (\uparrow \text{ XCOMP}_3) > (\uparrow \text{ OBJ}_2) \text{' } \\
 & (\uparrow \text{ XCOMP SUBJ}) = (\uparrow \text{ CGF})
 \end{aligned}$$

The SUBJ, OBJ and OBJ_θ functions are considered CGFs in LFG (Bresnan 2001: 96). The event structure of a given sentence will resolve CGF as a specific GF in a given sentence (see Rappaport Hovav and Levin (2001), Marcotte (2001), and Toivonen (2002a) for details).

The change in control specification is necessary to capture generalization (5.38:i), but it also brings out a new problem: the generalization that resultative particles must be object-predicated (5.38:ii) is no longer successfully captured, since (5.40) does not require the controller to be the object. This problem is easily solved by adding an object control specification in the phrase structure rule which generates XCOMP particles. The phrase structure rule⁹ in (5.41) is a modification of the rule in (4.27):¹⁰

⁸See Marcotte (2001) for a similar analysis of resultatives in LFG.

⁹In Toivonen (2002c) I treat this as a morphological rule in English. See chapter 6.

¹⁰We still need a disjunction allowing the particle to be annotated $\uparrow = \downarrow$, but I set that aside here for simplicity.

$$\begin{array}{rcl}
 (5.41) & V^0 & \rightarrow V^0 \quad X \\
 & \uparrow=\downarrow & (\uparrow \text{XCOMP})=\downarrow \\
 & & (\uparrow \text{XCOMP SUBJ})=(\uparrow \text{LCGF})
 \end{array}$$

The abbreviation LCGF stands for ‘lowest available core grammatical function’ (which will be the subject in an intransitive sentence). In LFG (as in many other theories; see, e.g., the discussion of Sag 1987 in chapter 3.8.2), the grammatical functions are assumed to be ranked in relationship to each other. This is motivated and formalized in Lexical Mapping Theory (Levin 1985, Bresnan and Kanerva 1989, Bresnan and Moshi 1990: and others). The highest core grammatical function is SUBJ, the second highest is OBJ, the lowest is OBJ_θ . The specification in (5.41) ensures that the subject of an XCOMP particle is controlled by the object of the higher clause in a transitive clause, which is what is at issue here. Recall also that particles can be used in double object constructions in Swedish (chapter 4, section 2):

- (5.42) Hunden sliter **av** husse mössan.
 dog.the tears off dog.owner hat.the
 ‘The dog tears the hat off of the dog owner.’

In (5.42), *av* is a resultative XCOMP, *husse* is an OBJ, and *mössan* is an OBJ_θ . The XCOMP is predicated of the lowest CGF, namely *mössan*.

Generalization (5.38:iii) refers to examples such as those in (5.36). The words *hem* ‘home’, *ner* ‘down’, and *tillbaka* ‘back’ optionally project. If they are subject-predicated, as in (5.36), they cannot head-adjoin, since the head-adjoined word is specified to be predicated of the lowest available grammatical function. If an optionally projecting unmodified word is predicated of an object, it must be a particle by Economy (chapter 4.5).

Generalization (5.38:iv) is explained by the fact that English particle placement involves a certain optionality not available to Swedish particles. Compare the Swedish example in (5.43) to the English example in (5.44):

- (5.43) John kastade (ut) soporna (*ut).
 J. threw out garbage.the out
 ‘John threw out the garbage.’

- (5.44) *John threw (out) the garbage (out).*

The examples above show the particle placement is more flexible in English than in Swedish. The particle in (5.43-5.44) is clearly object predicated.

Swedish does not allow it to follow the object, but English does. Economy thus does not have an effect on object-predicated resultatives in English, unlike in Swedish. English particles will be discussed further in chapter 6.3, where I provide evidence that the structural representation of pre-object particles is not identical in the two languages.

To sum up, Verspoor (1997), Wechsler (1997) and Rappaport Hovav and Levin (2001) have shown that the DOR does not hold: results are sometimes predicated of the verb's subject, even in transitive sentences. However, resultative particles can only be object-predicated. A slight modification of the transitive resultative rule and the V^0 -level phrase structure rule successfully capture the relevant data.

1.4. Discussion

A particle can denote a location (like *dit* 'there') or a property (like *sönder* 'broken'). There are certain restrictions on exactly what function this location or property may have. I have captured these restrictions with *Condition P*, which states that a particle must denote the resultative state of the object (or subject, in intransitive clauses).

Results do not have to be expressed by particles, of course. Full XPs can also denote results. This has been demonstrated above, and see also (5.45–5.46):

- (5.45) Johan sparkade **ihjäl** ormen.
 J. kicked to.death snake.the
 'Johan kicked the snake to death.'

- (5.46) Johan sparkade ormen blodig.
 J. kicked snake.the bloody
 'Johan kicked the snake bloody.'

In (5.45) the result is a particle, and in (5.46) the result is a full XP. The fact that results can be expressed in these two different ways is relevant to a recent debate concerning whether resultatives are best analyzed constructionally or compositionally. Most recently, Verspoor (1998) lists several reasons for a constructional analysis. She argues that the construction has a fixed interpretation, and also that the interpretation does not seem to follow directly from compositional processes. One of her main arguments, however, is that the construction has the fixed syntactic form in (5.47):

(5.47) $NP_{subject} V NP_{controlled} ResP$

The data discussed in this section shows that there are two ways in which resultative clauses can diverge from the representation in (5.47). First, the result is not necessarily expressed with a full phrase after the object; it can be a particle as well. Second, the result is not necessarily object-controlled. These points weaken one of the main arguments for a constructional analysis.

2. ASPECTUAL PARTICLES

The previous section considered particles that denote resultative locations or properties, and those are the particles that figure the most prominently in the literature. However, particles may also fulfill another important function: they can mark aspect. This section presents the three main aspectual particles in Swedish: *på* ‘on’, *upp* ‘up’ and *till* ‘to’ (see Norén 1996). Aspectual *till* denotes sudden or abrupt action and does not have a direct counterpart in English. We can compare the aspectual *på* and *upp* to English *on* and *up*, which may also mark aspect:¹¹

- (5.48) (a) *Bill ran on.*
 (b) *Hilary talked on about her latest project.*

- (5.49) (a) *Elena drank up the milk.*
 (b) *Ben glued up the chair.*

Jackendoff (2002) notes that *on* adds the sense ‘keep on doing V’ to the verb, and *up* roughly adds the sense ‘completely’. The sentence in (5.48a) means something like ‘Bill kept on running’ and the sentence in (5.49a) means ‘Elena drank the milk completely’ or ‘Elena completely finished the milk’.

Following Brinton (1988), Smith (1997), Olsen (1994) and others, I adopt the features *telic*, *dynamic* and *durative* as the basis for an analysis of aspect. The feature [+telic] denotes situations with an inherent end, and [–telic] denotes situations without an inherent end; [+dynamic] denotes events and [–dynamic] states; [+durative] denotes situations that hold over a length of time, and [–durative] punctiliar situations. Situations can be divided into classes based on these features (Table 5.2).

¹¹The examples in (5.48-5.49) are taken from Jackendoff (2002), who discusses the aspectual particles in English. See also Emonds (1985: 253), who makes reference to completive *up*. Klipple (1997) and Fraser (1976) discusses aspectual uses of English particles as well.

Table 5.2. *Aspectual features and classes*

Aspectual class	Telic	Dynamic	Durative	Examples
State	—	—	+	<i>know, have</i>
Activity	—	+	+	<i>run, paint</i>
Accomplishment	+	+	+	<i>destroy</i>
Achievement	+	+	—	<i>notice, win</i>
Semelfactive	—	+	—	<i>cough, tap</i>

The classification in Table 5.2 is based on Vendler (1957), Olsen (1994) and Smith (1997). The examples are Olsen's. I give English examples, but their Swedish equivalents have the same aspectual characteristics.

Table 5.2 is slightly misleading in that it makes it seem as if individual verbs exemplify fully specified aspectual classes. Verkuyl (1972) and many others have noted that aspectual meanings hold for sentences rather than individual verbs or verb phrases. This is evidenced by examples like those in (5.50). The sentences in (5.50) differ in telicity, although they are both headed by *walk* (Smith 1997: 4):

- (5.50) (a) *Mary walked in the park.* (atelic)
 (b) *Mary walked to school.* (telic)

Example (5.50a) has a locational complement and is atelic. Example (5.50b) has a directional complement which denotes the endpoint of the activity and is telic. Let us consider a further example. The verb *cough* used by itself may be a semelfactive, but it can also be used iteratively (Smith 1997: 18):

- (5.51) (a) *Mary coughed.* (semelfactive)
 (b) *Mary coughed for an hour.* (activity)

The modifying PP *for an hour* forces an iterative reading of the verb, and (5.51b) must be an activity, although (5.51a) can be a semelfactive.

Examples (5.50-5.51) show that the same verb can head clauses of different aspectual classes. Following Olsen (1994), I assume that verbs are lexically specified for some features but not others. The unspecified features can be filled in by other lexical constituents. The system developed here differs from Olsen's system in that Olsen only allows positive specification, whereas I allow both positive and negative feature values. The verbs in (5.50-5.51) are lexically specified for aspect as in (5.52) and (5.53):

- (5.52) *walk* + DYNAMIC
 + DURATIVE

- (5.53) *cough* + DYNAMIC
 – TELIC

The verbs *walk* and *cough* are inherently specified for some, but not all, aspectual features. The verb *walk* is unspecified for [TELIC], and the verb *cough* is unspecified for [DURATIVE]. The unspecified features are filled in by some other lexical material, for example a modifier, as in (5.50-5.51). The examples in (5.54) shows that objects can also influence the aspectual interpretation (Smith 1997: 4):

- (5.54) (a) *Edward smoked cigarettes.* (atelic)
 (b) *Edward smoked a cigarette.* (telic)

Smoking cigarettes is an event without a clear endpoint, and (5.54a) is atelic. Smoking a cigarette does have a endpoint, and (5.54b) is telic.

If neither the verb itself nor some other part of the sentence specifies a given aspect feature, the value of that feature is filled in according to the principle in (5.55):¹²

- (5.55) Unspecified features receive negative values by default.

A consequence of (5.55) is that the verb *walk* will be [– TELIC] by default, unless telicity is positively specified by some other lexical material. Similarly, *cough* will be [– DURATIVE] by default.

Aspectual features are in this way filled in by lexical material (the verb or other words and phrases), by the pragmatic context (Olsen 1994), or by default. Importantly, the same attribute cannot simultaneously have two different values. If a verb is marked positively for a given feature, lexical material which is marked negatively for that feature cannot combine with that verb. For example, a [+ TELIC] modifier cannot combine with the verb *cough*:

- (5.56) **He coughed in an hour.*

¹²The principle in (5.55) can be formalized in various ways; for example, by using actual defaults (see, e.g., Lascarides and Copestake 1999 and references cited there), or by reference to an *elsewhere* mechanism, which can be formalized by adding ordered disjunction (Erjavec 1994) to the regular expression language describing f-structures.

The verb *cough* is specified [– TELIC] and *in an hour* is specified [+ TELIC], so the two cannot be combined.

The feature system sketched here will prove useful in classifying the aspectual particles. Tenny (1987) has shown that aspectual information is visible to syntactic processes, and I will model aspect in the syntactic level of f-structure (as does Glasbey 2001). The relevant information can be straightforwardly represented in the f-structure, as f-structures are constructed with features. Features must unify in the f-structure, so a sentence that contributes conflicting values for the same attribute will be deemed ungrammatical. It is thus convenient to model aspect in the f-structure, but it is possible that some (perhaps all) aspectual information should be represented in the semantics rather than in the syntax. I leave this an open question for now with the hope that the observations I make about aspectual particles can be easily translated into alternative formal representations of aspect. For a range of different theories of aspect, see the references listed earlier in this section, and also Dowty (1979), Pustejovsky (1991), Jackendoff (1991, 1996), and Verkuyl (1993).

2.1. The aspect marker *på*

This section concerns the particle *på* in its aspectual use. The meaning that *på* adds to a verb is parallel to English aspectual *on*; as used in *walk on*, *talk on*, and *dance on*. There seems to be a register difference between the two languages, as some English speakers report that *V on* sounds quite formal in English.¹³ Compare the two examples in (5.57):

- (5.57) (a) *Everybody just danced on.*
 (b) *Everybody just kept (on) dancing.*

English speakers seem to share the intuition that (5.57a) sounds less casual than (5.57b), where the alternative expression *keep (on) V-ing* is used.¹⁴ Swedish does not have an exact equivalent of *keep (on) V-ing*, and *V på* does not sound particularly formal. Even though there might be a register difference between

¹³It is interesting to note that even though *V on* reportedly sounds quite formal in English, aspectual *on* can also be used informally in the expressions *rock on* and *party on*.

¹⁴The expressions *keep (on) V-ing* and *V on* also differ in other respects and cannot be used completely interchangeably. The use of *V on* seems to be more restricted than *keep (on) V-ing*. Compare: *things kept on happening* and **things happened on*; *soldiers kept on dying* and **soldiers died on*. The generalization appears to be that *V on* can only refer to a single event continuing over time, whereas *keep on V-ing* can also refer to a series of successive (identical) events.

the English *V on* and the Swedish *V på*, the two expressions have the same aspectual characteristics. Some Swedish examples are given in (5.58):

- (5.58) (a) Kretsloppet kan dock inte snurra **på** i all
circulation.the can however not turn on in all
evighet.
eternity
'The circulation cannot keep moving forever.' (PAR)
- (b) ... att kämpa **på** i det tysta.
to fight on in the quiet
'... to work quietly.' (PAR)
- (c) Åklagaren malde **på**.
prosecutor.the ground on
'The prosecutor kept talking.' (PAR)
- (d) Arne lyssnade inte utan pratade **på**.
A. listened not but talked on
'Arne didn't listen, but kept talking.' (PAR)

The sentences in (5.58) all exemplify aspectual *på*, which is the only use of the particle *på* that this section is concerned with. The same particle can also have other functions, as we have seen above. Two further non-aspectual examples are given in (5.59):

- (5.59) (a) Hon sätter **på** kaffet och radion.
she sets on coffee.the and radio.the
'She puts on the coffee and turns on the radio.' (PAR)
- (b) På överkroppen tar hon **på** sig en knastrande
on upper.body.the takes she on SELF a crackling
urtvättad kofta.
out.washed sweater
'On her upper body, she puts on a crackling, faded sweater.'
(PAR)

The particle *på* does not mark aspect in (5.59), and this type of example is therefore disregarded here.

Norén (1996: 191) notes that the aspectual use of the particle *på* seems to have an independent sense of unboundedness which is added to the meaning

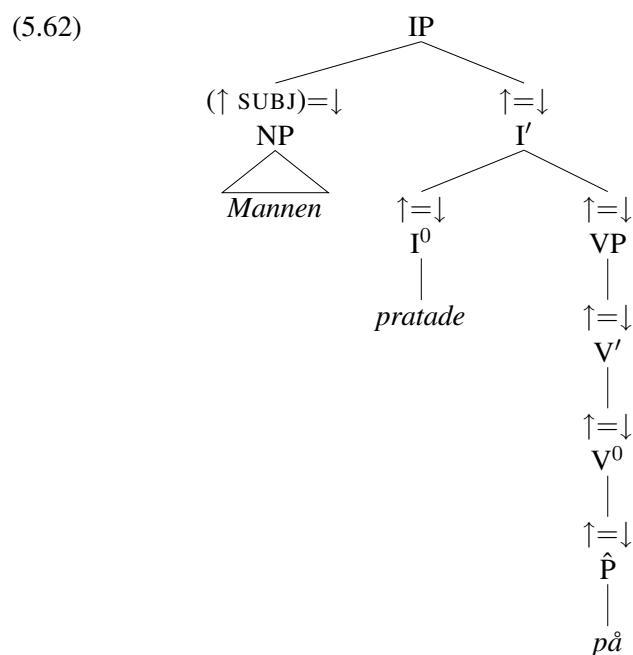
of the verb in regular combinations. The only information *på* contributes to the sentences in (5.58) is aspectual: *på* requires the clause to be an activity. I assume that the lexical entry for aspectual *på* is (5.60):

- (5.60) $på: \hat{P}$ (\uparrow ASPECT TELIC) = –
 (\uparrow ASPECT DYNAMIC) = +
 (\uparrow ASPECT DURATIVE) = +

This lexical entry contains no information other than aspectual features. It does not have a PRED feature, for example.

The c-structure and f-structure representations for a sentence like (5.61) are given in (5.62-5.63):

- (5.61) Mannen pratade på.
 man.the talked on
 ‘The man talked on.’



(5.63)	[]	
	PRED	talk			
	TENSE	PAST			
	ASPECT	[—	
		TELIC			
		DYNAMIC	+		
	SUBJ	[+]	
		PRED	'man'		
		DEF	+		

The verb *prata* is specified for the aspectual features [+DYNAMIC] and [+DURATIVE], which unify with the aspectual features of *på*.

Since *på* marks an atelic event, it cannot be used together with telic modifiers. Temporal PPs headed by *i* are atelic, as illustrated in (5.64a). Temporal PPs headed by *på* are telic (5.64b):

- (5.64) (a) Mannen pratade **på** i en timme.
 man.the talked on in an hour
 'The man talked on for an hour.'
- (b) *Mannen pratade **på** på en timme.
 man.the talked on on an hour
 *'The man talked on in an hour.'

Aspectual *på* is also incompatible with verbs that inherently carry aspectual features incompatible with the ones given in (5.60):

- (5.65) (a) *Mannen visste **på**.
 man.the knew on
- (b) *Mannen vann **på**.
 man.the won on

The verb *veta* 'to know' denotes a state and has a negative dynamicity value. Since the aspectual features of *veta* and *på* are not compatible, the two cannot cooccur. Similarly, *vinna* 'to win' and *på* are incompatible, since *vinna* is inherently [+TELIC].

In sum, then, the aspectual particle *på* marks an on-going activity, like the English particle *on*.

2.2. *The aspect marker upp*

The particle *upp* marks accomplishments. An accomplishment consists of a process, and an outcome or change of state; and the outcome is the completion of the process (Smith 1997: 26–29). Some examples are given in (5.66):

- (5.66) (a) Han är mycket glad för att han inte drack **upp**
 he is very happy for that he not drank up
 den andra ölen.
 the second beer
 ‘He is very happy that he didn’t finish the second beer.’
 (PAR)
- (b) ... hon hade städat **upp** i köket...
 she had cleaned up in kitchen.the
 ‘...she had cleaned up in the kitchen...’ (PAR)
- (c) De äter **upp** resten av kycklingen under tystnad.
 they eat up rest of chicken.the during silence
 ‘They eat/finish the rest of the chicken in silence.’ (PAR)

In (5.66a), the subject is happy because he did not drink *all* of the second beer; that is, he is happy that he did not complete the activity of drinking the beer. In (5.66b), the subject has cleaned the kitchen *completely*. In (5.66c), ‘they’ eat *all* of the chicken.

The lexical entry for aspectual *upp* is given in (5.67):

- (5.67) *upp*: \hat{P} (\uparrow ASPECT TELIC) = +
 (\uparrow ASPECT DYNAMIC) = +
 (\uparrow ASPECT DURATIVE) = +

In Swedish, it is possible to add the aspectual *upp* to a verb-object¹⁵ combination to get the meaning ‘someone did V and the result is that NP is completed or finished’, even when the object is not a thematic argument of the verb. This is illustrated with the examples in (5.68):

¹⁵I use the word ‘object’ loosely here. It refers to the structural object complement, which is not necessarily the thematic object of the verb.

- (5.68) (a) ... där farfar en gång [...] drack **upp** både
 there grandfather one time drank up both
 gris, märr och åkerjord.
 pig mare and farmland
 ‘..where grandfather once [...] drank up both pig, mare and
 farmland.’ (PAR)
- (b) De pengar som blev över [...] hade de festat
 the money which were over had they partied
 upp på Lorensberg.
 up on L.
 ‘They had partied up the left-over money at Lorensberg.’
 (PAR)

The example in (5.68a) means that the grandfather drank so much that the excessive drinking resulted in the disappearance of the pig, the mare and the farmland (they were presumably all sold to finance his drinking). Similarly, ‘they’ in (5.68b) partied until all the money was gone. Note that the examples in (5.69) are ungrammatical:

- (5.69) (a) #Farfar drack gris, märr och åkerjord.
 grandfather drank pig mare and farmland
- (b) *De hade festat pengarna.
 they had partied money.the

The verb *dricka* ‘to drink’ normally takes some kind of liquid as its thematic object, and *festa* ‘to party’ does not take an object at all. It is the addition of *upp* that makes (5.68a-b) grammatical.

The particle *upp* denotes a bounded activity, which is reflected in its choice of modifier:

- (5.70) (a) Hon drack **upp** mjölken på en timme.
 she drank up milk.the on an hour
 ‘She drank up the milk in an hour.’
- (b) *Hon drack **upp** mjölken i en timme.
 she drank up milk.the in an hour
 *‘She drank up the milk for an hour.’

The verbs *eat* and *drink* are atelic when they take a mass noun as their object (*I drank milk*). The same is true for their Swedish counterparts *äta* and *dricka*. Since *upp* is [+TELIC], it is only compatible with [+TELIC] (definite) objects:

- (5.71) (a) *Hon åt **upp** bröd.
 she ate up bread.MASS
 (b) *Hon drack **upp** mjölk.
 she drank up milk.MASS

In (5.71), *äta* and *dricka* are used with mass nouns and *upp*, and the examples are ungrammatical. The examples would be grammatical without the particle *upp*.

To sum up, the aspectual *upp* denotes the completion of an activity.

2.3. The aspect marker *till*

Unlike the particles *på* and *upp*, the Swedish aspectual particle *till* does not have a close equivalent in English. Aspectual *till* marks a sudden, abrupt action:

- (5.72) (a) ... så att hon skriker **till**, skarpt [...]: -Släpp!
 so that she screams to sharply let.go
 ‘... so that she yells out sharply: -Let go!’ (PAR)
 (b) Varje litet ljud får mig att hoppa **till**.
 every little sound gets me to jump to
 ‘Every little sound startles me.’ (PAR)
 (c) ... sa han och visslade **till**.
 said he and whistled to
 ‘... he said and gave out a whistle.’ (PAR)
 (d) Louise fnissade **till**.
 L. giggled to
 ‘Louise giggled (once; suddenly)’ (PAR)

The addition of *till* to *skrika* in (5.72a) makes clear that the subject only let out a single, sudden scream. The verb-particle combination *hoppa till* in (5.72b) is a fixed expression that means something like ‘have a sudden, startled reaction to something’. The use of *till* in (5.72c) shows that the subject let out a brief whistle; importantly the subject was not whistling for an extended period of time. Similarly, the subject *Louise* in (5.72d) let out a brief giggle.

As evidenced by the examples above, the particle *till* marks semelfactives. The lexical entry for aspectual *till* is given in (5.73):

- (5.73) *till*: \hat{P} (\uparrow ASPECT TELIC) = –
 (\uparrow ASPECT DYNAMIC) = +
 (\uparrow ASPECT DURATIVE) = –

Verbs that are inherently specified with feature values that conflict with (5.73) cannot cooccur with *till*:

- (5.74) (a) *Dom där tycker **om** att förstöra **till**.
 they there like about to destroy to
intended: ‘Those people like to destroy (suddenly)’.
 (b) *Han vann **till**.
 he won to

The verb *förstöra* ‘destroy’ is [+ TELIC] and [+ DURATIVE] and thus incompatible with *till*. Similarly, *vinna* ‘to win’ is marked [+ TELIC] and cannot cooccur with the [– TELIC] *till*.

Many verbs are of course compatible with more than one aspectual particle, and the choice of particle then has a crucial effect on the interpretation. The verb *fnissa* ‘to giggle’, for example, is compatible with both *till* and *på*:

- (5.75) (a) Pojken fnissade **till**.
 boy.the giggled to
 ‘The boy giggled (once)’
 (b) Pojken fnissade **på**.
 boy.the giggled on
 ‘The boy kept giggling.’

The difference in interpretation between the two examples in (5.75) is aspectual. The (a) example with the particle *till* denotes a punctual activity, and the (b) example with the particle *på* denotes an on-going activity.

2.4. Remaining issues

This section has presented the three aspectual particles *på*, *upp* and *till*. They have been classified with aspectual features, which are represented in the f-structure. The featural representation developed here should only be viewed as a first approximation of an analysis of aspectual particles in Swedish, since several important issues are left unaddressed in the above discussion. First of all, I have observed but not accounted for the fact that particles put restrictions on

the argument structure of the verbs they can cooccur with: the particles *på* and *till* only occur with intransitives, whereas *upp* only occurs with transitives.¹⁶

Second, the aspectual features provided by the particle sometimes yield the same featural specification as the aspectual features of the verb alone together with the default values. Consider (5.76), which does not contain a particle:

- (5.76) Eric dansar.
 E. dances
 ‘Eric is dancing.’

The verb *dansa* ‘to dance’ is inherently marked [+ DYNAMIC] and [+ DURATIVE], but it is unmarked for telicity. In a sentence like (5.76), where no object or modifier contributes to the aspectual information, the telicity feature will receive a negative value by (5.55). The aspectual specification for (5.76) is therefore (5.77):

- (5.77)
$$\begin{bmatrix} \text{TELIC} & - \\ \text{DYNAMIC} & + \\ \text{DURATIVE} & + \end{bmatrix}$$

This is exactly the specification that *på* contributes. It should therefore be pointless to add *på* to (5.76), but (5.78) is nonetheless a perfectly acceptable sentence:¹⁷

- (5.78) Eric dansar **på**.
 E. dances on
 ‘Eric dances on.’

The fact that both (5.76) and (5.78) are felicitous is easily handled by the theory of aspect adopted here, since *dansa* and *på* do not involve conflicting feature values. However, these examples indicate that the particles contribute information beyond the aspectual features discussed here: the particle *på* presumably adds some kind of information in (5.78). I will not attempt to further specify the meaning of *på* here, but note that *på* and the verb *continue* seem to come

¹⁶McIntyre (2001) discusses particles in English and German which block syntactic linking of the direct object of the verb.

¹⁷Note that the fact that both (5.76) and (5.78) are grammatical is not problematic for Economy (whether or not they are identical in meaning), as the two examples involve different lexical forms.

with the same presuppositions. The example in (5.78) presupposes that Eric started dancing before the time described by the utterance; in other words, Eric is continuing a previously initiated activity.

The interaction of particles, verbs, and other words which contribute to the aspectual information is very intricate, and a full treatment is naturally beyond the scope of this work. Nevertheless, this section has provided a first outline of the role particles play in marking aspect in Swedish.

3. IDIOMATIC VERB-PARTICLE COMBINATIONS

The two previous sections discussed particles which add meaning to the clause in a compositional, predictable, and semantically transparent fashion. There are also semantically non-transparent uses of particles. An example is given in (5.79):

- (5.79) Det är svårt att hålla **av** någon, som man inte
 it is difficult to hold off someone who one not
 kan lita på.
 can trust on
 ‘It is difficult to like someone that you cannot trust.’ (PAR)

The verb *hålla* ‘to hold’ and the particle *av* ‘off, from’ used in combination create the meaning ‘to like’. The meaning is not transparent, since neither *hålla* nor *av* has anything to do with ‘liking’ when they are used on their own. The expression *hålla av* is thus a verb-particle idiom. There are many such idiomatic verb-particle combinations, as we will see in numerous examples below.

This section is organized as follows: Section 3.1 provides further examples of idioms and also some examples of ‘semi-idiomatic’ verb-particle combinations; that is, verb-particle combinations which are partly transparent. It is also argued that there is no reason to posit a structural difference between idiomatic and non-idiomatic verb-particle combinations. Section 3.2 concerns examples where a particle changes the argument structure of the verb. These cases will be considered semi-idiomatic. Finally, section 3.3 discusses the formal representation of verb-particle idioms.

3.1. *Idioms and semi-idioms*

As we already saw in (5.79), verb-particle combinations are sometimes idiomatic. More examples are listed in (5.80):

- (5.80) (a) *bli* + *av* = become + off, 'happen, come about'
 (b) *tycka* + *om* = think + about, 'like'
 (c) *gå* + *bort* = go + away, 'die'
 (d) *kasta* + *upp* = throw + up, 'vomit'
 (e) *ligga* + *i* = lie + in, 'keep at it, work hard'
 (f) *lägga* + *av* = lay + off, 'quit'
 (g) *bjuda* + *till* = invite, offer + to, 'make an effort, try'

In (5.81), some of the verb-particle combinations given in (5.80) are used in attested sentences:

- (5.81) (a) Den resa de har kämpat för ser inte ut att
 the trip they have fought for sees not out to
 bli **av**.
 become off
 'It doesn't look like the trip they have been fighting for will happen.' (PAR)
- (b) Erica berättar att hon spelar lite gitarr och tycker
 E. tells that she plays little guitar and thinks
om att sjunga.
 about to sing
 'Erica says that she plays a little guitar and that she likes to sing.' (PAR)
- (c) I år är det 20 år sedan Evert Taube gick
 in year is it 20 years since E. T. went
bort.
 away
 'This year, it has been 20 years since Evert Taube died.'
 (PAR)
- (d) Båda hade kastat **upp**.
 both had thrown up
 'They had both thrown up.' (PAR)

- (e) Han lade **av** i våras men gör comeback nu
 he laid off in spring but makes come.back now
 igen till höstmatcherna
 again for fall.games
 'He quit in the spring, but makes a come back again for the
 fall games.' (PAR)

The verb-particle combinations in (5.80) are completely idiomatic and must be stored as a unit in the lexicon. Across the Germanic languages, we find the same pattern: some verb-particle combinations are compositional and some are idiomatic (Ackerman and Webelhuth 1998, Wurmbrand 2000, Jackendoff 2002). Ackerman and Webelhuth (1998) propose that *all* verb-particle combinations are stored as lexical units. Their argumentation is based on verb-particle idioms and show that the verb and the particle correspond to one lexical predicate. They assume that verb-particle combinations with compositional semantics are also best represented as a single predicate in the lexicon. Along Ackerman and Webelhuth's line of reasoning, all verb-object combinations are single lexical predicates, since that is what idioms like *kick the bucket* lead us to conclude. I hesitate to adopt this analysis, since many verb-particle and verb-object combinations can be successfully interpreted compositionally, and storing all combinations lexically seems redundant. However, most of the assumptions I make about the Swedish (and other) verb-particle combinations are in principle compatible with Ackerman and Webelhuth's approach.

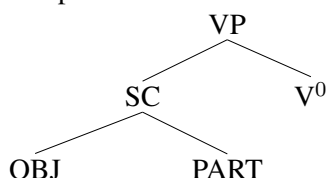
There are degrees of idiomaticity within the verb-particle construction (Wurmbrand 2000, Jackendoff 1997a, Nunberg, Sag, and Wasow 1994). Consider the following examples:

- (5.82) (a) Alma körde **ut** honom ur köket för hon
 A. drove out him out.of kitchen.the for she
 skulle baka.
 would bake
 'Alma kicked him out of the kitchen because she was
 baking.' (PAR)
- (b) Reine tog **över** Stigs förrätt och åt upp den
 R. took over S.'s appetizer and ate up that
 också.
 also
 'Reine took over Stig's appetizer and ate that as well.' (PAR)

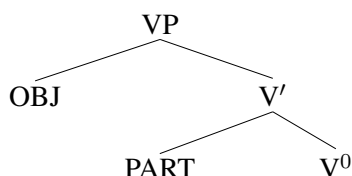
The expression *köra ut* in (5.82a) is idiomatic in the sense that it does not have to do with a driving activity.¹⁸ However, it does involve the object going ‘out’, so in that respect it is transparent. Consider also *ta över* in (5.82b). This expression is also semi-idiomatic, since the meaning involves the act of ‘taking’, although it does not involve the notion ‘over’. Even though these expressions are not ‘fully’ idiomatic, they must still be stored lexically together with their idiosyncratic meaning, since the meaning is not transparent.

Wurmbrand (2000) discusses the fact that verb-particle combinations differ in idiomaticity. She argues, based on German data, that idiomatic and semi-idiomatic verb-particle combinations are *structurally* distinct from the transparent ones (see Ishikawa 1999 for a similar proposal for English). The structures she posits (for German) are given in (5.83):

(5.83) (a) Transparent



(b) Idiomatic



In Wurmbrand’s analysis, the verb and the particle form a constituent in idioms, and the object and the particle form a constituent in non-idioms. As support for this hypothesis, she offers the following topicalization data, where (5.84a) is transparent and (5.84b) is idiomatic:

(5.84) (a) ?[Die Tür auf]_{SC} hat nur der Hans *t*_{SC} gemacht.
 the door open has only the H. made
 ‘Only John opened the door.’

¹⁸The verb *köra* only has the reading ‘to drive some vehicle’. It does not have the sense of drive that we find in examples like ‘she drove him crazy’, ‘a driving force’, or ‘she drove him back until he tripped and fell’.

- (b) *[Das Stück auf] haben nur die Philharmoniker *t*
 the piece PRT have only the Philharmoniker
 geführt.
 performed
 ‘Only the Philharmoniker performed the piece.’

Although neither example is fully acceptable, most speakers reportedly prefer (5.84a) to (5.84b), and Wurmbrand takes this to be evidence for different structures. However, as Wurmbrand herself points out, elements are fronted because they are topicalized or focussed, and topic and focus can only be expressed by elements that have compositional semantic content. Consider the following sentence from English:

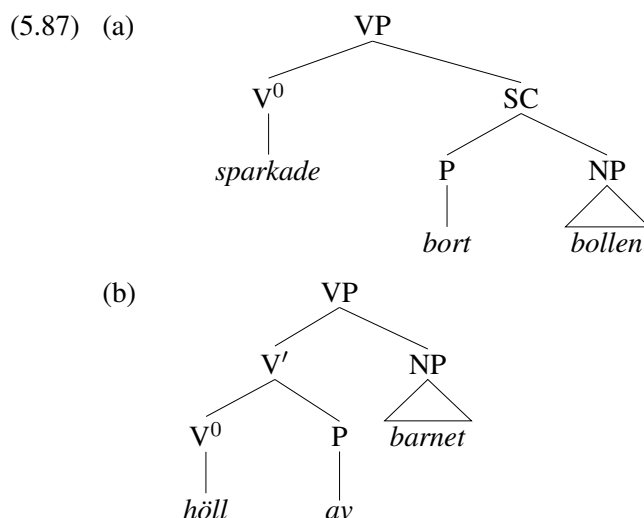
- (5.85) *The bucket is what John kicked.*

The sentence in (5.85) is only grammatical on the non-idiomatic reading. It is a general fact that idiom chunks which cannot be interpreted compositionally cannot be fronted. The examples in (5.84) are therefore not convincing evidence for the structures in (5.83).¹⁹

Let us take a closer look at the constituency evidence, using examples from Swedish. If we were to adopt Wurmbrand’s analysis, the VP structure for a non-idiomatic verb-particle combination such as the one in (5.86a) would be (5.87a), and the structure for the idiom in (5.86b) would be (5.87b):

- (5.86) (a) Flickan sparkade **bort** bollen.
 girl.the kicked away ball.the
 ‘The girl kicked the ball away.’
 (b) Flickan höll **av** barnet.
 girl.the held off child.the
 ‘The girl liked the child.’

¹⁹See Nunberg, Sag, and Wasow (1994), who discuss the fact that some idioms can be interpreted compositionally whereas others cannot. The ‘semi-idioms’ in (5.82) are examples of verb-particle combinations which are not semantically transparent, but can nonetheless be interpreted compositionally. Pitt and Katz (2000) also discuss compositional idioms.



According to the representations above, *bort* and *bollen* form a constituent and *höll* and *av* form a constituent. Consider the following attempts to topicalize parts of the examples above:

- (5.88) (a) ?***Bort** bollen sparkade flickan. (non-idiom)
 away ball.the kicked girl.the
- (b) ***Av** barnet höll flickan. (idiom)
 off child.the held girl.the

Both examples are bad, but a topicalization of *bort bollen* is marginally better than a topicalization of *av barnet*. Although these data are by no means clear, they are consistent with the structural assignment proposed in (5.87). However, the data in (5.88) are also explained by the generalization that only idiom chunks that can be interpreted compositionally can be fronted. The structures in (5.87) are therefore not necessary to explain the examples in (5.88).

There are also data that contradict the structural assignments in (5.87). Let us consider the expressions *sparkade bort* and *höll av*. The former is not supposed to form a constituent, while the latter is. The fronting facts are nevertheless as illustrated in (5.89):

- (5.89) (a) %Sparkade **bort** gjorde hon bollen. (non-idiom)
 kicked away she did ball.the
 'Kick away she did the ball.'

- (b) *Höll **av** gjorde hon barnet. (idiom)
 held off did she child.the
 ‘Like she did the child.’

The pattern illustrated by the data in (5.89) is the reverse of the predictions of the structures in (5.87). The example in (5.89b) is clearly ungrammatical, but some speakers accept (5.89a), and everybody seem to prefer (a) to (b). I conclude that there is no reason to assume a structural difference between idiomatic and non-idiomatic verb-particle combinations, at least not in Swedish (and see McIntyre (2002) for German-internal arguments against Wurmbrand’s analysis). In fact, the data in (5.89) contradict the hypothesis that there is a structural difference such as the one Wurmbrand proposes. The data in (5.88–5.89) do, however, comply with the generalization that idiom chunks are harder to front than parts of non-idioms.

3.2. *Argument structure*

When a verb is used together with a particle, the number and type of NP arguments may be different from the number and type of arguments that the verb takes alone, as pointed out above in the context of aspectual particles. For example, aspectual *på* can never cooccur with a direct object, no matter which verb it is combined with. However, it is often not possible to predict what the addition of a particle will do to the argument structure. When the argument structure of a verb-particle combination seems arbitrary, I classify that verb-particle combination as semi-idiomatic.²⁰

Let us begin by looking at the verb *skälla* ‘to bark, to scold’ as an example. If it is used without a particle, it is intransitive with an optional PP argument (5.90a–b):

- (5.90) (a) Jag kunde inte hejda mig själv, jag bara skrek
 I could not stop me self I just screamed
 och skällde, och jag tror att jag stampade i
 and scolded and I think that I stomped in
 golvet också.
 floor.the also
 ‘I couldn’t stop myself, I just yelled and screamed and I think
 I stomped my feet as well.’ (PAR)

²⁰Of course, it can also be *fully* idiomatic, depending on whether the meaning of the parts of the construct is transparent.

- (b) ... så vände han sig om får att skälla på
 then turned he SELF around for to bark on
 mig.
 me
 ‘...then he turned around to scold me.’ (PAR)
- (c) *Hon skällde honom.
 she barked him
 intended: ‘She scolded him.’

However, in combination with the particle *ut* ‘out’ or *down* ‘ner’, the verb *skälla* is transitive, and means ‘to yell at’ or ‘to scold’, as in (5.91–5.92):

- (5.91) (a) Chefen skällde **ut** honom.
 boss.the barked out him
 ‘The boss scolded him.’ (PAR)
- (b) *Chefen skällde **ut**.
 boss the barked out
- (5.92) (a) Konrad vart alldeles stel i ansiktet och så
 K. got completely stiff in face.the and then
 skällde han **ner** Frida.
 barked he down Frida
 ‘Konrad got all stiff in the face and then he scolded Frida.’
 (PAR)
- (b) *Konrad skällde **ner**.
 K. barked down

The list of syntactic arguments for *skälla*, without a particle is given in (5.93a), the arguments for *skälla ut* is in (5.93b), and *skälla ner* is in (5.93c):

- (5.93) (a) *skälla*: <SUBJ (OBL_{pa})>
 (b) *skälla - ut*: <SUBJ OBJ>
 (c) *skälla - ner*: <SUBJ OBJ>

Consider also the examples in (5.94), which all include the verb *hänga* ‘to hang’:

- (5.94) (a) Jag hängde jackan på väggen.
I hung jacket.the on wall.the
'I hung the jacket on the wall.'
- (b) Jag hängde **på** generalen medaljen.
I hung on.PRT general.the medal.the
'I hung the medal on the general.'
- (c) Jag hängde medaljen på generalen.
I hung medal.the on general.the
'I hung the medal on the general.'
- (d) *Jag hängde **på** väggen jackan.
I hung on wall.the jacket.the

When it is used without a particle, the verb *hänga* takes an NP object and a PP, 'to hang something on something'. However, the verb can also be used with the particle *på*, as we see in (5.94b) (this is not the aspectual *på*). In that case, two NP objects are necessary. There are also further restrictions: when the particle *på* is used, the recipient of the 'hanging' must be animate.²¹ Since *väggen* is inanimate, (5.94d) is ungrammatical.

Let us consider another example:

- (5.95) (a) dricka vinet/*glaset
drink wine.the/*glass.the
- (b) dricka **ur** vinet/glaset
drink out/empty wine.the/glass.the

The verb *dricka* requires that its NP object be a liquid (ignoring here metaphorical uses of the verb). If we add the particle *ur*, which means 'out', 'empty' or 'finished', however, two types of NP objects are allowed: either liquids (like with the plain *dricka*) or containers (see also Norén 1996 for discussion of these examples).²²

The examples in (5.90-5.95) show that a verb in combination with a particle require a different argument structure than the verb alone. The difference might

²¹The restriction is a bit more complicated than this. You can use *hänga på* with an inanimate object if that object is a statue, for example. It is also possible that not *all* animates can be used.

²²Daniel Ormelius (p.c.) has pointed out to me that an example like 'he drank the whole glass in five minutes' is acceptable since a possible interpretation is 'the liquid contained in the glass' (see Apresjan 1973, Ostler and Atkins 1992). The discussion of the examples in (5.95) is therefore a bit simplistic. The main generalization does, however, hold true: the particle changes the selectional restrictions of the verb.

be in type or in number. The changes in argument structure are not predictable: it is not the case that any specific particle always requires a specific number (or kind) of arguments. Take *på* as an example: in (5.96a), a verb + *på* takes one argument, in (5.96b-c), a verb + *på* takes two arguments, and in (5.96d) a verb + *på* takes three arguments:

- (5.96) (a) Vispa **på** bara!
 whip on only
 'Just keep on whipping!' (PAR)
- (b) Han fyllde **på** sitt glas.
 he filled on his glass
 'He filled his glass.' (PAR)
- (c) Jag bättrade **på** ögonmake-upen.
 I improved on eye.make.up.the
 'I improved my eye make-up.' (PAR)
- (d) ... vi ska tävla om vem som först kan
 we shall compete about who that first can
 klä **på** den stackars suggan en huvudbonad.
 dress on the poor sow a head.clothing
 'We will compete about who can first put a hat on the poor sow.' (PAR)

The examples in (5.96) show that a given particle does not in general *force* a particular argument structure. We see clearly that it is not the case that *på* has to cooccur with a given number of arguments. The examples in (5.97) shows that the same thing holds true for the particle *ut*:

- (5.97) (a) Kalle kände sig provocerad men bestämde sig
 K. felt SELF provoked but decided SELF
 för att stå **ut**.
 for to stand out
 'Kalle felt provoked but decided to put up with it.' (PAR)
- (b) ... och blåste **ut** ett doftande moln av blå rök
 and blew out a smelling cloud of blue smoke
 mot henne.
 towards her.
 '...and blew out a smelly cloud of blue smoke at her.' (PAR)

The particle *ut* can be used with one or two arguments: example (5.97a) is intransitive, and (5.97b) is transitive. As far as I can tell, the number of arguments must be memorized in examples like the ones in (5.96-5.97). The verb *vispa* in (5.96a) without a particle takes two arguments, *fylla* also takes two arguments, *bättra* without a particle has to take a reflexive object, *klä* and *känna* normally take two arguments, and *blåsa* takes a single argument.

Some further examples add evidence to the claim that the number of arguments that a given verb-particle combination takes must be memorized. Consider the two examples in (5.98):

- (5.98) (a) Ash sade **åt** Thora att le.
 A. said to T. to smile
 ‘Ash told Thora to smile’
 (b) Ash sade **till** Thora att le.
 A. said to T. to smile
 ‘Ash told Thora to smile.’

The expressions *säga åt* and *säga till* both mean ‘to tell (someone to do something)’, but they contain different particles (although the particles are both translated into English ‘to’). As (5.98) shows, both verb-particle expressions can appear in the following argument frame: [NP-subj NP-obj CP-comp].²³ It is also possible to leave out the CP, which will then be implicitly understood. Note, however, the difference in grammaticality in (5.99):

- (5.99) (a) *Ash sade **åt**.
 A. said to
 (b) Ash sade **till**.
 A. said to
 (approx.) ‘Ash protested; Ash reported (something)’

The verb-particle combination *säga till* can be used without complements. The meaning is then roughly that the subject makes his/her voice heard. However, it is not possible to leave out both internal arguments of *säga åt*. The expressions *säga åt* and *säga till* are in general very similar to each other, and in some

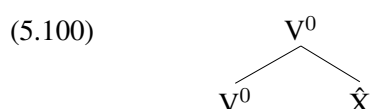
²³Following Platzack (1998: 146), I here assume that the Swedish infinitive marker *att* is in C⁰. However, nothing hinges on that choice here, as the point would be the same if the complement was an IP or a VP.

argument frames, the two expressions can be used interchangeably. Nevertheless, only *säga till* can be used with no internal arguments. This difference must be lexically stored.

In sum, verb-particle combinations are similar to plain verbs in that they differ in argument selection. I have concluded that the number of arguments is often lexically specified. However, recall that the aspectual particles come with restrictions on the number of arguments. I suspect that there exist more such subregularities, but I leave this for future research.

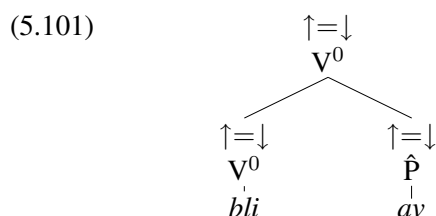
3.3. Analysis

Idiomatic verb-particle combinations do not display any quirky *syntactic* properties. C-structurally, they are identical to regular resultative and aspectual particles; they have the now familiar structure in (5.100):



Particles in idioms precede the direct object and do not project full phrases. However, idioms are, by definition, lexically stored, idiosyncratic expressions. An idiom can include a word that is specified for whether or not it projects a phrase. That means that a word may be specified to obligatorily project in a given idiom, although that word generally optionally projects a phrase. One such example, *se ut*, was discussed in chapter 4, section 6. The word *ut* in that expression crucially *does* project a phrase. The concern of the present chapter is idioms that contain true particles, i.e., non-projecting words, and those idioms have the same structure as non-idiomatic verb-particle constructions.

The c-structure representation of verb-particle idioms is thus straightforward, but what is their f-structural status? What are their grammatical functions? It was argued above that resultative particles are XCOMPS and aspectual particles are co-heads, but what are idiomatic particles? Let us first consider idioms such as *bli av* ‘to happen’ and *tycka om* ‘to like’ (given in (5.80-5.81)). The particles in such examples do not seem to be any kind of secondary predicate, since it is not the true that anyone or anything is ‘off’ in the former example, or ‘about’ in the latter. In those cases, the particles appear to be co-heads:



Here, the verb and the particle form a complex predicate. Different ways to formalize complex predicates in LFG (or in a framework compatible with LFG) are discussed in Butt (1995), Ackerman and Webelhuth (1998), Andrews and Manning (1999).

Particles can denote results even when they occur in idioms. The results are then generally interpreted figuratively. Consider the English *pass away*, which is for our purposes parallel to the Swedish *gå bort*. The verb *pass* can be thought of as denoting some kind of departure, and *away* can mean away from life, or away from here. In that sense, the result of the subject's dying is that s/he is 'away'. If we decide that this is the best way to analyze 'pass away', then 'away' should be an f-structure XCOMP, not a simple co-head.

Let me spell out the details for how this would work, using the Swedish idiom *gå bort* 'to die' (lit. 'to walk away') as an example. There are two lexical entries for the verb *gå*, one for the literal reading, and one for the *gå* that participates in the idiom. The lexical entry for *gå* will be something like (5.102):

$$(5.102) \quad gå, V^0: (\uparrow \text{ PRED}) = \text{'walk}_1 <(\uparrow \text{ SUBJ}_1)(\uparrow \text{ XCOMP}_2)>'$$

$$\text{LCS: } \left[\begin{array}{c} \text{GO } ([1]_A, [2]_{(A)}) \\ \text{content} \end{array} \right]$$

The verb *gå* takes two arguments, an agent and a path. The subscript A on the first argument indicates that the argument must be realized, and (A) means that the argument is optionally realized.

Each verb has its own idiosyncratic semantic flavor; where by semantic flavor I mean the part of the meaning that distinguishes *gå* from verbs like *springa* 'to run' and *promenera* 'to take a walk.' Those verbs are all motion verbs and they have the same argument structure, but they do not mean exactly the same thing. This part of the verbal semantics is not included in the LCS representations here; I just mark it with *content*.

When *gå* is used in the idiom *gå bort*, the phonology and the morphology of the verb does not change. What is special about *gå* in this idiom is (a) it

obligatorily takes the oblique *bort*, and (b) it shares the LCS of the verb *dö* ‘to die’:

$$(5.103) \quad g\ddot{a}, V^0: \quad (\uparrow \text{ PRED}) = \text{‘walk}_2 <(\uparrow \text{ SUBJ})(\uparrow \text{ XCOMP})>’} \\ (\uparrow \text{ XCOMP FORM}) =_c \text{ BORT}$$

$$\text{LCS:} \left[\begin{array}{l} \text{DIE (I } _A) \\ \text{content} \end{array} \right]$$

The subscript $_c$ marks a constraining equations. Constraining equations differ from defining equations, in that they do not contribute a feature. A constraining equation requires the relevant information to be provided in some other way. Through a constraining equation, the idiomatic *gå* has a ‘pointer’ to the contentless *bort* form:

$$(5.104) \quad bort, P: \quad (\uparrow \text{ FORM}) = \text{BORT}$$

This is a straightforward way of formalizing idioms in LFG (Kaplan and Bresnan 1982), but nothing hinges upon this specific formalization. The main point here is that the expression *gå bort* shares lexical semantics with *dö*. See Ackerman and Webelhuth (1998), Webelhuth and Ackerman (2001) for a different way of formalizing idioms in LFG.

Whether or not *gå bort* is used idiomatically, the c-structure representation will be:

$$(5.105) \quad \begin{array}{c} \uparrow = \downarrow \\ V^0 \\ \swarrow \quad \searrow \\ \begin{array}{c} \uparrow = \downarrow \\ V^0 \end{array} \quad \begin{array}{c} (\uparrow \text{ XCOMP}) = \downarrow \\ \hat{P} \end{array} \end{array}$$

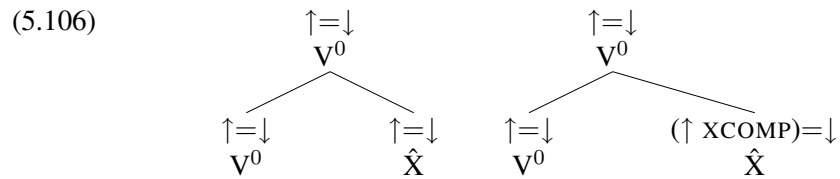
The particle is still a non-projecting word in the c-structure, attached to V^0 .

4. SUMMARY

This chapter divided particles into three major groups based on their semantic interpretation. I proposed that a Swedish verbal particle is a resultative predicate, an aspect marker, or part of an idiomatic verb-particle combination.

The architecture of LFG does not force a given c-structural position to always correspond to the same f-structure function. For example, the specifier

position of CP in a language may be able to host an element with has either the topic or the focus function. I have claimed that the particle position in Swedish can host both a co-head and an XCOMP (though not simultaneously, of course). In other words, both of the following annotations are possible:



As a consequence, all and only non-projecting words which are co-heads or XCOMPs can appear in the particle position in Swedish.

Again, it is worth emphasizing that no matter what their semantic function is, verbal particles always have the characteristics pointed out in chapters 1 and 2: they are stressed; they cannot have complements; and if they are modified, they must follow the direct object. Swedish verbal particles thus have the same structure no matter what their meaning is: they are always adjoined to the verbal head.

CHAPTER 6

OTHER GERMANIC LANGUAGES

All Germanic languages have words that correspond to the Swedish verbal particles, and it is well-known that particles display cross-linguistic differences. The most obvious difference has to do with the word order: in some languages, particles must precede the object; in some they must follow the object; and in others they either precede or follow the object:

- (6.1) Vi släppte **ut** hunden. [Swedish]
we let out dog.the
'We let the dog out.'
- (6.2) Vi slap hunden **ud**. [Danish]
we let dog.the out
'We let the dog out.'
- (6.3) (a) *We let **out** the dog.*
(b) *We let the dog **out**.*

The examples in (6.1–6.3) illustrate the divergence in word order across languages, but there are also other differences, as I will show in this chapter.

An exhaustive treatment of all the Germanic languages is obviously beyond the scope of this work. I limit my discussion to Danish, German and English, which represent three different patterns. We will see that Danish and German are easily accounted for within our current framework. The English data, however, introduces several interesting problems, and most of this chapter is therefore devoted to English.¹

¹The similarities between German and Dutch on the one hand and English and Norwegian on the other have often been noted in the literature. However, there appear to be some interesting

1. DANISH

I begin with Danish, which displays a pattern that is in a sense the opposite of the Swedish pattern, since the (apparent) particles necessarily follow the direct object.² This is shown in (6.4) which is taken from Svenonius (1994: Chapter 3), and (6.5) which is taken from Platzack (1998: 179):

- (6.4) (a) Vi slap hunden ud.
 we let dog.the out. 'PRT'
 'We let the dog out.'
- (b) *Vi slap ud hunden.
 we let out. 'PRT' dog.the
- (6.5) (a) Han knugede sine hænder sammen.
 he clasped his hands together. 'PRT'
 'He clasped his hands.'
- (b) *Han knugede sammen sine hænder.
 he clasped together. 'PRT' his hands

Compare the example in (6.4) to the Swedish example in (6.6):

- (6.6) (a) Vi släppte **ut** hunden.
 we let out dog.the
 'We let the dog out.'
- (b) *Vi släppte hunden ut.
 we let dog.the out

differences between German and Dutch (see, e.g., Zeller 2002) and also between English and Norwegian (as pointed out by a reviewer). A careful investigation of each individual language is needed in order to establish how they can be analyzed within the general framework assumed here. Some important references for Dutch are Booij (1990, 2002), den Dikken (1995), van Marle (2002), Neeleman and Weerman (1993), Neeleman (2002), Zeller (1999, 2001, 2002). References for Norwegian include: Fretheim (1974), Åfarli (1985), Svenonius (1994, 1996), Ramchand and Svenonius (2002). Other Germanic languages, such as Icelandic, Faroese, and West Flemish, also deserve careful investigation, of course. I leave this for future research.

²A reviewer points out that although it is true that Danish 'particles' follow direct objects, other complements can in turn follow the particle. The reviewer gives the following example: *Hun holdt op at tale*, which literally means 'she held up to speak' (a more idiomatic English translation would be 'She stopped speaking.'). The example indicates that the Danish V'-rule is: $V' \rightarrow NP PP IP$, where the IP is annotated (\uparrow XCOMP)= \downarrow (assuming that *att* is in I^0 in Danish).

I propose that Danish in fact does not have verbal particles at all (under the definition where particles are non-projecting words). Although the words *ut* and *sammen* in (6.4-6.5) above correspond closely to the Swedish particles in meaning and form, they differ in that they *do* project full phrases. The lexical entry for *ud* 'out' is then (6.7):

- It then follows that *ud* must obey the word order restrictions for PPs in Danish, and as (6.8) shows, PPs follow direct objects in Danish (Bredsdorff 1956: 141–142):

- Although Danish has many intransitive prepositions that correspond to verbal particles in Swedish, it does not have particles in the structural sense, since the relevant words in Danish must always project phrases. This claim is supported by the fact that all particles appear to be modifiable in Danish (so long as modification is semantically plausible). Two modified particles are given in (6.9). Example (6.9a) is from Bredsdorff (1956) and (6.9b) is adapted from Herslund (1984):

- (6.9) (a) Han var langt borte.
he was far away. 'PRT'
'He was far away.'

- (b) De sendte ham langt ud på landet.
 they sent him far out. 'PRT' on countryside.the
 'They sent him far out into the countryside.'

The theory of chapter 3 forces an analysis where the post-object prepositions in Danish project full phrases, and this correctly predicts that they are modifiable. Herslund (1984) independently argues for an analysis where the Danish 'particles' are PPs.

2. GERMAN

There is a long-standing debate in the German syntax literature concerning the status of verbal particles: are they phrasal or affixal?³ Just as in Swedish, the particles seem phrasal in that they can be separated from the verb, and affixal in that they cannot be modified. The analysis developed for Swedish straightforwardly accounts for these characteristics, and so I propose the same analysis for German.

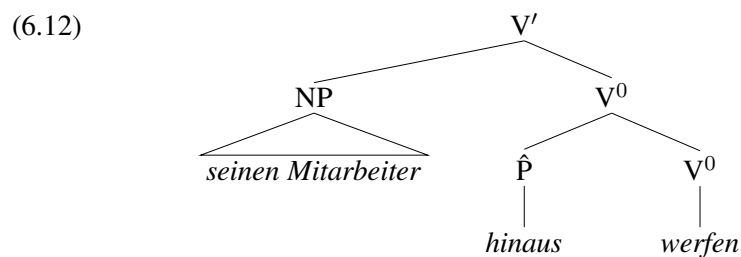
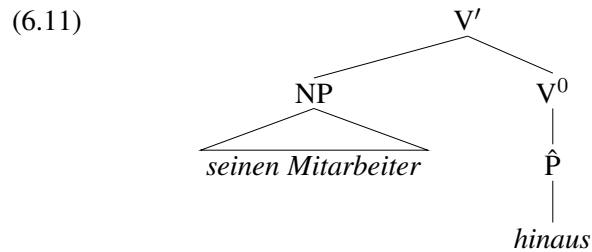
Consider the examples in (6.10):

- (6.10) (a) Hans warf seinen Mitarbeiter **hinaus**.
 H. threw his employee out.
 'John fired his employee.'
- (b) Hans möchte seinen Mitarbeiter **hinaus**-werfen.
 H. wants his employee out-throw
 'John wants to fire his employee.'

The example in (6.10a), as well as the examples in (6.13) below, are adapted from Wurmbrand (2000). Like Swedish, German is a verb-second language, so the finite verb appears outside the verb phrase in some higher functional projection in matrix clauses (6.10a). Non-finite verbs, however, appear within the VP, which is verb final (6.10b).

The particle distribution in German is readily accounted for by the structures in (6.11–6.12). The VP structure of (6.10a) is (6.11), and the structure of (6.10b) is (6.12):

³See Stiebels and Wunderlich (1994), Zeller (1999, 2001), Lüdeling (2001) and Müller (2002) for discussions of this debate, and for further references.

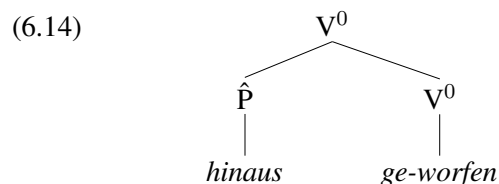


The German structures are identical to the corresponding Swedish ones, except for the fact that the ordering of elements differs. The word order difference is due to the fact that Swedish is not verb-final.

When a particle and a verb appear next to each other in the VP, they are written as a single word in German. There is, however, evidence that they do not form a morphological unit (as argued convincingly by Lüdeling 2001 and others). First of all, the two can be separated in verb-second clauses, as we saw in (6.10a). A second piece of evidence comes from inflectional affixes:

- (6.13) (a) Hans hat seinen Mitarbeiter **hinaus**-ge-worfen.
 H. has his employee out-PCPLE-thrown
 'John has fired his employee.'
- (b) *Hans hat seinen Mitarbeiter ge-**hinaus**-worfen.
 H. has his employee PCPLE-out-thrown

Inflectional affixes, such as the participle marker *ge-*, must come in between the particle and the verb. This follows naturally, if we assume the structure in (6.14), which is parallel to the V^0 -structure in (6.12) above:



The affix *ge-* exemplified in (6.13) does not provide unequivocal evidence for the present proposal, since inflection sometimes does show up word-internally cross-linguistically. However, the data in (6.13) are certainly expected and explained under the analysis proposed here for German.

German also has inseparable prefixes, which are always adjacent to the verb (even in V2 clauses). These do not pose a problem for our proposed structure of the separable particles. Consider (6.15), which includes the prefix verb *verkaufen* ‘to sell’:

- (6.15) (a) Er ver.kaufte das Buch.
 he PREFIX.sold the book
 ‘He sold the book.’
 (b) *Er kaufte das Buch ver.
 he sold the book PREFIX
 ‘He sold the book.’

As (6.15) shows, the prefix *ver-* cannot be separated from the verb. Following Zeller (1999, 2001), I assume that the prefixes are morphologically attached to the verb. Since *verkaufen* is a morphological word, a syntactic separation of *ver* and *kaufen* is ruled out by the principle of Lexical Integrity, which was discussed in chapter 2.3 above.

In German, it is difficult to distinguish verbal particles from other secondary predicates. Compare the verb-particle example in (6.16a) to the resultative *wach* in (6.16b) and the prepositional phrase argument *in die Ecke* (arguably also a resultative) in (6.16c). All three examples are taken from Lüdeling (2001):

- (6.16) (a) daß Dornröschen das Buch **an**-liest.
 that Sleeping.Beauty the book on-reads
 ‘that Sleeping Beauty begins to read the book.’
 (b) daß der Prinz Dornröschen wach küßt.
 that the prince Sleeping.Beauty awake kisses
 ‘that the prince kisses Sleeping Beauty awake.’
 (c) daß Dornröschen den Weihnachtsbaum in die
 that Sleeping.Beauty the Christmas.tree in the
 Ecke stellt.
 corner puts
 ‘that Sleeping Beauty puts the Christmas tree in the corner.’

In V2 clauses, *an* is left behind, and so is *wach* and *in die Ecke*. It is difficult to establish a clear-cut criterion which can help distinguish between the three, especially since the German particles are similar to the Swedish ones in that they do not form a uniform class with respect to grammatical function, semantics or syntactic category. This leads Lüdeling (2001) to conclude that the verbal particles do not form a separate linguistic class. However, she notes that native speakers separate out particles as a distinct category (Lüdeling 2001: 163):

“Even though we saw that no class of particle verbs can be distinguished, what remains to be explained is that speakers of German have the intuition that there is such a class. I must admit that I do not have a true explanation for this and can merely speculate. The intuition really is that in the case of particle verbs the preverb and the verb are somehow more closely connected than they are in other PVCs [preverb verb constructions -IT].”

Lüdeling is left without a formal way of capturing the intuition she mentions. However, the c-structural representations assumed here capture the intuition naturally: particles are head-adjoined to the verb, and phrasal preverbs are not.

There is an obvious reason why it is more difficult to recognize the structural difference between particles and other preverbs in German than in Swedish. The crucial difference between the two languages is the word order. In Swedish, it is clear that the particles differ from phrasal constituents, since the particle necessarily precedes the direct object, as we have seen in numerous examples above. Swedish thus provides clear evidence for a structural difference, whereas the German evidence is weak. However, there is some German-internal evidence as well. Consider the examples in (6.17) (Lüdeling 2001: 22, 125):

- (6.17) (a) daß der Prinz ins kalte Wasser **hinein**-springt.
 that the prince in cold water into-jumps
 ‘that the prince jumps into the cold water.’
 (b) daß Jan das Zimmer grün **aus**-malt.
 that J. the room green out-paints
 ‘that Jan paints the room green.’

Note the ordering of *ins kalte Wasser* and *hinein*. Under the present analysis, the ordering is explained by the fact that *hinein* is head-adjoined to V^0 . Two linear order constraints are needed: (1) \hat{X} (the particle) precedes V^0 within V^0 ; and (2) XP^* (verbal complements) precede V^0 within V' . The ordering of XP complements is generally quite free in German. As is well-known, the

constraints on their order seems to be discourse related; see Choi 1999 and references cited there.

The failure of previous researchers to discover what I believe to be the correct analysis of the German particles depends upon two factors. One is that the German head-final word order results in data that are less clear than the Swedish data. The other factor is that previous researchers have generally adopted the background assumption that the function and semantics of words and phrases is tied to the phrase structure. This confusion is avoided in LFG, where structure is explicitly separated from function and meaning.

3. ENGLISH

English, Norwegian, and Icelandic are alike in that they allow particles (or, rather, elements that correspond to the Swedish particles) to occur either before or after the direct object. The optionality is problematic for the analysis of particles as non-projecting words, since the post-object ‘particle’ should be ruled out by Economy. Focussing on English, section 3.1 discusses the problem of optionality as it relates to Economy. Section 3.2 then shows that the English data are in fact not problematic, as they are quite different from the Swedish data and so should receive a different analysis. Specifically, I argue that English verb-particle combinations are lexical constructs.

3.1. Optionality

In English, particles either precede or follow the direct object:

(6.18) (a) *John threw out the garbage.*

(b) *John threw the garbage out.*

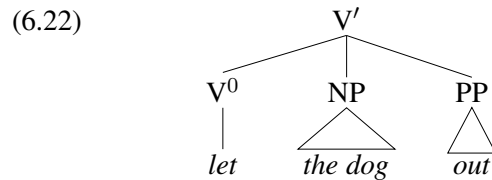
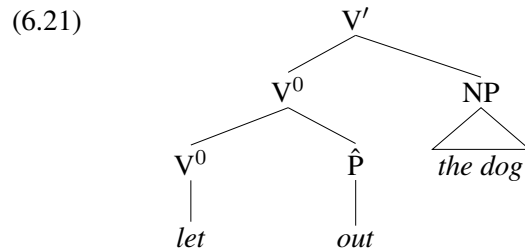
(6.19) (a) *We let in the dogs.*

(b) *We let the dogs in.*

This optionality is problematic for the present view of particles. In order to see where the problem lies, let us consider the preposition *out*. Assuming that the analysis given for Swedish extends to English, the partial lexical entry for *out* is (6.20):

(6.20) *out*: P (↑ PRED)=‘out’

The preposition *out* optionally projects a phrase. When it does not project, it is head-adjoined to V^0 (6.21), and when it does project, it is a sister of V^0 and follows the NP, like other PPs (6.22):



The lexical entry in (6.20) allows both (6.21) and (6.22).

We now have a problem: the Economy principle (repeated below) should rule out (6.22):

(6.23) **Economy of Expression**

All syntactic phrase structure nodes are optional and are not used unless required by X' -constraints or Completeness.

Recall from chapter 3 that the Economy principle disfavors structure that does not add any information to the f-structure. Since (6.22) includes more structure than (6.21), (6.22) should be ruled out, but yet it is grammatical.

The English facts have long puzzled syntacticians. It is a case of syntactic optionality, which is in general problematic. Åfarli (1985) discusses this optionality in Norwegian, and he argues that the [V Prt O] word order is only possible when the verb and the particle form a causative construction. If Åfarli is correct, then there is a difference in meaning between a sentence where the particle position is occupied by a \hat{P} , and a sentence where the object is followed by a projecting P^0 . It is possible that there is a meaning difference in English as well between sentences where the particle precedes the object and sentences where the particle follow the object. If this is correct, the particles do not involve true optionality. Such a meaning different is difficult to prove in

English,⁴ but several other extra-syntactic factors have been shown to influence the particle placement. Influencing factors include: stress of the direct object, length/complexity of the direct object, modification of the noun or the verb, whether the direct object is discourse new or old, and distance to the next mention of the direct object (see the careful investigation in Gries 1999, 2002 and see also Chen 1986, Fraser 1976, Bolinger 1971, and others). It is clear that a complete account of particle placement in English involve factors other than syntax. I will, however, put these important non-syntactic considerations aside and focus on the fact that the syntax allows the particle to appear on either side of the direct object in English.

One interesting aspect of English is the generalization that pronouns cannot follow a particle:

- (6.24) (a) *John threw it out.*
 (b) **John threw out it.*

I assume that the distribution in (6.24) is governed by non-syntactic factors, such as the ones listed above. This has previously been assumed by, e.g., Neeleman (2002), who argues that the pronominal distribution is governed by pragmatics.⁵ Support for such a view comes from the fact that it is not difficult to find attested examples where a pronoun actually does follow a particle. In (6.25) I list some examples with pronouns following *out*:⁶

- (6.25) (a) *...a variety of descriptions can pick out me.* (BNC)
 (b) *...he commented derisively, ignoring the hand she had held out him.* (BNC)
 (c) *Although he should be fit I wouldn't rule out him of missing this game.* (BNC)

If the ordering of pronouns and particles is affected by, e.g., discourse factors, we would expect to find examples where a pronoun has an unusual discourse role, and therefore appears in a position which is unusual with respect to pragmatics, but syntactically allowed. Under this view, examples such as the one

⁴For some sentences, there is clearly a meaning difference depending on whether the particle precedes or follows the object, as was discussed in chapter 5.1.

⁵Neeleman (2002) here refers to the work of Dehé (2000) on the pragmatics of the different particle positions.

⁶The British National Corpus (BNC) is available on-line at <http://info.ox.ac.uk/bnc> and <http://sara.natcorp.ox.ac.uk/lookup.html>

in (6.25) are not problematic, whereas they do pose a problem for any account where pronouns are syntactically prohibited from following the particle.

Nicol (2002) argues for a quite different explanation: he assumes that the pronoun-particle distribution should be morphosyntactically explained. Citing an unpublished manuscript by Jean-Yves Pollock, Nicol proposes that weak pronouns are affixed to the verb in English. Although I do not pursue this further here (as I believe the pragmatic explanation to be more plausible), notice that Nicol's analysis of English pronouns is not in principle incompatible with the analysis of English verbal particles developed in this section.

3.2. *Complex verbs*

We have seen that the English and the Swedish verb-particle combinations differ in that English particles can optionally follow the direct object. Another important difference is the fact that English particles that immediately follow the verb seem to have a tighter connection to the verb than Swedish particles do. In Swedish, the verb can be separated from the particle, as has already been shown in many verb-second examples above. Some conjunction examples are given in (6.26):

- (6.26) (a) Han ville kasta **in** kläderna och **ut** skorna.
 he wanted throw in clothes.the and out shoes.the
 'He wanted to throw the clothes in and the shoes out.'
- (b) Tokyo och Washington har således ett gemensamt
 T. and W. have thus a common
 intresse av att få **upp** dollarn och **ner** yenen.
 interest of to get up dollar.the and down yen.the
 'Tokyo and Washington thus have a common interest in
 getting the dollar up and the yen down.' (PAR)
- (c) Då tog hon **opp** källarn och **ner** vinden...
 then took she up basement.the and down attic.the...
 'The she brought the basement up and the attic down...'
 (PAR)

In the examples in (6.26), the verb is gapped, so the second particle is not immediately adjacent to a verb.

In contrast, an English verb can never be separated from its pre-object particle (McCawley 1988). Consider the conjunction data in (6.27):⁷

- (6.27) (a) **John picked up the money and out a coin.*
 (b) *John picked up the money and picked out a coin.*

It is not possible to gap the second verb in (6.27). However, gapping is possible when the particles *follow* the objects:

- (6.28) *John threw the money up and a coin out.*

Svenonius (1994: chapter 3) offers the following additional examples:

- (6.29) (a) *Pauline turned the acetylene on and the oxygen off.*
 (b) **Pauline turned on the acetylene and off the oxygen.*
- (6.30) (a) *Try to hold your hands up and your elbows down.*
 (b) **Try to hold up your hands and down your elbows.*

However, a verb and a particle can be gapped together, as noted by Fraser (1976) and Johnson (1991). The examples in (6.31) are taken from Johnson (1991: 591):

- (6.31) (a) Gary looked up Sam's number, and Mittie, my number.
 (b) *Gary looked up Sam's number, and Mittie, up my number.

The examples above clearly show that a pre-object particle cannot be separated from the verb in English. Consider also the examples in (6.32):

- (6.32) (a) **John picked, and Mary hoisted, up some heavy weights.*
 (b) *John picked up, and Mary hoisted up, some heavy weights.*

In (6.32), we see again that the verb and the particle must be immediately adjacent. Compare (6.32) to (6.33):

- (6.33) *John picked, and Mary hoisted, some heavy weights up.*

⁷Examples (6.27-6.28) and (6.32-6.33) are taken from McCawley 1988: 64–65. See also den Dikken 1995: 126.

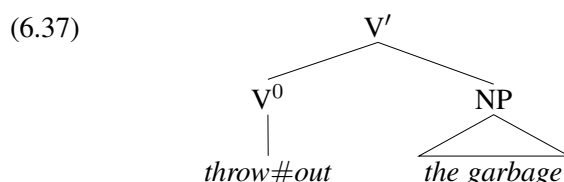
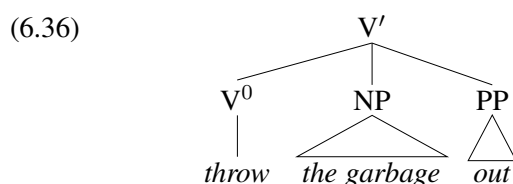
Examples (6.32a) and (6.33) differ in word order: in (6.32a), the particle precedes the object and in (6.33) the particle follows the object. Examples (6.32–6.33) provide additional evidence that the pre-object particle must be immediately adjacent to the verb in English, although this is not true in Swedish.

Let us finally consider the examples in (6.34). These data were pointed out to me by Paul Kiparsky (p.c.):

- (6.34) (a) *Pauline turned the acetylene on and off.*
 (b) **Pauline turned on and off the acetylene.*

Again, there is a difference in grammaticality depending on whether the particles precede or follow the direct object.⁸ The tight connection between the verb and the particle is explained if we assume that the words are lexically combined.⁹ English verb-particle sentences such as those in (6.35) then have the structures in (6.36–6.37):

- (6.35) (a) *throw the garbage out.*
 (b) *throw out the garbage.*



English is then like Danish in that there are no non-projecting words in the syntax. However, in English, a verb and a particle can combine lexically and be

⁸Some speakers find (6.34b) at least marginally acceptable, but that is not a problem for my analysis, since people can also say things like *a pre- or a post-doc*.

⁹Proposals in a similar vein have previously surfaced here and there in the vast literature on English particles. These proposals are ultimately different from the exact analysis argued for here, as they differ in detail and in theoretical assumptions. However, they do, I believe, appeal to the same intuition. Examples of proposals that are similar in spirit to mine are Johnson (1991), who argues that verbs and particles are lexically combine, and Nicol (2002), who assumes that the verb and the pre-object particle are combined morphologically.

inserted as a morphological unit into the c-structure. Economy of Expression is no longer a problem, since (6.36) and (6.37) involve different lexical forms.

There are some potential counterarguments to an analysis which assumes that the pre-object particle is lexically combined with the verb. As discussed in chapter 2.3 above, a lexical verb-particle combination is always head-final in Swedish, but the English verb-particle combinations are clearly not head-final. This is not a problem, however, since English generally differs from Swedish in this respect. Compare the English examples in (6.38) to the Swedish examples in (6.39) (the *d* and *e* example do not have direct equivalents in Swedish):

- (6.38) (a) *a cut-up cake*
 (b) *a thrown-away mug*
 (c) *some worn-out shoes*
 (d) *a stand-upper*
 (e) *turn-ups*
- (6.39) (a) en upp.skuren kaka
 an up.cut cake
 (b) en bort.kastad mugg
 an away.thrown mug
 (c) några ut.nötta skor
 some out.worn shoes

The verb-particle compounds in (6.38) are lexical constructs, but they are not verb-final, although the corresponding Swedish compounds are. The word order by itself is therefore not a reason to reject the hypothesis that English verb-particle combinations are lexically formed.

Another possible objection to the analysis presented here concerns inflectional morphology:

- (6.40) (a) *kick#out*
 (b) *kicks#out*
 (c) *kicked#out*

In (6.40b-c), the tense marking shows up in the middle of the word, which goes against the frequently cited generalization that inflectional morphology attaches to the edges of words, outside derivational morphology. However,

this is not a problem, since in English we find morphological marking within other compounds as well, as has been pointed out by Bresnan (1982c),¹⁰ :

- (6.41) (a) *a wiped-away smile*
 (b) *a sold-out show*
 (c) *brothers-in-law*
 (d) *passers-by*

In (6.41), the morphological marker is found on the head of the compound, even though the compounds are not head-final. The pattern found in (6.41a-b) is productive. For a thorough discussion of complex *-er* nominals, see Ryder (2000). See also Jespersen (1961: 236), who cites naturally occurring examples such as the following: ‘there is a school of *speakers out*’.

Note that word-internal inflectional morphology is not uncommon cross-linguistically, as exemplified by the Italian words in (6.42) (Scalise 1992: 188):

- (6.42) (a) *capo.stazione*
master.station
 ‘station-master’
 (b) *capi.stazione*
master-PL.station
 ‘station-masters’

Italian allows the plural to be marked word-internally. In (6.42), *capi* is in the plural, but *stazione* is not.

The lexical analysis presented in this section accounts for the differences between Swedish and English. Another advantage of this analysis is that it sheds light on the otherwise puzzling observation that certain expressions in English only allow one of the two ordering possibilities. Consider the examples in (6.43-6.44), taken from Jackendoff (2002):

- (6.43) (a) *Harold sang/whistled/jogged his heart out.*
 (b) *Richard ran/programmed/cooked/yelled his head/butt off.*
 (c) *Kelly wrote/slept/drew/edited up a storm.*
 (6.44) (a) **Harold sang out his heart.*

¹⁰Bresnan’s discussion covers verb-preposition combinations such as *march through*, *pay for* and *go over*.

- (b) **Richard cooked off his head.*
- (c) **Kelly edited a storm up.*

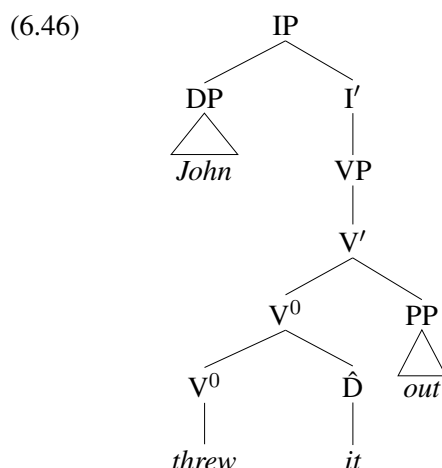
The analysis laid out here makes it possible to state the necessary word order restrictions on the expressions in (6.43). Take the expression in (6.43a), for example. The generalization can be stated either as (6.45a) or (6.45b):

- (6.45) (a) Only syntactically independent *out* can participate in the *verb-pro's-heart-out* idiom.
- (b) Only simple verbs (verbs which are not lexically combined with a particle) can participate in the *verb-pro's-heart-out* idiom.

Under the present analysis, a particle which follows the object is formally different from one which precedes it, since one is syntactically independent and the other is not. Likewise, a simple verb is different from a complex one, and we therefore expect them to differ in behavior. Stating the differences explicitly can help us formalize expressions such as the ones in (6.43). In short, the data in (6.43-6.44) fall naturally out of the analysis presented in this section.¹¹

Along the same lines of reasoning, the pronominal data mentioned above potentially support the analysis of English particles argued for here. Recall that pronouns have been claimed to obligatorily precede the particle; see the examples in (6.24) above. This restriction holds for unstressed pronouns only. These pronouns thus constitute a group of unstressed words with constraints on their distribution. This indicates that they are phonologically weak non-projecting words; in other words, proto-typical clitics. The structure for a sentence like *John threw it out* would then be (6.46):

¹¹I do not attempt to answer here exactly how the types of expressions in (6.43) should be analyzed. They appear to be some kind of 'constructional idiom', which are discussed in chapter 4, section 6.2 as well as in section 4 of this chapter, and also in Fillmore 1988, Jackendoff 1990b, 1997a, 1999, 2001, Goldberg 1995, Kay and Fillmore 1999, Booij 2002). A constructional idiom is a "specialized syntactic form with an idiomatic meaning" (Jackendoff 1990b: 221). In such constructions, it is quite common that a given word is fixed (see, e.g., *way* in the *way* construction), and it is also common that the word order is fixed. For a discussion of how to fit these types of expressions into LFG, see Ackerman and Webelhuth (1998), Webelhuth and Ackerman (2001), Toivonen (2000a, 2002a), and also section 4 of this chapter.



The clitic pronouns are specified for what type of verb they cliticize to (cf., the tendency in the Romance languages for proclitics to attach to finite verbs, while enclitics attach to non-finite verbs). English pronouns only cliticize to simple verbs, and not to complex verbs. If we do not recognize the distinction between simple and complex verbs, the pronominal data are difficult to account for. However, there are reasons to believe that the analysis in (6.46) is not correct: First, it is typologically odd for clitics to come with such specific requirements about their host. Second, as was mentioned above, the special particle-pronoun distribution has been argued not to be morphosyntactically governed (Neeleman 2002, Dehé 2000, Gries 1999, 2002). I conclude that the pronominal data provide a potential but not conclusive argument for the analysis of particles adopted here.

There is a final piece of evidence that English particles combine with the verb lexically. This piece of evidence comes from quotative inversion and is more straightforward and also more convincing than the pronominal data discussed above. In quotative inversion, the verb precedes the subject:

(6.47) “*This is fun*,” said Sally.

Now consider the attested example in (6.48), which contains the particle *out*:

(6.48) “*Civilization is going to pieces*,” broke out Tom violently.
(*The Great Gatsby*, F. Scott Fitzgerald)

Crucially, both the verb *broke* and the particle *out* precede the subject in (6.48). Native speakers also find both examples in (6.49) acceptable:

- (6.49) (a) “*This won’t work,*” shouted out John angrily.
 (b) “*This won’t work,*” shouted John out angrily.

In (6.49a) *out* precedes the subject, and in (6.49b) *out* follows the subject. The fact that the verb and particle can together precede the subject in quotative inversion examples indicates that the particle is part of the verb.

3.3. Summary

English and Swedish differ with respect to the placement of ‘particles’: in Swedish, they precede the object, whereas in English, they either precede or follow the direct object. This poses an apparent problem for the account developed in previous chapters, since Economy should rule out the post-object particles in English as it does in Swedish.

In this section, I have argued that the pre-object particles in English should not be analyzed like the Swedish ‘true’ particles, where ‘particle’ is defined as a non-projecting word attached to V^0 . Instead, verbs and pre-object particles form a single lexical item in English. On the other hand, when a word like *up* follows the direct object, it is a projecting word, which projects a full phrase (as is the case in Swedish when these types of words follow the direct object).

There is a wide range of evidence for this analysis of English. First of all, evidence from gapping and coordination shows that there is a tighter connection between the verb and the pre-object particle in English than in Swedish. Second, there are certain expressions in English where only one of the word orders are permissible. This indicates that the verbs involved are lexically distinct from each other. Finally, a verb-particle complex can participate in quotative inversion in English.

4. THE COMPLEX PARTICLE CONSTRUCTION

We will now turn to the English *complex particle construction* (CPC). The CPC includes two NPs and a ‘particle’ (i.e., a preposition), which are strictly ordered. Examples are given in (6.50). Example (6.50a) is taken from Sag (1987), and (6.50b) is from Kayne (1985):

- (6.50) (a) *I sent the men out flowers.*

- (b) *They handed John down the tools.*

The CPC has received a lot of attention in the literature (Jackendoff 1977, Kayne 1985, Sag 1987, den Dikken 1995), and it has proven difficult to analyze for several reasons. A major problem is the fact that there is great dialectal variation concerning the grammaticality of CPC sentences. Some speakers do not accept them at all, and others only accept them if the first NP is a pronoun. In addition, there are some speakers that allow the particle to precede the first NP, at least in some examples:

- (6.51) (a) *%I sent out the men flowers.*
 (b) *%They handed down John the tools.*

The sentences in (6.51) conform to the analysis of English particles presented in section 3: the verb is analyzed as a complex verb which combines lexically with the particle. The word order illustrated in (6.51) will therefore not be discussed further here. I will instead focus on examples where the word order is a problem for the analysis as it has been developed thus far.

The discussion here will be based mainly on data and judgments cited from the literature (although the judgments among authors vary), but I will also report some results of a preliminary corpus search.

Speakers in general reject a modified preposition:¹²

- (6.52) (a) **I sent the men right out flowers.*
 (b) **They handed John right down the tools.*

Some speakers allow modification of the preposition if the word order is that of (6.53):

- (6.53) (a) *%I sent the men flowers right out.*
 (b) *%They handed John the tools right down.*

However, speakers seem to uniformly reject (6.54):

- (6.54) (a) **I sent the men flowers out.*
 (b) **They handed John the tools down.*

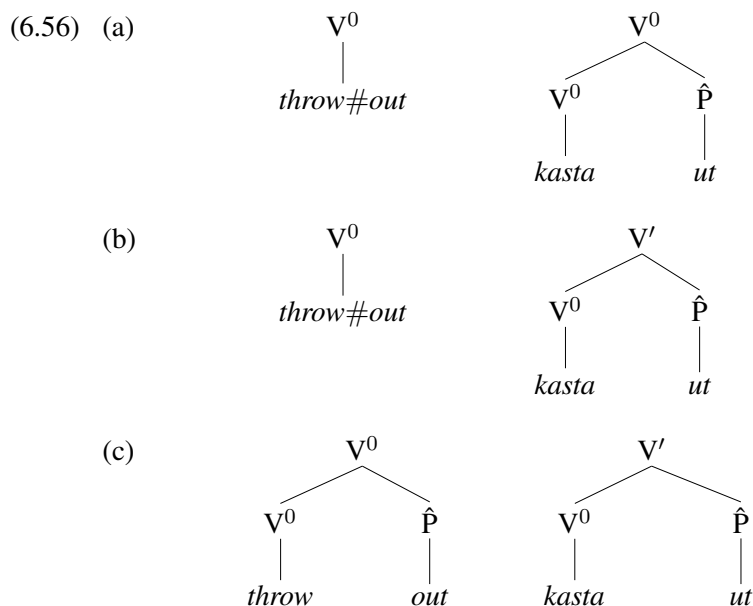
¹²Examples like those in (6.52) are generally flagged as ungrammatical in the literature. Nevertheless, some speakers that I have consulted accept these examples. I will discuss this below.

In sum, the preposition in the CPC generally comes in between the two NP objects, where it cannot be modified.

The structure of the CPC appears to be [V' NP prt NP]; that is, a particle intervening between two NPs. This is problematic if we assume that non-projecting words are always head-adjoined: the particle cannot be head-adjoined to V^0 since the first NP intervenes between V^0 and the particle. There is also another reason why attachment at the V' -level is problematic: a comparison of the English and the Swedish facts show that the English particle *cannot* attach to V' , even when there is only one object. This becomes clear if we consider two generalizations arrived at earlier and repeated in (6.55):

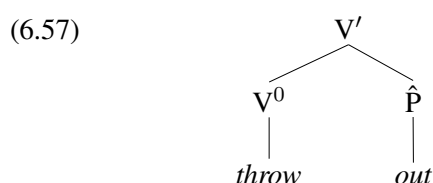
- (6.55) (i) The pre-object particle (in both English and Swedish) does not project a phrase.
 (ii) There is a tighter connection between the verb and the pre-object particle in English than in Swedish.

We can capture the facts in (6.55) with any one of the pairs given in (6.56), where the left-hand structure reflects English and the right-hand structure reflects Swedish:



According to the accounts of English and Swedish developed above, the correct structures are the ones in (6.56a). Furthermore, it was hypothesized in chap-

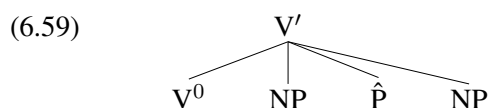
ter 3 that non-projecting morphologically independent words must be head-adjoined, and if that is correct, (6.56b-c) must be wrong. However, even if we assume for the sake of argument that all three pairs of structures are potentially correct. It should be clear that the generalizations in (6.55) are left unexplained if we assign the following structure to English:



If we assume (6.57) for English, we cannot capture generalization (6.55ii). I therefore take the following generalization to be true:

(6.58) English particles are not attached to V'.

The CPC poses a problem for the generalization in (6.58). Since the particle in the CPC must follow the first NP, it cannot be head-adjoined or lexically adjoined to V⁰. However, the particle in a CPC cannot be modified (see the examples in (6.52)), which indicates that it does not project a phrase. These two facts taken together suggest the following structure:



We now have a paradox, since what we know about verb-particle combinations has led us to the conclusion in (6.58), stating that English particles (non-projecting words) are *not* attached at the V'-level. Also, it was argued in section 3 that English does not have non-projecting words. Moreover, the theory of chapter 3 postulates that non-projecting words only attach at the X⁰-level, so (6.59) should be ruled out independently of the generalizations in (6.55). There are thus both empirical and theoretical reasons to reject (6.59), which at first seems reasonable for the CPC. Let us now take a closer look at the construction.

4.1. Arguments for a constructional analysis of the CPC

Sag (1987) treats the CPC as a kind of *constructional idiom* (although he does not use that term). As was discussed in section 8.2 of chapter 3, Sag develops

a general theory for particles which is similar in spirit to the present theory. He assumes that particles can be [LEX:–] (equivalent to projected phrases) or [LEX:+] (equivalent to non-projecting words). Sag's theory does not straightforwardly account for sentences like (6.50), so he posits a special lexical entry for *send* with the following SUBCAT list (1987: 331): <NP NP PP[PRT] NP>.¹³ The ordering of elements is supposed to follow an obliqueness hierarchy, where the object is more oblique than the subject, etc. The lexical entry that Sag posits for 'send' is in effect a kind of idiom.

There is evidence that Sag's solution is correct: the CPC is best analyzed as a constructional idiom, where by constructional idiom I mean (6.60):¹⁴

- (6.60) A constructional idiom is a phrase larger than a single word which is governed by idiosyncratic restrictions and is associated with a particular form.

Many authors have argued that we need to recognize the existence of constructions in the grammar (Fillmore 1988, Kay and Fillmore 1999, Goldberg 1995, Jackendoff 1990b, 1997a, 1999, 2001). Ackerman and Webelhuth (1998), Webelhuth and Ackerman (2001) and Toivonen (2000a, 2002a) discuss possible ways of incorporating constructions into LFG. The constructional idiom form of the complex particle construction is given in (6.61):

- (6.61)
- $$\begin{array}{c} V' \\ \swarrow \downarrow \searrow \searrow \\ V^0 \quad NP_1 \quad PP \quad NP_2 \end{array}$$

The ordering of complements is unusual: a PP intervenes between the NP objects. These kinds of idiosyncracies are not uncommon among constructional idioms (Toivonen 2000a, 2002a).

Some expressions of the form (6.61) are uncontroversially of idiomatic character. An example is *make someone out something* (as in, e.g., *I made the man out a liar*). However, note that even this expression has exchangeable parts. There are only two fixed lexical choices, *make* and *out*, the other words may vary. Other CPC examples are much more flexible than *make NP out NP*.

¹³In Sag (1987), the SUBCAT list is actually <NP PP[PRT] NP NP>. The HPSG convention concerning the ordering of SUBCAT elements has subsequently changed, and I am following the new convention.

¹⁴As will become clear later, the CPC is not a construction in the strict (Construction Grammar) sense of the word. Instead, all the necessary information is tied to the verb.

I will discuss the formalization of the CPC below, after I give evidence for its constructional status. However, let me first sketch what I take to be the nature of this construction, so that it will be clear what kind of entity it is. I assume that the CPC is tied to the verbal head, and that there is a limited group of verbs that can participate in the construction. Only verbs of transfer (*send*, *give*, etc.) can head the CPC. There is also a constraint on the particle: it must denote a direction. For example, completive *up* cannot be used: it is infelicitous to say **I ate John up the cake* with the intended meaning *I ate up the cake for John* ('s benefit). There are also constraints on the NPs: NP₁ has to be animate and NP₂ cannot be a pronoun. These constraints are summarized in Table 6.1.

Table 6.1. The Complex Particle Construction

V	NP ₁	PP	NP ₂
transfer	animate	directional	non-pronominal

The information in Table 6.1 must be stored in connection with the CPC form. I do not claim that the constraints listed here cover all properties of the CPC: future research is likely to discover more subtle characteristics of this construction. Table 6.1 is just a first approximation.

A constructional idiom analysis predicts there to be idiosyncratic differences between languages as to exactly which constructions exist. This appears to be true, as we can see in the Icelandic examples in (6.62). The sentences in (6.62) are from Collins and Thráinsson (1996: 435), who thank Jóhannes Gísli Jónsson for providing the examples:

- (6.62) (a) Kennarinn setti (*fyrir) nemendunum (fyrir) þetta
 teacher.the set for students.the for this
 kvæði (fyrir).
 poem for
 'The teacher assigned this poem to the students.'
- (b) Ég gaf (*upp) mönnunum (upp) þetta símanúmer
 I gave up men.the up this phone.number
 (upp).
 up
 'I gave the men this phone number.'

The examples in (6.62) are not directly translatable into English, although both languages allow complex particle constructions. The fact that these construc-

tions often do not translate directly lends support to the hypothesis that they are idiomatic. Compare also Swedish and English. Recall the examples in (4.20), repeated below as (6.63):

- (6.63) (a) sätta **på** barnen varma tröjor
 set on.PRT children.the warm sweaters.the
 'put warm sweaters on the children'
- (b) kasta **av** sig kläderna
 throw off.PRT SELF clothes.the
 'throw one's clothes off'
- (c) ta **ifrån** eleven pennen
 take from.PRT student.the pen.the
 'take the pen from the student'
- (d) säga **till** personalen att komma
 say to.PRT staff.the to come
 'tell the staff to come'

The expressions in (6.63) are similar to the English complex particle examples in that we have a particle and two objects. However, the translations of (6.63) are not complex particle constructions in English. Note also that complex particle examples in English cannot in general be translated as a particle and a double object in Swedish. Compare (6.64) to (6.65):

- (6.64) (a) *He sent me up a drink.*
 (b) *I handed them out some papers.*
 (c) *They gave us out lots of flowers.*
- (6.65) (a) *Han skickade **upp** mig en drink.
 he sent me up a drink
 (b) *Jag delade **ut** dom några papper.
 I handed out them many papers
 (c) *Dom gav **ut** oss många blommor.
 they gave out us many flowers

The examples above show that typical English CPC examples cannot be translated into expressions of the form [prt NP NP] in Swedish. The sentences in (6.64) would instead be translated as (6.66), which are of the form [prt NP PP]:

- (6.66) (a) Han skickade **upp** en drink till mig.
 he sent up a drink to me
 ‘He sent up a drink to me.’
- (b) Jag delade **ut** några papper till dem.
 I handed out some papers to them
 ‘I handed out some papers to them’
- (c) Dom gav **ut** många blommor till oss.
 they gave out many flowers to us
 ‘They gave us out many flowers.’

The data in (6.62-6.66) show that different restrictions holds over the CPC in different languages, which lends support to the hypothesis that it is a constructional idiom.

Let us now take a closer look at the word order of the CPC. Recall from (6.51) that the order [V Prt NP NP] is ungrammatical in English (for most speakers). Under the constructional idiom hypothesis, this can be formalized with a specification on the verbs that participate in these idioms: the CPC allows morphologically simple verbs (the type in (6.36)), but not morphologically complex ones (the type in (6.37)). Restrictions on what kind of lexical items can participate are expected on a constructional idiom analysis.

A further peculiar word order characteristic of the CPC is that the particle cannot follow the two NPs, unlike other PPs:

- (6.67) **They sent the men drinks down.*

Since *down* can normally project a phrase, the ungrammaticality of (6.67) would be surprising under a non-constructional account. However, (6.67) does not fit the strict syntactic frame specified in (6.61) and so is predicted to be ungrammatical under the constructional idiom-analysis.

Also significant is the fact that the construction is not fully productive. If the CPC was completely productive, we would expect (6.68) to be grammatical, but they are not, even though (6.69) are fine:

- (6.68) (a) **I sent the men away some flowers.*
 (b) **You lent them out some books.*
- (6.69) (a) *I sent away some flowers to the men.*
 (b) *You lent out some books to them.*

A preliminary search of the British National Corpus, did not reveal any CPC examples involving *send away* or *lend out*. Even though the parts of many constructional idioms are exchangeable, there are usually semantic restrictions on what combinations are allowed (Goldberg 1995, Jackendoff 1990b, 2001, Toivonen 2000a, 2002a). The examples in (6.68-6.69) make it clear that some such restrictions hold over the CPC.¹⁵

Note finally that on a constructional view, it follows that the particle cannot be modified: it is a common property of idioms that their individual parts cannot be modified. For example, *he kicked the gruesome bucket* cannot mean ‘he died a gruesome death’.

We have seen above that many facts support the hypothesis that the CPC is a kind of constructional idiom. Let us now look at how this construction can be formalized within LFG. The lexical entry for the construction must include the following information:

$$(6.70) \quad V' \longrightarrow V^0_{simple} NP PP_{prt} NP$$

The construction can be thought of as being connected to the head: a (simple) verbal head can be connected to a homophonous head by a lexical correspondence rule, and this head is constrained by the rule in (6.70). This view of constructions avoids the problems connected to the insertion of elements bigger than words into the syntax.

For a concrete example, let us look at what *make NP out NP* (as in *make Fred out a liar*) would look like:¹⁶

$$(6.71) \quad \begin{array}{ll} \textbf{form:} & \textit{make NP1 [PP out] NP2} \\ \textbf{meaning:} & \textit{make NP1 seem like NP2} \end{array}$$

The derived lexical entry for *make* will look something like (6.72):¹⁷

$$(6.72) \quad \textit{make}_{id}: V^0 \quad (\uparrow \text{PRED}) = \textit{'make } (\uparrow \text{SUBJ}_1)(\uparrow \text{OBJ}_2)(\uparrow \text{OBL}_3) \\ (\uparrow \text{OBL FORM}) =_c \text{OUT}$$

LCS: [CAUSE ([1],[SEEM ([2],[3])])]

¹⁵The examples in (6.68) furthermore make it clear that the preliminary restrictions in Table 6.1 need to be expanded in order to capture all the details of the data.

¹⁶The word *out* is notated as an oblique here, but it is possible that it is better analyzed as an XCOMP. This does not matter for the point at hand, and as the expression is idiomatic, it is difficult to decide which grammatical function it has, especially since *out* can head both an XCOMP and an OBL.

¹⁷I use a simple version of Jackendoff's (1983, 1990b) Conceptual Semantics notation to represent the Lexical Conceptual structure (LCS). This notation was also used in chapter 5.

The reason why the preposition cannot be modified is that it is an idiom chunk without compositional meaning. However, sometimes the particle does seem to provide its meaning compositionally. Interestingly, many speaker then *do* allow the particle to be modified. These speakers find the examples in (6.52), repeated below as (6.73) acceptable:

- (6.73) (a) *%I sent the men right out flowers.*
 (b) *%They handed John right down the tools.*

The fact that the prepositions in (6.73) are modifiable falls naturally out of the analysis given here.

Let us recapitulate. Several facts indicate that the CPC is a constructional idiom:

- Different languages put different restrictions on the CPC.
- The CPC is associated with a strict syntactic frame.
- Modification of the particle is restricted.
- The construction is governed by semantic restrictions.
- The particle cannot follow both NPs, although PPs normally can.
- The verbal head is restricted to simple verbs.

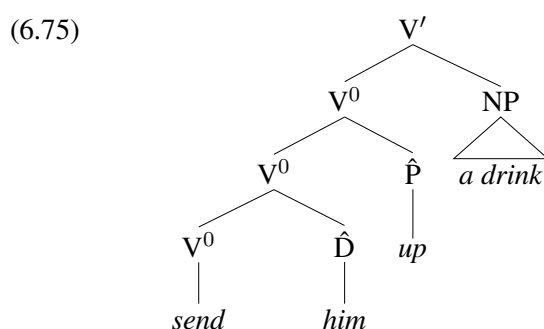
The structure that I have adopted for the CPC in this section is basically that of Sag (1987). However, there *are* speakers that do not accept modification of the particle, as in (6.73). The [NP PP NP] structure does not seem an appropriate way of modelling the CPC for those speakers. I therefore consider an alternative realization of the CPC in the next section.

4.2. *An alternative construction*

A preliminary search of the British National Corpus of the two common CPCs *send NP up NP* and *give NP out NP* revealed an interesting fact: the first NP of every example is a pronoun. Two representative examples are given in (6.74):

- (6.74) (a) *Then I asked service to send me up some food and a large pot of coffee...* (BNC)
 (b) *Give me out a load, yes.* (BNC)

In both examples in (6.74), the first NP is the pronoun *me*, whereas the second NP consists of a full NP. Another interesting fact is that I did not find any examples with a modified particle, although some of my informants accept modified particles in the CPC. If the first NP must be a pronoun and the particle cannot be modified, there is reason to assume the CPC structure in (6.75):



In (6.75), the pronominal is treated as a non-projecting word (of category D) which is adjoined to V^0 , and this explains why pronominals *only* are permitted. The particle is also adjoined to V^0 . The structure in (6.75) is compatible with the constituency tests of Kiparsky (1989): the verb, the first nominal and the particle form a constituent to the exclusion of the second NP.

So, which structure is correct for the CPC? Given the fact that this construction is associated with great dialectal variation, it seems likely that *both* structures exist. In some dialects, the [V^0 NP PP NP] structure given in (6.61) is associated with the CPC, whereas other dialects associate (6.75) with the CPC. If this hypothesis is correct, and if these are the only two structures that correspond to the CPC across dialects (others are in principle possible), the following generalizations should hold:

- (6.76) (A) Speakers who allow non-pronominal NP₁ allow modification of the particle.
 (B) Speakers who only allow pronominal NP₁ do not allow modification of the particle.

The analysis proposed here makes the prediction that (6.76) should be correct. I leave this issue open for future research, but I want to stress again that many extra-syntactic factors influence grammaticality judgments of examples of this construction (Gries 1999, 2002).

The CPC structures proposed here are not found elsewhere in English (as far as I know), but they are allowed by the X'-theory developed in chapter 3.

Structure (6.61) is unusual in that a PP precedes an NP, and structure (6.75) is unusual in that a particle is head-adjoined, although particles are normally lexically combined with the verb in English. These facts are in accordance with the observation that unconventional structures often surface in constructional idioms.

4.3. Summary

This section has discussed the English CPC. I have argued that the CPC is best analyzed as a constructional idiom; that is, a set syntactic structure associated with certain verbs and certain semantic restrictions. One of the arguments for this constructional analysis is that the verb-particle construction is not fully productive. For example, (6.77) is unacceptable, even though *lend* is a ditransitive verb:

(6.77) **I lent them out some flowers.*

Note that the unacceptability of (6.77) cannot be explained away by appealing to semantic incompatibility of the verb *lend*, a double object and the particle *out*. Claiming that this combination is unacceptable incorrectly predicts the ungrammaticality of (6.78):

(6.78) *I lent out some books to them*

As (6.78) is grammatical, we know that *lend*, a double object and a particle are perfectly compatible in principle.

Finally, it was argued that some of the dialectal variation is due to the fact that the CPC is constrained by different syntactic frames in different dialects of English.

5. AN OVERVIEW OF GERMANIC PARTICLES

This chapter has discussed the equivalents of the Swedish verbal particles in three other Germanic languages: Danish, German and English. Danish and English do not have non-projecting words, but German and Swedish do. English differs from the other languages in that the verbs can be simple or complex: complex verbs combine a verb and a particle lexically, and the combination is inserted under V^0 as a lexical unit. The similarities and differences between the languages are summarized in Table 6.2. The first column lists the languages;

the second specifies whether or not a language has non-projecting words ('particles'); and the third column concerns the complex verbs. The fourth and fifth columns list differences between the languages that are well-known from previous work on Germanic: all of the languages that we have examined except English are verb second in main clauses, and German is verb-final in subordinate clauses.

Table 6.2. Germanic particles and non-particles

	particles	lexical V-P	V2	verb-final
Swedish	yes	no	yes	no
Danish	no	no	yes	no
German	yes	no	yes	yes
English	no	yes	no	no

The characteristics of the verbal particles in the different languages as well as the differences in word order follow from the properties in Table 6.2.

An interesting generalization emerges: English is the only language where the verb and the particle can combine lexically, and it is also the only language which is not verb-second. It is possible that English particles used to be syntactically independent, head-adjoined words just like the particles in several other Germanic languages. The fact that the English particles were reanalyzed as being lexically combined with the verb might be connected to English word order: since English is not V2, the verb is immediately adjacent to the particle in most cases, while this is not true in V2 languages, where the tensed verb appears in a higher functional projection. It seems natural that reanalysis of two words into one would occur if those two words are adjacent in the lexical string, whereas this kind of reanalysis seems less natural if the two words are often not adjacent in the string.

CHAPTER 7

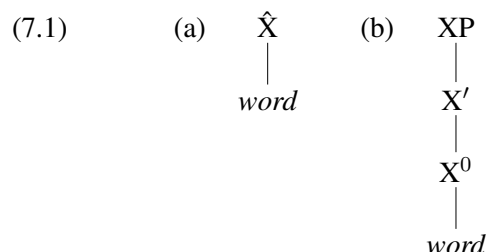
CONCLUSION

The central topic of research in the preceeding chapters has been non-projecting words. The empirical focus has been on Swedish verbal particles, but I have also discussed Danish, German and English particles (or rather words that have traditionally been called particles). Particles differ from other words and morphemes in their structural realization, although they are the same with respect to semantics and grammatical function. This is straightforwardly captured in the theoretical framework of LFG, which makes an explicit separation between different levels of grammatical information. Since c-structure only models the least abstract aspects of syntax (linear order and constituency), the focus of syntactic research in LFG has until now been mainly on f-structure and a-structure.¹ This work instead concentrates on c-structure as the locus of important syntactic constraints and generalizations. In this chapter I review and discuss the major findings that emerged from this study. I also bring out some of the main theoretical implications, and point to possible areas of further research.

1. X'-THEORY

Let us first review the implications my analysis of verbal particles has for phrase structure, particularly as it is modelled in X'-theory. The main proposal of this work is that we need to allow for non-projecting words in constituent structure. In other words, I have argued for the existence of structures such as (7.1a), in addition to the more familiar structure in (7.1b):

¹There are some important exceptions to this generalization; see, e.g., Sadler and Arnold (1994), Sells (2001).



Swedish verbal particles provide strong evidence for non-projecting structures, since they consist of a single word and cannot take complements and modifiers. Furthermore, it can be shown that they are not morphologically bound words. I have proposed that Swedish particles are represented in c-structure as the \hat{X} node in (7.2):



Lexical Integrity does not hold over the top V^0 in (7.2), since the structure is syntactic, not morphological.

Although particles are easily distinguished from other words and phrases by their structural properties, I show that they do not form a uniform class with respect to syntactic category, grammatical function or semantic function. This is problematic in theories where structure and function necessarily go hand in hand. In the Principles and Parameters approach, for example, predicate-argument relations are thought to be directly encoded in the phrase structure. In LFG, however, c-structure constitutes a separate level of linguistic information, and it has often been noted that there are mismatches between c-structure and f-structure. The Irish examples in (1.11–1.12) in chapter 1 illustrate that a given grammatical function may be realized in different ways in the c-structure within the same language. Swedish particles illustrate that it is also possible for a single c-structure position to host more than one f-structure function. These kinds of mismatches are expected (and commonly appealed to) within LFG, since different kinds of information are modelled at distinct levels.

It is important to note that the structure in (7.2) involves two separate claims: (1) particles are non-projecting; and (2) they are head-adjoined. Although those claims are in principle independent, I propose that they are in fact connected: the only way for a non-projecting word to be realized is through

head-adjunction, and *only* non-projecting words can head-adjoin. The Swedish verbal particles provide empirical evidence that non-projecting words *can* head-adjoin. However, this does not entail that *all* non-projecting words are head-adjoined. Nor does it entail that non-projecting words *must* head-adjoin. I leave it to future research to test whether it is empirically correct to connect the absence of phrasal levels to head-adjunction. Regardless of whether the exact proposal laid out here is adopted, the Swedish verbal particles show that we need to allow for non-projecting words in the phrase-structure, and this necessitates a rethinking of X'-theory, since traditional X'-theory states that each word heads (at least) two levels of projection: an intermediate level (X') and a phrasal level (XP).

2. ECONOMY OF EXPRESSION

The notion of Economy proved to play an important role in the analysis of the particles. Some Swedish particles optionally project full phrases and can therefore host modifiers. However, the particles do not project unless they are modified. The principle of Economy (repeated in (7.3)) punishes empty projection:

- (7.3) *Economy of Expression*
All syntactic phrase structure nodes are optional and are not used unless required by X'-constraints or Completeness.

The examples in (7.4) illustrate the role Economy plays in the analysis of Swedish particles:

- (7.4) (a) Erik sparkade [_P upp] bollen.
E. kicked up ball.the
'Erik kicked the ball up.'
- (b) Erik sparkade bollen [_{PP} rakt upp].
E. kicked ball.the straight up
'Erik kicked the ball straight up.'
- (c) *Erik sparkade bollen [_{PP} upp].
E. kicked ball.the up

Example (7.4a) shows that *upp* does not need to project a phrase; (7.4b) shows that *upp* can project a phrase; and (7.4c) shows that *upp* cannot project a phrase

when it is not modified. These facts would be mysterious without the assumption that extra structure is punished. The Economy principle has previously been motivated mainly on conceptual and theoretical grounds, but the Swedish particles provide actual empirical evidence for such a principle.

3. THE STRUCTURE-FUNCTION MAPPING

The structural representation of particles opens up questions concerning the structure-function mapping. There are reasonably clear cross-linguistic generalizations to be made concerning the c-structural realization of grammatical functions: a given function is generally associated with a certain phrase structure position. This observation is reflected in the c- to f-structure mapping principles, which constrain the c-structure positions of specific functions. The principles adopted here are on those posited in Bresnan (2001). Chapter 3 modified and added to Bresnan's principles in order to put further constraints on the mapping, and also to restrict the mapping possibilities for non-projecting words.

The idea that given grammatical functions are associated with certain c-structure positions is of course not original to the LFG structure-function mapping principles: linguists have tried to capture this intuition for a long time. In fact, grammatical functions are often defined based on their structural realization. For example, Chomsky (1965: chapter 2) proposes the following definitions of subject and object:

- (7.5) Subject-of: [NP, S]
 Direct-Object-of: [NP, VP]

It is difficult to find clear empirical support for strong claims about universal one-to-one mappings of structure and function (see, e.g., Kayne 1994 for a proposal). As has already been pointed out above, there is plenty of cross-linguistic evidence that there are mismatches in the mapping in that a single function can be realized in more than one way in the c-structure. Moreover, it was also pointed out that the Swedish particles show that a given phrase-structure position (the particle position) can be associated with more than one function (secondary predicate and co-head). The present theory offers a compromise, since structurally defined functions can here be realized only within a certain structural space. For example, OBJECTS can only surface as complements of lexical categories or as head-adjoined words.² This restricts the

²Furthermore, word-internal morphemes can provide all the information included in the f-

distribution of grammatical functions without tying them to one single position universally, although objects might of course be connected to a single position in a given language.

4. RESULTATIVE PREDICATION

The investigation of the semantics of the verbal particles revealed an interesting fact concerning secondary predication: resultative (pre-object) particles are always predicated of the direct object. Some recently discovered facts show that it is possible for resultatives to be predicated of subjects of transitive clauses, contrary to what has previously been believed. However, particles (which precede the direct object) cannot be subject-predicated. This generalization appears to be true in both Swedish and English:

- (7.6) (a) *Lisa took the bus home.* subject- or object predicated
 (b) *Lisa took home the bus.* object-predicated
- (7.7) (a) Lisa tog bussen hem. *subject-predicated*
 L. took bus.the home
 'Lisa took the bus home.'
 (b) Lisa tog **hem** bussen. *object-predicated*
 L. took home bus.the
 'Lisa took home the bus.'

In (7.6a), *home* is predicated of either the subject or the object, but in (7.6b), it must be predicated of the object. In Swedish a (pre-object) particle is also necessarily predicated of the object (7.7b). However, Swedish is unlike English in that a post-object 'particle' is necessarily subject-predicated (7.7b).

The verbal particles also differ in other ways in the two languages. In fact, English does not have particles at all, under the definition of particles given here: particles are syntactically head-adjoined non-projecting words. I have argued that the pre-object 'particles' in English are actually attached to the verb lexically, rather than syntactically. Interestingly, this lexically bound element often denotes a result, and this result is then necessarily object-predicated.

A comparison of English and Swedish leads to the following generalization: elements that are closely tied to a transitive verbal head are necessarily

structure for a given grammatical function. This means that a bound morpheme can be an object.

object-predicated. This conclusion opens up further questions: Why would proximity to the head have an effect on predication? Is this accidentally true for Swedish and English, or do the facts uncovered here reflect a more general cross-linguistic pattern? I leave these questions open for future research.

5. CLITICS

A large amount of data relevant to the investigation of the nature of non-projecting words can be found in the literature on clitics. Elements of very different characters have been grouped together by linguists under the term ‘clitic’. I appeal to a different classification where words are divided along two parameters: syntactic projectivity and phonological dependence. The new typology that emerges divides words into four clearly definable groups. Only projecting, phonologically independent words have nothing in common with words that have been referred to as ‘clitics’ or ‘clitic-like’ in the literature, while only non-projecting, phonologically dependent words are true clitics:

Table 7.1. Words and clitics

	phonologically dependent	phonologically independent
non-projecting	true clitics	
projecting		true non-clitics

Previous studies of clitics and clitic-like words have led many researchers to view different types of words as points on a gradient scale, beginning with proto-typical clitics (or perhaps bound words), and going all the way to independent words that project phrases. The classification proposed here instead divides words into discrete categories. We see then that by recognizing the existence of non-projecting words, we have not only gained insight into the nature of verbal particles, we have also acquired the tools needed for a clearer classification of different types of words.

This classification is useful for the study of the type of historical change which is called *grammaticalization* (Meillet 1912, Kuryłowicz 1964, Hopper and Traugott 1993).³ Grammaticalization refers to a historical change where a linguistic element which is relatively syntactically independent is reanalyzed

³Using the term grammaticalization does not necessarily entail granting it any special theoretical status: grammaticalization can simply be seen as a descriptive term covering several phenomena (Harris and Campbell 1995).

as an element which is less independent. The term also refers to the change of lexical words into function words, and the two types of change often go hand in hand. An example of grammaticalization would be a syntactically independent pronoun changing into an agreement marker.⁴

A problematic aspect of the grammaticalization literature is a lack of clear criteria for what counts as more or less grammaticalized, and a big part of the problem is the notion of *gradience*: a full phrase will not be reanalyzed as a bound morpheme in one step. Instead, elements are thought to go through many different stages on the path to full grammaticalization. If we recognize that words can be at the same time syntactically independent and non-projecting (regardless of their phonological status), it becomes possible to describe (at least some of) the different stages of grammaticalization in a more precise way. These descriptive tools can then help us state clearly what counts as more or less grammaticalized.

As an example, let us consider Swedish particles which are of the category noun, and we will see that these particles are relevant to the notion of grammaticalization (recall that nominal particles are exemplified by verb-particle expressions such as *bygga hus* ‘build house’ and *hålla tal* ‘make speech’). It was already noted above that there are similarities between incorporated nouns and nominal particles. On the other hand, nominal particles are very much like full NP objects. It then seems natural to hypothesize that non-projecting, syntactically independent nouns (such as the Swedish nominal particles) can constitute one step in the chain of reanalyses that lead to the possibility of incorporating a nominal element into a verbal stem. The first step would be a full phrasal object, the second step would be a nominal particle, and the final step is complete incorporation.

6. SUMMARY

The intuition that ‘small words’ exist has been expressed over and over again in the linguistics literature. The main goal of this work has been to explore this intuition and to make the notion more precise. The empirical focus has been on Swedish verbal particles. I have presented evidence that Swedish verbal particles are *non-projecting words*. I have further explored cross-linguistically occurring small words of different types, drawing upon the literature on clitics, but also the literature on verbal particles in other Germanic languages.

⁴For a discussion of this type of grammaticalization in the LFG framework, see Toivonen (2001a).

In this chapter, I have summarized some of the main findings of this book. I have also pointed to some questions that are left open: Is the absence of phrasal projection absolutely tied to head-adjunction? Is it possible to find a higher-level explanation for why secondary predicates closely connected to the head are predicated of the object? I point out that Swedish particles provide evidence for Economy. Can the Swedish facts be explained in some other way, for example as in Potts (2002)? Do we need Economy? Many questions remain.

Although syntacticians have previously paid much attention to particles, the research has mainly focussed on Dutch, German and English. I hope to have shown that an in-depth study of one of the other Germanic languages can shed new light on the nature of verbal particles.

APPENDIX A

ECONOMY OF EXPRESSION

The Economy principle is not usually motivated on empirical grounds. Instead, the motivation is conceptual: Empty structure is seen as superfluous and inelegant, and unnecessary structure should be pruned away by grammatical principles. However, as we saw in chapter 4, Swedish verbal particles provide actual empirical evidence for such a principle, and so the principle of Economy of Expression plays a small but important role in my analysis of Swedish particles. In this appendix, I explore the formulation of Economy in LFG. I also consider potential effects of Economy on various parts of Swedish phrase structure.

1. THE ECONOMY PRINCIPLE

Many syntactic frameworks makes use of a principle, constraint or theorem of *Economy*, which punishes superfluous structure. For example, Grimshaw (1993) posits the Optimality Theoretic constraint *Minimal Projection* which punishes empty structure, and Grimshaw (2001a) discusses at length the status of Economy in OT. In the Principles and Parameters framework, Economy takes on a very more important role (Chomsky 1989 and elsewhere).¹ Chomsky's version of Economy is intended to constrain movement as well as structure, and it is of course the structure part that is most similar to the LFG version of Economy:

“The analogous principle [analogous to economy of derivation - I.T.] for representation would stipulate that, just as there can be no superfluous steps in

¹See also Radford (1997), Collins (1997), Bošković (1997), Cardinaletti and Starke (1999), Fox (1999).

derivations, so there can be no superfluous symbols in representations. This is the intuitive content of the notion of Full Interpretation (FI), which holds that an element can appear in a representation only if it is properly ‘licensed’.” (Chomsky 1995: 151)

The basic intuition behind FI is that every symbol in phrase structure must be semantically interpreted.

The Minimal Structure Principle is another specific example of a Principles and Parameters principle which punishes extra structure (Bošković 1997, following Law 1991):

- (A.1) **The Minimal Structure Principle**
 Provided that lexical requirements of relevant elements are satisfied, if two representations have the same lexical structure and serve the same function, then the representation that has fewer projections is to be chosen as the syntactic representation serving that function.

The Minimal Structure Principle has the same effect as FI: superfluous structure is avoided. As we will see, the Economy principle in LFG is quite similar in spirit to Economy in Principles and Parameters Theory, although Economy is nowhere near as central for LFG as it is for Principles and Parameters. The remainder of this appendix will focus on Economy in LFG.

Bresnan posits the following formulation of Economy for LFG:

- (A.2) **Economy of Expression** (Bresnan 2001: 91)
 All syntactic phrase structure nodes are optional and are not used unless required by independent principles (Completeness, Coherence, Semantic expressivity).

So, the Economy principle basically says ‘avoid structure’, whereas the model outlined in chapter 3 says ‘assume maximal structure’, and the two claims form a methodological tension. I therefore propose the reformulation of Economy of Expression in (A.3), which includes an X'-clause (the Economy principle will be further modified, and the final version is given in (A.10)):

- (A.3) **Economy of Expression** (preliminary version)
 All syntactic phrase structure nodes are optional and are not used unless required by independent constraints (X'-constraints) or independent principles (Completeness, Coherence, Semantic expressivity).

Completeness states that an f-structure must contain all the grammatical functions that the predicate requires. The subject node in the structural representation for *John walks* cannot, therefore, be pruned away, since just *walks* does not provide the f-structure with the SUBJ function required by the predicate. The *Coherence* condition states that only the grammatical functions required by the predicate can be contained in the f-structure for that predicate (see chapter 1). This is why the structure **Linda sleeps Sarah* is not allowed: The verb *sleep* does not require an OBJECT function. There is no opposition between Coherence and Economy (both punish superfluous material). I therefore remove Coherence from the formulation of Economy:

- (A.4) **Economy of Expression** (penultimate version)
 All syntactic phrase structure nodes are optional and are not used unless required by independent constraints (X'-constraints) or independent principles (Completeness, Semantic expressivity).

Let us now consider 'semantic expressivity', which is mentioned in the formulation of Economy in order to avoid ruling out sentences like (A.5):

- (A.5) *John likes pretty flowers.*

Completeness refers to the arguments required by predicates. The verb *like* requires a subject and an object. Compare sentence (A.5) to (A.6), which involves less structure (is more economical), although it still obeys Completeness:

- (A.6) *John likes flowers.*

According to Bresnan (2001: 91), the reason why (A.6) does not rule out (A.5) is that (A.5) adds the extra information that the flowers are pretty. In other words, (A.5) is more semantically expressive than (A.6).

However, Economy is in general only intended to target superfluous c-structure material: nodes are pruned away only if they are devoid of content. The statement in (A.7) makes explicit how Economy is restricted:

- (A.7) Economy only holds over c-structures with identical f-structure, semantic interpretation, and lexical forms.

In other words, Economy does not have the power to change any information other than c-structure information.

It is now clear why *John likes pretty flowers* does not compete with *John likes flowers*: They have different semantic interpretation and involve different lexical forms. The f-structures also differ. Compare (A.8), which is the f-structure corresponding to (A.5), to (A.9), which is the f-structure corresponding to (A.6):

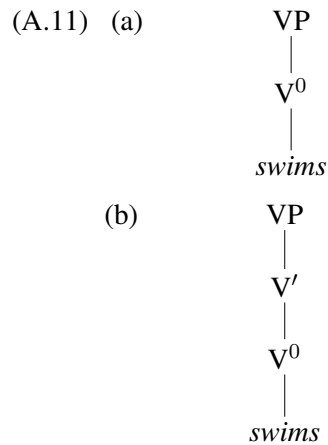
$$\begin{array}{lcl}
 \text{(A.8)} & & \left[\begin{array}{ll} \text{PRED} & \text{'like } <(\uparrow \text{ SUBJ}) (\uparrow \text{ OBJ})>' \\ \text{TENSE} & \text{PRES} \\ \text{SUBJ} & \left[\begin{array}{ll} \text{PRED} & \text{'John'} \end{array} \right] \\ \text{OBJ} & \left[\begin{array}{ll} \text{PRED} & \text{'flower'} \\ \text{NUM} & \text{PL} \end{array} \right] \end{array} \right] \\
 \text{(A.9)} & & \left[\begin{array}{ll} \text{PRED} & \text{'like } <(\uparrow \text{ SUBJ}) (\uparrow \text{ OBJ})>' \\ \text{TENSE} & \text{PRES} \\ \text{SUBJ} & \left[\begin{array}{ll} \text{PRED} & \text{'John'} \end{array} \right] \\ \text{OBJ} & \left[\begin{array}{ll} \text{PRED} & \text{'flower'} \\ \text{NUM} & \text{PL} \\ \text{ADJ} & \{ [\text{PRED} \quad \text{'pretty'}] \} \end{array} \right] \end{array} \right]
 \end{array}$$

It is easy to see that (A.8) is less specific than (A.9), and (A.5) and (A.6) therefore do not compete under Economy. We then do not need to appeal to semantic expressivity to make sure that Economy does not rule out (A.5). Given (A.7), Economy can be stated as (A.10):

- (A.10) **Economy of Expression** (final version)
 All syntactic phrase structure nodes are optional and are not used unless required by X'-constraints or Completeness.

This Economy principle is formulated a bit differently from the one in Bresnan (2001), but it remains similar in spirit: extra structure is avoided.

As far as I can tell, the consequences are the same under both formulations of Economy, except for the fact that (A.10) cannot override X'-principles. The new version of Economy in (A.10) is in that sense less powerful than the old version, since (A.10) requires each structure to conform to the X'-constraints. Compare (A.11a) to (A.11b):

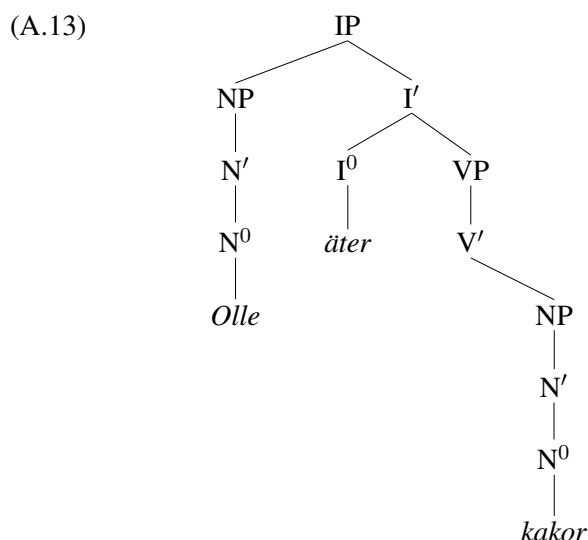


The old version of Economy would favor (A.11a), but the new version selects (A.11b).²

Let us consider a concrete example where Economy influences the structure of a given string of words. In V2 languages, the verb is situated in a functional projection outside the VP, but the object appears within the VP. This is shown in (A.13), the structure assigned to (A.12):

- (A.12) Olle äter kakor.
 O. eats cookies
 ‘Olle eats cookies.’

²Recall that X' -constraints are to be interpreted as constraints on *projections*: the presence of an X^0 entails the presence of an X' , but an X' does not entail an X^0 . Similarly, X' necessarily projects an XP, but an XP does not necessarily dominate an X' category. If there is no lexical head to fill X^0 , it will be pruned away by Economy, even if an X' is present, and if an X' does not dominate anything, it will be pruned away.



There is no lexical material within the VP which requires the presence of V^0 , so no V^0 node is present, by Economy.

Even though the new Economy principle is less powerful than the old one, it still has the effects which motivated the principle in the first place: for example, it disfavors empty categories. Empty categories are in principle allowed in LFG, but their use is highly restricted, as discussed in Bresnan 1998.³ The Economy principle rules out empty categories if they are not needed by independent principles.

2. ECONOMY AND SWEDISH CLAUSE STRUCTURE

Economy of Expression potentially has great consequences (see, e.g., chapter 4.5 and chapter 6.3). This section therefore considers two areas of Swedish syntax that at first seem problematic for the Economy principle.

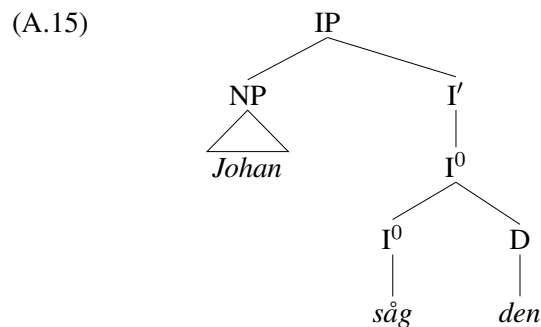
2.1. *Object shift*

Pronominal objects sometimes appear outside the VP in Swedish. This phenomenon is called Object Shift and has received much attention in the syntax literature (see, e.g., Holmberg 1986, 1997, Josefsson 1992, Kaiser 1997, Sells 1998, 2001, Bobaljik 1999). An example is given in (A.14):

³Some versions of LFG do not allow empty categories at all (Dalrymple, Kaplan, and King 2001).

- (A.14) Johan såg den inte.
 J. saw it not
 ‘Johan did not see it.’

Recall from section 1.2 that negation marks the left edge of the VP in Swedish. As (A.14) shows, certain pronouns (like *den*) can be situated somewhere to the left of VP. I adopt the analysis of Object Shift proposed by Sells (2001). Under Sells’s analysis, a sentence like (A.14) has the structure in (A.15):⁴



Note that Sells assumes that the pronoun is a non-projecting element, head-adjoined to I^0 . This assumption is motivated by Sells, and it fits well with the view of non-projecting words presented here, since shifted pronouns do not take modifiers or complements.⁵

Some speakers also accept sentences where the pronoun has not undergone Object Shift, as in (A.16):

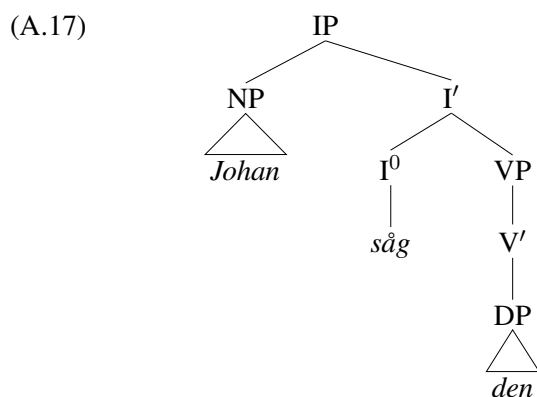
- (A.16) %Johan såg inte den.
 J. saw not it
 ‘Johan did not see it.’

In (A.16), the object *den* follows the negation, and is thus included in the VP. Sells assumes the structure in (A.17) for sentences like (A.16):⁶

⁴A couple of notes about the structure in (A.15): First, I am not including *inte* in (A.15), as the c-structural representation of negation adds irrelevant complications. Second, Sells gives the pronoun the label Pro. I label it D, as I do not assume ‘Pro’ as a category. This choice of label has no significance for any of the points in this section.

⁵The facts concerning Object Shift in Icelandic are different in important ways. Crucially, the shifted object can be larger than one word. Icelandic must therefore be analyzed differently.

⁶Again, I am not including the negation. Additionally, I have adopted Sells’s structure to the present notation: Sells assumes that the pronoun is included in an NP, whereas I assume a DP. This is not an important difference.



A comparison of (A.15) and (A.17) reveals that the pronoun can appear as a non-projecting D under I^0 or as a projecting D^0 under V' . This is clearly problematic for Economy: (A.17) involves a more elaborate structure than (A.15), and (A.15) should therefore block (A.17). Note that hypothesizing that the VP-internal pronoun in (A.17) is adjoined to V^0 will not solve the Economy problem: The structure would still be less Economical than (A.15), since the V^0 must be included in a V' and VP.

The examples in (A.14) and (A.16) seem to provide counterevidence for the Economy principle. However, as has been noted by Vikner (1997), Engdahl (1997), Sells (2001), the two possible orderings are associated with different interpretations. Sells (2001: 45) lists the following generalizations, which are based mainly on unpublished research by Elisabet Engdahl:⁷

- The pronoun shifts when it would fall within the focal domain, even if it is not itself focussed.
- An accented pronoun does not shift.
- A narrow focus pronoun does not shift.

The Economy principle only influences the c-structure representation: It cannot prune structures if this pruning has an effect on the interpretation of the sentence (recall the discussion of (A.7) above). Since (A.14) and (A.16) are associated with different interpretations, Economy does not choose between them.

⁷Engdahl also cites Christer Platzack, who has pursued similar ideas.

2.2. V2 and Economy

A finite verb appears in second position (V2) in Swedish main clauses:

- (A.18) (a) Pelle städade rummet.
 P. cleaned room.the
 ‘Pelle cleaned the room.’
 (b) Rummet städade Pelle.
 room.the cleaned P.
 ‘The room is what Pelle cleaned.’

As was discussed above in chapter 1, section 2, I assume that the verb appears in I^0 in subject–initial clause (such as (A.18a)), and in C^0 when a non-subject precedes the verb.

There is no V2 effect in subordinate clauses:

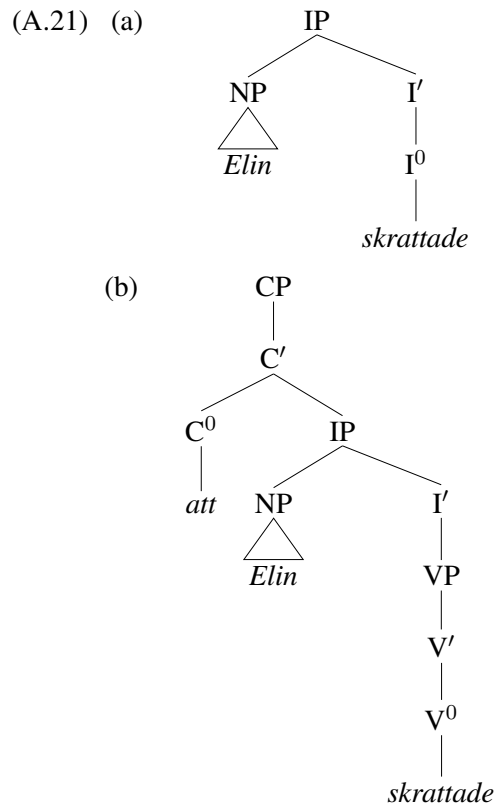
- (A.19) (a) Han sade [att Pelle gärna städade rummet].
 he said that P. with.pleasure cleaned room.the
 ‘He said that Pelle cleaned the room with pleasure.’
 (b) Maria hävdade [att Göran verkligen inte uppförde
 M. claimed that G. really not behaved
 sig moget.]
 SELF maturely
 ‘Maria claimed that Göran really did not act mature.’

In subordinate clauses, the verbal head follows negations and other adverbs, as illustrated in (A.19). The subordinate verb is therefore standardly assumed to occupy V^0 .

Let us compare the structure of a simple main clause (A.20a) to the structure of a simple subordinate clause (A.20b):

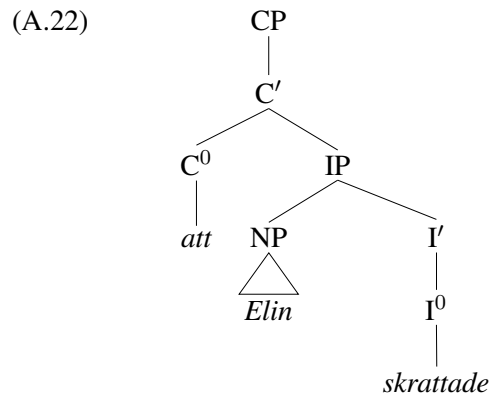
- (A.20) (a) Elin skrattade.
 E. laughed
 ‘Elin laughed.’
 (b) ... att Elin skrattade.
 that E. laughed
 ‘...that Elin skrattade.’

The structure for (A.20a) is given in (A.21a), and the structure for (A.20b) is given in (A.21b):



Again, the main clause verb is in I^0 (A.21a), and the subordinate clause verb is in V^0 (A.21b).

Now, how do these structures relate to Economy? Consider the subordinate structure in (A.21b). The main clause facts show that it is in principle possible for a finite verb to appear in I^0 , and such a structure would in fact be more economical than (A.21b), as becomes clear if we compare it to (A.22):



The fact that (A.21b) is favored over (A.22) is seemingly problematic for the Economy principle, since (A.22) involves less structure. However, a closer look at the word order patterns in Swedish shows that the different structures are actually associated with different interpretations.

A finite verb in Swedish can be of the category V^0 , I^0 , or C^0 , and this explains why it is possible for verbs to appear in all three positions. However, it does not explain the *pattern* of distribution. Why are main clauses verb-second, and subordinate clauses not? This is a general problem for linguistic theory, and has been an important topic in the syntax literature for a long time. Researchers have therefore previously analyzed the meaning and use of V2. Stephen Wechsler has studied V2 in Swedish specifically, and he has shown that V2 is correlated with a certain illocutionary force (see Searle (1969)), in particular that of *direct assertion*.

Wechsler (1991) defines a direct assertion clause as (A.23):

- (A.23) A clause E with propositional content p is a *direct assertion clause* iff p is the content of an assertion made by the speaker in a sincere utterance of E.

When E is an embedded clause then ‘an utterance of E’ means an utterance of the matrix clause containing E. Wechsler (1991) shows that V2 clauses in Swedish are direct assertion clauses. He discusses several facts that support his proposal, and I will cite some relevant examples here. For a full discussion, see Wechsler’s paper, and also Andersson (1985) and Sells (2001).

Although the verb is usually situated in V^0 in subordinate clauses, V2 is sometimes possible also in non-main clauses. Wechsler shows that V2 is only possible in a subordinate clause if the clause is an assertion. Consider (A.24):

- (A.24) Då kände jag [att jag har inte lust att lägga
 then felt I that I have not desire to lay
 ner energi på att försöka komma överens med
 down energy on to try come along with
 honom].
 him
 ‘Then I felt that I don’t feel like putting an effort into trying
 to get along with him.’ (PAR)

The example in (A.24) consists of two separate assertions, one for the main clause and one for the subordinate clause, and both clauses are V2 (*har* ‘have’ precedes the negation *inte*).

Subordinate clauses that are introduced by non-assertion complementizers such as *om* ‘if’ and *ifall* ‘in case’ cannot be V2 (Wechsler 1991: 181):

- (A.25) (a) Jag blir ledsen [om du inte kommer].
 I get sad if you not come
 ‘I (will) get sad if you don’t come.’
 (b) *Jag blir ledsen [om du kommer inte].
 I get sad if you come not

The examples in (A.25) contain the non-assertion complementizer *om* ‘if’. We see that the non-V2 subordinate clause is grammatical, whereas the V2 clause in (A.25b) is not. I conclude that V2 clauses are connected with a special interpretation, and the structures in (A.21b) and (A.22) above therefore do not compete under Economy.

In sum, both Object Shift and V2 pose apparent problems for the Economy principle. However, in each case, the compared structures have been previously shown to involve different interpretations. Economy is then irrelevant, since it can only prune away structures if this has no influence on the f-structure or the semantics.

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