Particle Verbs in English

Syntax, information structure and intonation

Nicole Dehé

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The truth is rarely pure and never simple

(Oscar Wilde, *The Importance of Being Earnest*)

Abbreviations

φ-phrase	phonological phrase
ACH	Abstract Clitic Hypothesis
Agr	Agreement
AgrIO(P)	Agreement Indirect Object (Phrase)
AgrO(P)	Agreement Object (Phrase)
AgrS(P)	Agreement Subject (Phrase)
CFC	complete functional complex
C_{HL}	Computational System (of the Human Language Faculty)
CLS	Chicago Linguistic Society
DO	Direct Object
DP	Determiner Phrase
ECM	Exceptional Case Marking
ECP	Empty Category Principle
EIC	Early Immediate Constituent Principle
EPP	Extended Projection Principle
EVPA	Extended-VP-Analysis
F0	fundamental frequency (contour)
FBS	Focus Background Structure
FF(LI)	formal features (of a lexical item)
FI	(Principle of) Full Interpretation
FTA	Focus-to-Accent
GA	grammatical (default) focus accent
GC	governing category
GT	*Gorgia Toscana*
HMC	Head Movement Constraint
Hz	Hertz
IC	Immediate Contain
I-phrase	Intonational phrase
IR	Iambic Reversal
IS	Information Structure (Theory)
LCC	Lexical Category Condition

LF	Logical Form
LI	lexical item
MIT	Massachusetts Institute of Technology
MLC	Minimal Link Condition
NELS	(Proceedings of the) North East Linguistic Society
NP	Noun Phrase
NSR	Nuclear Stress Rule
Obj	Object
OE	Old English
P	Predicate (in the context of SAAR)
p.c.	personal communication
PF	Phonological Form
PM	preverbal message
p-movement	prosodically motivated movement
PP	Prepositional Phrase
PredP	Predicate Phrase
PT	Presentation Type
PV	(transitive) Particle Verb (Construction)
RC	Relative Clause
RHR	Righthand Head Rule
RS	*Raddopiamento Sintattico*
SA	speech act
SAAR	Sentence Accent Assignment Rule
SC	Small Clause
SLH	Strict Layer Hypothesis
Subj	Subject
T	Tense
TCS	Topic Comment Structure
Tel	Telicity (as a functional category)
UTAH	Uniformity of Theta Assignment Hypothesis
V2	Verb Second (Language)
VOS	verb – object – subject (word order)
VP	Verb Phrase
VSO	verb – subject – object (word order)

Acknowledgements

Introduction

The work presented in this book contributes to the discussion of a well-known construction that occurs in most, if not all, of the Germanic languages (cf. (1)) and has been referred to in the literature for example as *verb-particle construction*, *phrasal verb*, *separable (complex) verb* or *particle verb*.

(1) Particle Verbs across Germanic Languages
     (the Scandinavian examples are borrowed from Svenonius 1994, 1996a, b)

    a. German:

Sie	*sagten*	das	Konzert	*ab*.
They	said	the	concert	Part

'They called off the concert.'

    b. Dutch:

Hans	*belde*	zijn	moeder	*op*.
Hans	called	his	mother	Part

'Hans phoned up his mother.'

    c. Danish:

Han	*gav*	sine	studier	*op*.
He	gave	his	studies	Part

'He gave up his studies.'

    d. Norwegian:

Vi	*slapp*	hunden	*ut*.
We	let	dog.the	Part

'We let the dog out.'

    e. Swedish:

Johan	*skrev*	*upp*	numret.
Johan	wrote	Part	number.the

'Johan wrote down the number.'

    f. Faroese:

Teir	*vinda*	reint	flagg	*opp*.
They	pulled	white	flag	Part

'They pulled up the white flag.'

    g. Icelandic:

Ég	*tók*	*tupp*	kartöflur.
I	picked	Part	potatoes

'I picked up potatoes.'

    h. English: Sam *turned down* the radio.

In this introductory chapter, I will provide the reader with some basic descriptive facts about the particle verb construction in English. I will also give a preview of the organisation of this book.

1.   Some general remarks on particle verbs

In general, the particle verb construction can appear in transitive, intransitive, or more complex variants, which is illustrated in (2) through (4) for English.

(2)   Transitive Particle Verbs

    a.   Poirot *found out* the details.
    b.   Nicole *finished off* her thesis.
    c.   The little girl *laced up* her shoes.
    d.   The woman had been *hanging out* the clothes.
    e.   The man *paid off* his debts.
    f.   He *put down* his coffee-cup.
    g.   The workers *loaded up* the van.
    h.   The professor *handed out* the papers.

(3)   Intransitive Particle Verbs

    a.   The prices *came down* last month.
    b.   The months *went by*.
    c.   The two girls were *growing up*.
    d.   Unexpectedly, another opportunity *turned up*.
    e.   Granny would never die. She would *live on*.
        (D. H. Lawrence, *The Virgin and the Gipsy*: 73)
    f.   I will *own up* […] that I couldn't think of everything for a while.
        (E. H. Porter, *Pollyanna*: 69)
    g.   His feeling of terror had *passed away* […].
        (Oscar Wilde, *the Picture of Dorian Gray*)
    h.   […] Lucille flew at me and told me to *shut up*.
        (D. H. Lawrence, *The Virgin and the Gipsy*: 40)

(4)   Complex Particle Verb Constructions[1]

    a.   They *made* John *out* a liar.
    b.   They *painted* the barn *up* red.
    c.   They *put* the books *down* on the shelf.
    d.   They *sent* a schedule *out* to the stockholders.
        ((a)–(d) taken from den Dikken 1995: 55f.)

e. The crew *handed* the passengers *back* the passport.

<div align="right">(Radford 1997:444)</div>

f. Andrew will *print* his teacher *out* a copy.

g. Valerie *packed* her daughter *up* a lunch.

h. Susan *poured* the man *out* a drink.

Particle verbs have been dealt with continually in the linguistic literature from various perspectives, including theoretical viewpoints such as their morphological and syntactic behaviour and representation (cf. Chapter 2 of this book), and the semantics of the construction (cf. e.g. the introductory chapters to Olsen 1998a and Dehé et al. 2002 and references given there), but also psycholinguistic aspects have been considered, such as the behaviour of particle verbs in speech production and processing (cf. e.g. Drews, Zwitserlood, et al. 1994; Zwitserlood, Drews, et al. 1996; Hillert 1998; Roelofs 1998; Urban & Friederici 1999; Urban 2001, 2002), and language acquisition (cf. Hyams, Johnson, & Schaeffer 1993; Broihier, Hyams, et al. 1994; Bennis et al. 1995 among others). Simultaneously, the Germanic languages which display the construction have all been studied in this respect (cf. e.g. Abraham 1993, 1995; Stiebels & Wunderlich 1994; Stiebels 1996; Olsen 1996, 1997b; Zeller 2001c; Wurmbrand 2000a, b; Lüdeling 2001, for German; Booij 1990; Neeleman & Weerman 1993; Neeleman 1994; Koopman 1995; van Marle 2002, for Dutch; and Åfarli 1985; Svenonius 1994, 1996a, b; Toivonen 2002, and references given there for the Scandinavian languages). I will focus on transitive particle verbs constructions (hereafter PV's) in English, as given in (2) above and in (5) through (7) below. I will be concerned primarily with the syntax of PV's but will draw on evidence from speech production and also evidence from intonation patterns, as well.

The syntactic behaviour of PV's in English has frequently been described in the literature (cf. e.g. Bolinger 1971; Fraser 1976; Lindner 1983) and the basic facts have most recently been reviewed by Jackendoff (2002). The perhaps most striking property of transitive PV's in English is their appearance in two alternating orders. The particle appears adjacent to the verb and precedes the DP-complement in (5), which I will refer to as the *continuous order* or *construction*. In the *discontinuous order/construction* (cf. (6)), the particle follows the DP-object. This latter word order is obligatory with unstressed pronouns, as is illustrated in (7).[2]

(5) PV's: Continuous Order

a. He *wiped off* the table.

b. He *took out* the lady.

      c.   He *looked up* the information.

(6) PV's: Discontinuous Order

      a.   He *wiped* the table *off.*
      b.   He *took* the lady *out.*
      c.   He *looked* the information *up.*

(7) Unstressed Pronouns

      a.   He wiped *it* off.
      b. *He wiped off *it.*
      c.   He took *her* out.
      d. *He took out *her.*

In English, the continuous order is a criterion for the distinction between elements that can function as particles and elements that cannot. In general, particles in English are homomorph with prepositions (e.g. *up*, *out*, *in*, *off*) or simple adverbs (e.g. *away*, *back*, *together*) (cf. Jackendoff 1973: 346; Emonds 1985: 253; Olsen 2000: 152). Therefore, it has been argued that the true test of a particle verb in English is the ability of the particle to appear adjacent to the verb stem in a position preceding the direct object, i.e. its appearance in the continuous order (cf. Olsen 2000: 152f among others). Pure adverbs or prepositions cannot appear in this position (cf. (8), borrowed from Olsen 2000: 152).

(8) Continuous Order

      a.   *Particles*
          Nicole carried *out, in, up, down, along, around, back* the basket.
      b.   *Pure adverbs*
          Nicole carried/pushed *upwards, inside, ahead, together* the chairs.

Note that this test (among others) has also been suggested as a distinguishing criterion between prepositional verbs and PV's (cf. e.g. Fraser 1976: 2; Lindner 1983: 5). Consider the examples in (9). Particles, but not prepositions, occur in the position adjacent to the verb. (For more syntactic tests to distinguish prepositional verbs from PV's, cf. e.g. Fraser 1976: 1ff.; Lindner 1983: 4ff.; Radford 1988: 90ff.; Wollmann 1996: 42ff. among many others.)

(9) Prepositional Verbs (a) vs. Particle Verbs (b)

      a.   He *walked up* the road.
         *He *walked* the road *up.*
         He is *getting off* the bus.
         *He is *getting* the bus *off.*

b. He *picked up* the handout.
    He *picked* the handout *up*.
    He *turned off* the lights.
    He *turned* the lights *off*.

In the remainder of this study, main emphasis will be placed on the alternation between the continuous PV construction and the discontinuous order. I will show that the alternation between the two options is not free. In the literature, various factors have been suggested that govern this alternation (cf. Chapter 3). However, I will argue that most of these factors reduce to one point, namely the theory of information structure (IS). I will show that, with the continuous order as the underlying/neutral one (Chapter 3), the choice of the word order is highly influenced by the IS of the context in which the relevant PV construction is embedded. Based on the relation between IS and intonation, evidence for my assumption will be provided from intonation patterns of transitive PV's in English along with empirical data (Chapter 4). Finally, I will propose a syntactic analysis for PV's in English that accounts for the impact that IS has on the word order alternation (Chapter 5).

2.   Particle verb classifications

In the literature, different groups of PV's have been distinguished mainly with regard to their semantic properties, but also with respect to their syntactic behaviour. A common distinction is between three groups: (1) semantically compositional or transparent PV constructions, (2) idiomatic PV's, and (3) aspectual PV's. The meaning of *compositional PV's* is made up of the literal meaning of the verb plus the literal meaning of the particle. The particles in these uses are often directional or spatial in meaning, as in the examples in (10) below. In this use, the particle can often be replaced by an appropriate (directional) PP (cf. (10e) and (f) in particular), a fact that has given rise to the assumption that the particle saturates an argument position of the verb (cf. Wurmbrand 1998 and Jackendoff 2002 among many others). In this connection and based on the fact mentioned above that particles are homomorph to prepositions and simple adverbs, Olsen (1998b, 2000) mentions a structural ambiguity between compositional PV constructions on the one hand and V plus adverb constructions on the other hand. I will return to the relevant assumptions in some detail in Chapter 2.3.2 below. *Idiomatic PV's* form a semantic unit whose meaning is not fully predictable from the meaning of its constituents (cf. (11)). Typically,

the string [V Part] in this use can be paraphrased by a simplex verb, as is indicated in (11) below. In *aspectual PV's*, the particle adds an aspectual interpretation to the verb. The best-known and perhaps most productive particle in the aspectual PV construction is *up*, which telicises the event expressed by the verb. As opposed to the corresponding simplex verb, the action described by the verb is completed (cf. (12)).[3] As Brinton (1985:160) puts it,

> [particles] may add the concept of a goal or an endpoint to durative situations which otherwise have no necessary terminus. That is, the particles may affect the intrinsic temporal nature of a situation and hence alter its aktionsart from atelic to telic.

Brinton (1985:162ff.) uses a series of tests to establish the telic qualities of PV's, including the use of the structure *take an hour to PV* (*It took a year to use up the supplies*), the verb *finish* (*I finished sending out the invitations*), and the phrase *for/in an hour* (cf. (12a)). This aspectual, or telic function of verbal particles has led some authors to analyse them as a lexicalisation of the functional category telicity within the functional domain of the VP (e.g. Solà 1996; Dehé 1997, 2000a; cf. Chapter 2.4).

(10) Compositional PV constructions
  a. Sheila *carried* {*in*} the bags {*in*} (into the house).
  b. James *carried* {*up*} the suitcase {*up*} (up the stairs).
  c. Sam *took* {*out*} the clothes {*out*} (out of the suitcase).
  d. Mary *threw* {*out*} a box {*out*} (out of the room).
  e. The lady *put* the hat *on / on her head.*
  f. Sheila *put* the books *away / on the shelf / there.*

(11) Idiomatic PV constructions
  a. John will *turn* {*down*} that job {*down*}. ('refuse to accept')
  b. You shouldn't *put* {*off*} such tasks {*off*}. ('postpone')
  c. The baby *threw* {*up*} the meal {*up*}. ('vomit')
  d. They *ran* {*off*} the pamphlets {*off*}. ('copy')

(12) Aspectual PV constructions
  a. John *ate* {*up*} the cake {*up*}.
      John ate the cake for an hour.
     *John ate up the cake for an hour.
  b. Ann *used* {*up*} her money {*up*}.
  c. We *painted* {*up*} the house {*up*}.
  d. Greg *cleaned* {*up*} the car {*up*}.

A threefold distinction of this kind can be found for example in Emonds (1985:252f.). His use of particles as *directional adverbs* corresponds to the spatial/directional use of particles in compositional PV's such as those in (10) above. Aspectual particles are called *completive verb-particle combinations* in Emond's terms. A distinction along these lines has also been suggested by Jackendoff (2002). Jackendoff distinguishes idiomatic PV's, directional PV's and aspectual PV's. In his terms, idiomatic PV's such as *look up* ('search for and find') and *throw up* ('vomit') have non-compositional meanings and are therefore listed in the lexicon as complete units. In the directional PV construction, particles occur with verbs that select a directional (Path) PP, such as *carry in/away/back*. According to Jackendoff, the particle in these uses satisfies one of the verb's argument positions and the meaning is fully compositional. Accordingly, there is no need to list these combinations in the lexicon. The particles in aspectual PV's can mark completeness, such as *up* in *drink/eat up the milk/cake* or – in a more specific and restricted case – it indicates the continuation of an action such as *away* in *sleep the day away*. This latter construction has been discussed in some detail in Jackendoff (1997). In addition to *up* and *away*, Jackendoff (2002) mentions *through* (*play the aria through*), *on* (*run on, sing on*) and *over* (*write the paper over*) as further aspectual particles. In the aspectual PV construction, both *on* and *away* lose their literal, directional meaning. As opposed to the completive, telic use of *up*, both *on* and *away* render their VP atelic. According to Jackendoff (2002), *through* adds an aspectual meaning that can be paraphrased by *from beginning to end* (*play the aria through/from beginning to end*), whereas aspectual *over* means *again* (*write the paper over/again*). I refer the reader to Jackendoff (1997, 2002) for more details about these particles and their particular uses.

A different classification, but one also involving three types of PV's, has been suggested by Ishikawa (1999). The criteria his suggestion is based on are the following: (1) does the particle retain its own meaning within the verb particle combination, where particle meaning can be either literal, i.e. spatial or directional, or completive, i.e. aspectual; (2) do the selectional properties of the verb change when it combines with a particle.

(13)   Classification of PV's according to Ishikawa (1999; examples taken from pp. 331f.)

    a.   *Simple combination type*:
       He cut {off} the branches {off}.

    b.   *Pure idiom type*:
       The store keepers took {in} the students {in}.

    c.   *Hybrid idiom type*:
       I'll look {up} the information {up}.

In PV combinations of the *simple combination type* (cf. (13a)), particles retain their own meaning and the selectional properties of the verbs are not changed. In (13a), *cut* selects a Theme argument just like in the simplex counterpart (*He cut the branches*). The particle *off* is used in its literal meaning. The simple combination type includes compositional PV constructions of the kind given in (10a) and (b) above; compare (14a) and (b) below, which show that the simplex counterparts to the verbs in (10a) and (b) select the same type of complement as the PV's. Notice, however, that the compositional PV's in (10e), and (f) would not belong to the simple combination type in Ishikawa's sense. According to Ishikawa's definition, PV's such as *put on* and *put away* must belong to the hybrid idiom type, where the particle retains its meaning, but the selectional properties of the verb change (see below). (14c) and (d) show that *put* as a simplex V cannot be used with the same type of complement as *put* as a PV, but that the selectional properties are different. Since the relevant verb particle combinations are fully transparent semantically, a classification along the lines of Ishikawa seems less attractive than the classification discussed above and outlined in (10) through (12).

(14)   a.   Sheila carried the bags.
      b.   James carried the suitcase.
      c.   *The lady put the hat.
      d.   *Sheila put the books.

Furthermore, it follows from Ishikawa's definition that aspectual PV's such as *eat up* and *use up* in (12a) and (b) above belong to the simple combination type. With regard to the selectional properties, the verbs *eat* and *spend*, in (12a) and (b) respectively behave in the same way as *cut* in Ishikawa's example. Both *eat* and *spend* can occur without the particle, but with the object (*John ate the cake*, *Ann spent her money*). The particle *up* occurs in its aspectual (completive) literal meaning. However, there seems to be a clear difference between particles in aspectual PV's and particles in compositional PV's. The latter, but not the former can be replaced by an appropriate complement PP, as is illustrated in (15). The difference between these two types cannot be accounted for in Ishikawa's classification.

(15)   a.   Sheila carried the bags [$_{Part}$ *in*] / [$_{PP}$ *into the house*] / [$_{PP}$ *to her car*].
      b.   John ate the cake [$_{Part}$ *up*] / [$_{PP}$???].

Particles in PV combinations of the *pure idiom type* in the sense of Ishikawa (1999) lose their own meaning. Moreover, there is a change in the selectional properties of the verb. In (13b), the combination *take in* is used in the meaning of *to deceive*. Both verb and particle lose their original meaning and the selectional properties of the verb change in that *take* selects an animate object which it does not in regular cases. In combinations of the third type suggested by Ishikawa, the *hybrid idiom type*, particles retain their meaning, but the selectional properties of the verb change. In (13c), *look up* is idiomatic since its meaning is not a combination of the meaning of its parts. However, according to Ishikawa (1999: 332), *up* is used literally in the meaning of "completion", "temporal end point". The selectional properties of *look* are changed, since *look* is not normally used with a DP complement (**He looks the word*, **He looks the street*).

Ishikawa's classification translates into certain differences between the three types with regard to syntactic structure. PV's of the pure idiom type are treated as complex heads which can be separated in the syntax in order to derive the discontinuous order. Particles in PV combinations of both the simple combination type and the hybrid idiom type enter the derivation as PP-complement to the verb, with the direct object in Spec-VP position. In order to derive the continuous order, the particle incorporates into the verb. I will return to Ishikawa's proposal in Chapter 5.

Apart from these threeway classifications, a number of authors distinguish between two groups of PV's, namely semantically transparent / compositional PV's on the one hand, and idiomatic PV constructions on the other hand. These classifications would summarise Ishikawa's types (b) (pure idiom type) and (c) (hybrid idiom type) and also idiomatic PV's and aspectual PV's in the classification of Emonds and others under the group of *idiomatic PV's*. Both Aarts (1989) for English and Wurmbrand (2000a, b) for German distinguish between the two classes on the grounds of differences in their syntactic behaviour. In Aarts' work, compositional PV's are termed spatial-resultative PV's. I will summarise his criteria in Chapter 2.5 below. Wurmbrand mentions the following points. Particles in compositional PV constructions can be replaced by other particles from the same semantic class (16a) or can be contrasted with other particles (16b), whereas particles in idiomatic PV constructions cannot (16c).

(16) a. send *up, in, back, away*
      b. send *up*, not *down / in*
      c. eat *up, ??*

Moreover, she argues that if particles can be topicalised at all, then only particles of compositional PV constructions can do so. (Cf. German (17a) for a compositional, (17b) for an idiomatic PV. The examples and ratings are taken from Wurmbrand (2000:8). In fact, I do not agree with Wurmbrand on the judgement of (17a), which is deviant (though not as bad as (17b)) in my variety.

(17) Topicalisation of particles

    a. [AUF]$_{Part}$ hat er die Tür t$_{Part}$ gemacht.
       [open]$_{Part}$ has he the door t$_{Part}$ made
       'He opened the door.'

    b. *[AUF]$_{Part}$ haben sie das Stück t$_{Part}$ geführt.
       [Part]$_{Part}$ have they the piece t$_{Part}$ performed
       'They performed the piece.'

From the different syntactic behaviour of the two classes of PV's, Wurmbrand argues, different syntactic structures follow, namely a small clause structure for compositional PV constructions, but a complex V'-structure of the form V'[Part V^0] for idiomatic PV's (cf. also Chapter 2.5 below).

However, these kinds of classifications are not undisputed for various reasons. Most importantly, besides syntactic differences between compositional and idiomatic PV's, there are also syntactic similarities (cf. Lindner 1983:20ff.). The syntactic difference between the two classes is thus not clear cut. Both compositional and idiomatic PV's (but not prepositional verbs or verb plus adverb combinations) appear in the continuous order. Moreover, compositional and idiomatic PV's behave alike in the following syntactic surroundings. For example, they both undergo nominalisation (18a), the particle can be modified in the discontinuous but not the continuous construction (18b), and particle preposing in question formation is disallowed for both groups (18c).

(18) a. Nominalisation
      a'. His tossing up of the ball.   (compositional PV)
      a''. His figuring out of the problem.   (idiomatic PV)

    b. Particle modification
      a'. *He tossed quickly / right up the ball.
      a''. *He figured quickly / right out the problem.

    c. Questions
      a'. *Up what did he toss?
      a''. *Out what did he figure?

Based on these similarities, Lindner rejects analyses that suggest separate syntactic structures for compositional vs. idiomatic PV's. Moreover, the semantic differences between the PV classes do not seem to be clear cut, either. Gries (2000:17) gives the example in (19). He argues that the meaning of *bring up* in (19) is "definitely not literal since *the town* has not been moved to a spatially higher position", but that the meaning is not fully idiomatic, either.

(19)   It has taken many years to *bring the town up* to the standard.

However, I used a distinction between three kinds of PV's in the sense of Emonds (1985) and Jackendoff (2002) for the purposes of the speech production experiment I report on in Chapter 3. The results of the experimental study show that the classification has some validity to it. However, no differences were found between the groups with regard to intonation patterns as will become clear in Chapter 4.

I will not make any difference between the PV groups in elaborating a syntactic structure for PV constructions in Chapter 5. In the course of the discussion, I will follow Olsen (2000) in her assumption that true PV's of both the compositional and the idiomatic type (and also of the aspectual type) have the same underlying structure. Their structure is distinct, however, from the syntactic representation of verb plus simple adverb combinations. Evidence for this suggestion comes for example from modification (cf. Chapter 2.3.2).

3.   Preview

The book is organised as follows. In Chapter 2, I will give a comprehensive survey of syntactic analyses that have been suggested in the literature for English PV constructions of the form given in (2), (5) and (6) above. Since I am in general concerned with PV's in English, I will focus on syntactic approaches to the English PV construction, rather than give a complete overview of approaches to the construction in all Germanic languages. The reader will be provided with references to approaches to the other Germanic languages in the introduction to Chapter 2 (cf. also Section 1.1 above). The previous approaches to the syntax of PV's introduced in Chapter 2 will be divided into five distinct groups. Traditional approaches will be presented along with various representatives of the small clause analysis, and of the extended-VP-analysis. In addition, I will mention two approaches which analyse the particle as a functional head of the category telicity. Analyses that do not fit into these four groups will also be introduced. The different types of analyses will be discussed in some detail. In

particular, I will reject the small clause analysis for PV constructions, and I will also argue against the particle as a functional category.

Chapter 3 contributes to the discussion on whether one of the two alternately possible word orders of PV's is the neutral, underlying one. I will briefly introduce the factors that have been suggested as governing this alternation and the speaker's choice of one construction over the other. I will then defend the hypothesis that the continuous order is the underlying one from which the discontinuous order must be derived by means of a syntactic operation. The opposite assumption will be rejected. Evidence in support of my conclusion comes from both the syntactic behaviour of PV constructions and from an experimental study that has been reported on in the literature (Hunter & Prideaux 1983), as well as from an experiment in speech production that I carried out.

In Chapter 4, I will be concerned with the questions of why and when speakers choose one of the constructions possible with PV's in English over the other. I argue that the word order is chosen according to the information structure of the context in which the PV construction is embedded. I will first give a brief introduction to the theory of information structure. I will then review the previous literature on PV's and information structure and provide additional data. Subsequently, I will turn to evidence from the intonation patterns of PV constructions, based on the relation between information structure and intonation in general, or, more precisely, on the relation between focus and accent placement in particular. There have been some vague assumptions in the previous literature on PV's on the relation between the chosen word order on the one hand and focus structure and accent placement on the other hand. This relation will be explored in some detail. I conducted two experimental studies in order to provide new insights on intonation patterns of PV constructions. The results of these studies provide strong additional evidence in support of the hypothesis that information structure is the determining factor in the choice of the word order with PV constructions in English. With these results in mind, I will return once again to the factors that have been proposed in the literature as influential factors on the choice of the word order in the final section of Chapter 4. I will show that nearly all of these factors follow from the theory of information structure.

In Chapter 5, I will return to the syntax of PV constructions. I will map the role that information structure plays with regard to particle and object placement onto the syntactic structure of the English PV construction. I propose a syntactic structure for PV's in English that integrates a focus feature. This feature does not belong to the set of formal features in the sense of Chomsky

(1995). However, I will suggest that it is this focus feature, its assignment to the relevant category, and a corresponding principle (*Condition on focus domains*) that triggers the stranding of the particle in the position following the object-DP, i.e. the derivation of the discontinuous construction. In developing the syntactic structure I will take into account the evidence that has been provided in the generative literature of the past decade in favour of overt verb and object movement in English. Finally, Chapter 6 concludes this study with a summary and an outlook to possible future research.

In this study, I will only be concerned with the regular PV construction. By this I mean that I will for example not consider the set of idiomatic PV's that does not undergo the word order alternation (compare *sing out one's heart/sing one's heart out* and *give up the ghost* [to die] / *give the ghost up*; cf. Chapter 3.1 for more examples).

Let me add a final remark with regard to the method of this study. I seek to combine evidence from both theoretical, i.e. mainly syntactic, and experimental research. The aim of the study is to propose a syntactic structure for regular PV's in English that accounts for the word order alternation possible with the construction and the factors that determine the alternation. To this end, I provide and make use of evidence from linguistic areas other than syntax. This means, my suggestion for a syntactic structure is based on evidence from experimental work in the areas of speech production (Chapter 3) and intonation (Chapter 4). With regard to the syntactic framework, the guiding ideas assumed in this thesis follow Chomsky's (1993, 1995) *Minimalist Program* and related work. I will assume familiarity with this well-known framework, and thus will not provide an introduction to or a summary of the theory. The main concepts will be introduced where it seems necessary, but will otherwise be presupposed. Introductions to the theory of information structure and to the relevant aspects of the theory of intonation including phonological phrasing will be given in the corresponding chapters.

Notes

1. I do not claim that the examples in (4) all have an identical underlying syntactic structure. All I want to say is that these examples are more complex than the intransitive or transitive alternates.

2. Of the Scandinavian languages, Norwegian and Icelandic, but not Danish and Swedish, display the same alternation (cf. Svenonius 1994, 1996b). In Danish, the particle must follow the DP, i.e. Danish shows the discontinuous, but not the continuous order. On the contrary,

Swedish only has the continuous order, the particle obligatorily precedes the nominal object. In German as a V2 language, the verb is obligatorily separated from the particle in main clauses (*Sie sagten das Konzert ab*; cf. (1a)), but the verb and the particle appear adjacent in subordinate clauses (..., *daß sie das Konzert absagten*; [that they called off the concert]).

3. Lindner (1983: 150ff.) seeks to give a more detailed picture of completive *up*. Cf. also Brinton (1985: 157f.) for an overview of the relevant literature.

Overview of the syntactic analyses for particle verbs in English

The syntactic structure of English PV's has been the subject of continuous debate in the generative literature. In this chapter I want to give a survey of some of the suggestions that have been made. This overview cannot be complete but it does – hopefully – cover the main ideas. I am focusing in this chapter on the suggestions that have been made for mono-transitive PV's in English, being aware of the fact that I am neglecting both analyses accounting for more complex structures involving PV's and various analyses for PV's in other Germanic languages, especially German (cf. Abraham 1993, 1995; Stiebels & Wunderlich 1994; Olsen 1996, 1997b; Zeller 2001c; Wurmbrand 2000a, b; Lüdeling 2001 among others) and Dutch (cf. Booij 1990; Neeleman & Weerman 1993; Neeleman 1994; Koopman 1995 among others), but also the Scandinavian languages (cf. e.g. Åfarli 1985; Svenonius 1994, 1996a; Toivonen 2002).

A rough distinction has often been made between approaches based on the assumption that verbs and particles form a complex lexical head as opposed to those that assume particles to be independent heads in the syntax (cf. den Dikken 1995: 38; Bennis et al. 1995: 70 among others). A distinction between complex head analyses on the one hand and small clause analyses on the other has also been suggested (cf. Sawyer 1999; Ishikawa 1999: 333; Wurmbrand 2000 among others). As the situation in the generative literature is much more complex than a simple distinction between two types of analyses suggests, I would like to divide the large number of suggestions that can be found into five distinct groups, namely (1) *"traditional" analyses*; (2) *small clause-analyses*; (3) *extended-VP-analyses*; (4) *particles as functional category-analyses*; (5) *others*.

1. Traditional analyses

The analyses I have in mind here are *traditional* in the sense that they are given in general introductions to English syntax, such as Radford (1988) and Burton-

Roberts (1997). I want to mention them only very briefly but do not go into any detail as it seems unnecessary to me to mention or even explore further shortcomings of the traditional analyses within a more elaborated syntactic framework. Basically, two different (and very simple) syntactic structures for the two possible word orders are suggested. Radford (1988) in his *Transformational Grammar* and Burton-Roberts (1997) in his *Analysing Sentences: An Introduction to English Syntax* assume that the particle is part of the verbal head in the continuous order, but that the simplex verb takes two complements when it appears in the discontinuous order, one of them being the projecting particle (PP). The main argument for the assumption of two structures is that the particle can be modified by an adverb *right* in the discontinuous, but not the continuous order (*put the customers right off* vs. **put right off the customers*). The corresponding structures are given in (1) below.[1]

(1)   Radford (1988:91, 100), Burton-Roberts (1997:108–110)

    a.   Continuous construction:
         $_{VP}$[$_V$[$_V$[put] $_P$ [off]] $_{NP}$[the customers]]

    b.   Discontinuous construction:
         $_{VP}$[$_V$[put] $_{NP}$[the customers] $_{PP}$[$_{Spec}$ [right] $_P$[off]]]

Above all, the structure suggested for the discontinuous order does not follow the *binarity principle*, a basic constituent structure principle which states that all non-terminal nodes are binary-branching, to mention but one obvious shortcoming. The binarity principle is a consequence of *merge* which is the central operation within the sentence building process (cf. e.g. Chomsky 1995:226). This operation combines syntactic objects in a pairwise fashion to form larger categories: Merge takes two syntactic objects α and β and forms the new object γ, γ = {α, β}. The operation is asymmetric in that it projects either α or β (Chomsky 1995:246). Chomsky (1999:2) notes that merge yields two natural relations, namely *Sister* and *Immediate-Contain* (IC). In the structure in (2) below, the two combined syntactic objects α and β are sisters, γ immediately contains α and β.

(2)
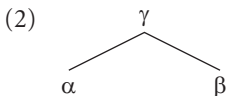
Now consider the abstract ternary structure in (3), which corresponds to (1b).

(3)
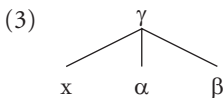
In (3), x has been combined with α, yielding γ. This operation results in a sister relation between x and α and a containment relation between γ and {x, α}. But combining γ with β in the way suggested in (3) does not form a new syntactic object containing γ and β and it does not result in a sister relation between γ and β. Furthermore, the combination of γ and β in (3) projects neither γ nor β. γ and β are thus not "merged" in the proper way. Consequently, the discontinuous construction as given in (1) above has not been properly built by merge.

2. Small Clause (SC) – analyses

The Small Clause (SC) analysis in general has first been proposed in Stowell (1981) and has been well-known, since. Therefore, I would like to give only a few basic facts about the SC construction and then turn to PV constructions, immediately. Basically, a SC is an abbreviated clause without an independent tense, i.e. it involves a predicate-argument-relation. SC's do not appear as complements to nouns (cf. (5)), but they do appear as complements to verbs (4a) and (b) and prepositions (4c) and are θ-marked by a verb or a preposition in the internal argument position. The matrix verb does not θ-mark the NP within the indicated SC, but the SC. Within the SC, the NP receives its θ-role from the predicate, as indicated in (6). The typical examples in (4) are taken from Hoekstra (1992: 146).

(4) a. I consider $_{SC}$[John foolish].
     b. I judged $_{SC}$[him incompetent].
     c. With $_{SC}$[football on TV] there is hardly anyone at school.

(5) a. *our consideration of Mary competent for the job
     b. *their assumption of him able to read

(6) I judged $_{SC}$[him incompetent].

                         θ

SC-analyses for PV constructions in English have been very popular with some linguists at least since Kayne (1985). The main idea is that the particle has its own lexical projection and as such is part of a small clause that is complement to the simplex verb. Reasons for assuming a SC-analysis are the following among others. Firstly, it is possible to combine the particle with a modifier (particularly *right* and *straight*) in the discontinuous, but not the continuous

construction (cf. den Dikken 1995:38–41). This argument has led to the assumption that the particle must have its own projection. I would like to note here that this does not necessarily mean that the particle has to be the head of a SC. If the modification facts can be taken as evidence at all, then only against a complex head analysis, but not, for example, against those extended VP-analyses, in which two separate head positions are assumed for verb and particle. Within these structures, suggested e.g. by Harley & Noyer (1998) and Nicol (2002), syntactic positions for the modifying element are provided (cf. Section 2.3 below). A second argument that is often offered in support of the SC-analysis is the discontinuous construction as such. Supposedly, a DP should not be able to interfere between parts of the same lexical head. But again, I would like to object that this argument can at most challenge the complex head analysis.

It has also been argued that PV constructions behave in the same way as SC constructions in certain syntactic environments, such as nominalisation (7) and (8) and extraction from the postverbal DP (9) and (10), both operations yielding ungrammaticality for both SC and PV constructions (cf. Kayne 1985:102f., den Dikken 1995:42f. among others).

(7)   SC construction

   a.   John considered Bill honest
   b.   *John's consideration of Bill honest.

(8)   PV construction

   a.   They looked the information up.
   b.   *their looking of the information up

(9)   SC construction

   a.   They considered the brother of John a fool.
   b.   *Who$_i$ did they consider the brother of t$_i$ a fool?

(10)   PV construction

   a.   They looked the information about the event up.
   b.   *What$_i$ did they look the information about t$_i$ up?

However, note that both nominalisation and wh-extraction are possible with the continuous PV construction, as shown in (11) and (12).[2]

(11)   Nominalisation

   a.   They look up the information.
   b.   their looking up of the information

(12)   Wh-extraction
  a.   They looked up the information about the event.
  b.   What$_i$ did they look up the information about t$_i$?
  c.   He chatted up the wife of his cousin.
  d.   Who$_i$ did he chat up the wife of?

The examples in (7) through (12) show that only discontinuous but not continuous PV constructions apparently behave in the same way as SC constructions in nominalisation and extraction contexts. However, neither continuous nor discontinuous PV constructions behave in the same way as SC constructions in the following syntactic surroundings, as I have shown in Dehé (1997: 117f., 2000a: 110ff.). Firstly, SC's are meant to be abbreviated clauses involving a subject-predicate-relation, i.e. a property is ascribed to a subject. Therefore, they generally allow the insertion of an infinitival *to be* or paraphrasing of the construction by a semantically equivalent CP, regardless of the syntactic category of the SC-predicate (cf. also Hoekstra 1992: 147). This is confirmed by the examples in (13).

(13)   a.   I consider $_{SC}$[John $_{NP}$[a fool]].
        vs.   I consider [John to be a fool].
     b.   I consider $_{SC}$[John $_{AP}$[honest]].
        vs.   I consider [John to be honest].
     c.   Nobody heard $_{SC}$[it $_{VP}$[rain last night]].
        vs.   Nobody heard $_{CP}$[that it rained last night].
     d.   The captain allowed $_{SC}$[him $_{PP}$[in the control room]].
        vs.   The captain allowed him to be in the control room.

However, as shown in (14), neither of these relations can be established for PV constructions.

(14)   a.   He looked $_?$[the information up].
        vs. *He looked [the information to be up]. /
          *He looked [that the information was up].
     b.   He handed $_?$[the paper in].
        vs. *He handed [the paper to be in]. /
          *He handed [that the paper was in].

Secondly, a SC is a syntactic constituent which can typically occur as an internal argument of the verb and thus is assigned a θ-role by the verb (cf. also Hoekstra 1992: 147). It should therefore be possible to replace the SC by a proform such as *it* or a wh-element in an echo-question. This is indeed possible with the SC's in (15), but not with the PV constructions in (16).

(15) a. Alexandra proved $_{SC}$[the theory false].
          Alexandra proved it. / Alexandra proved what?
      b. Nobody heard $_{SC}$[it rain last night].
          Nobody heard it. / Nobody heard what?

(16) a. He looked $_?$[the information up].
          *He looked it. / *He looked what?
      b. He handed $_?$[the paper in].
          *He handed it. / *He handed what?

Thirdly, den Dikken (1995: 24f.) argues that resultative SC's and other re-sultative subject-predicate relationships can be typically paraphrased as in (17) and (18).

(17) a. They hammered the metal flat.
      b. There was a hammering event which resulted in the state of affairs of the metal being flat.

(18) a. They put the books on the shelf.
      b. There was a putting event such that the books ended up on the shelf.

PV constructions cannot be paraphrased in the same way (cf. (19) through (21)). Note that this is not only true for idiomatic (19) and (20), but also for compositional PV's (21).

(19) a. He looked the information up.
      b. *There was a looking event such that the information ended up *up*.

(20) a. They made the story up.
      b. *There was a making event such that the story ended up *up*.

(21) a. They locked the dog out.
      b. *There was a locking event such that the dog ended up *out*.

A further argument in support of the SC-analysis given by den Dikken (1995: 43) is that of gapping in co-ordination contexts. Consider the example in (22) (taken from den Dikken 1995: 43):

(22) Turn the oxygen off with your knee, and [the acetylene on] with your elbow.

Den Dikken argues that co-ordination is possible because the bracketing is as indicated, i.e. because the DP forms a constituent with the particle. This constituent, he states, is a SC. Note that, even if we want to assume that the grammaticality of (22) is due to the constituency of DP and particle, this does not necessarily mean that the constituent is a SC. Harley & Noyer (1998: 147)

provide the same example as evidence for their claim that object and particle are dominated by the same functional category (FP) at one point in the derivation. FP in their analysis is not equivalent to a SC, but is a functional projection within the extended VP (cf. Section 2.3.1 below). Moreover, co-ordination (and thus gapping) of this kind is only possible with one group of PV's, namely compositional PV's. This fact that only a certain class of PV's can be co-ordinated in the way indicated in (22) above has also been mentioned by Aarts (1989:282f.) (cf. Section 2.5 below). For illustration, consider the ungrammatical examples in (23). Since we know from the literature (Olsen 1998b, 2000) that for compositional PV's, there is an ambiguity between PV constructions on the one hand and verb + adverb structures on the other hand, an obvious question to ask in this context is whether in the example in (22) it really is a particle that forms a constituent with the object, or if it is rather an adverb. I will come back to this latter assumption in Chapter 5.2.3 below.

(23) a. *He looked the word up and the information up.
      b. *They brought their children up and the cats up.

Notice also that both gapping constructions and co-ordination facts have led other authors to assume that verb and particle form a complex head (cf. e.g. Johnson 1991:590ff.). This apparent contradiction has to do with the fact that gapping in co-ordination contexts is not only impossible with a large group of PV's, but also with the continuous order. Consider the examples in (24).[3]

(24) a. *Gary looked up Sam's number, and Mary ?[up my number].
      b. *Turn off the oxygen and on the acetylene.

I will now introduce some of the most prominent SC suggestions that have been made in the literature in more detail and I will show what their shortcomings are besides the ones that I have already mentioned above. Kayne's (1985) early suggestion of a SC structure for PV constructions in English is based on Stowell's (1983) approach to SC's. A structure such as in (25), Kayne argues, is parallel to that in (26), the adjective being the head of the SC in (26), the particle in (25). The postverbal NP is the subject of the SC in both cases.

(25) John looked the information up.

(26) John considered Bill honest.

As evidence for the parallel structure of PV constructions on the one hand and SC constructions on the other hand, Kayne (1985:102f.) provides the arguments that have been illustrated in (7) through (10) above. Kayne offers an explanation for both phenomena: nominalisation and wh-extraction. The rea-

son for the ungrammaticality of the extraction sentences in (9b) and (10b), he argues, is that in English as a SVO language, extraction of the subpart of a left branch yields a violation. In the structure proposed here (V $_{SC}$[NP Part]), the postverbal NP is generated as the left branch of the SC node. The fact that discontinuous PV constructions cannot undergo nominalisation is argued to be due to the constraint that any phrase in subject position must be assigned a θ-role, but that at the same time "a subjectless PP must not be assigned a θ-role". The contrary requirement for the PP *of the information* in (8b) (**their looking of the information up*), i.e. that it must receive a θ-role as subject of the SC, and that it simultaneously not be allowed to receive a θ-role as a subjectless PP, leads to the ungrammaticality of the nominalised sentence. These constraints equally rule out the discontinuous order with PV's taking a PP complement (**John teamed with Bill up*).[4]

It follows from Kayne's analysis that the discontinuous order is the underlying one. He argues that the derivation of the continuous counterparts (*John looked up the information*) involves a movement rule of some kind. Two options for leftward movement of the particle are ruled out. First, the binary branching requirement prevents particle movement to a sister position of the verb. Second, particle adjunction to the verb would leave a trace that could not be properly c-commanded (governed) by its antecedent. Therefore, Kayne (1985:124) suggests rightward movement of the NP and adjunction to SC. The corresponding structures for the discontinuous and the derived continuous order are as in (27) and (28), respectively.

(27) discontinuous order: ... V $_{SC}$[NP Part]

(28) continuous order: ... V $_{SC}$[[e]$_i$ Part] NP$_i$

The structure in (28) is problematic. First, notice that Chomsky (1986a:6) argues that adjunction is possible only to a maximal projection that is a non-argument. The SC in the structures in (27) and (28) above is in an argument position to the verb, adjunction to this node should thus be ruled out. Moreover, this kind of movement serves no grammatical function. It is motivated in no way other than displacing the object in order to derive the continuous construction, which means that it must be considered a case of extraposition, similar to heavy-NP-shift. However, this is not a very attractive conclusion, since the continuous PV construction is by no means an exceptional, but rather an elementary structure. Moreover, the NP's that are extraposed in PV constructions do not have to be heavy, as are their counterparts within heavy-NP-structures. Johnson (1991:598) notes that if simple NP's in PV constructions can undergo

this kind of movement as suggested by Kayne, then it is unexpected that the same kind of movement yields ungrammaticality in parallel adjectival structures (*Mikey found sad the child). Notice further that extraction from a moved phrase is known to be blocked in English. In a structure as (28) above, extraction from the postverbal DP should thus be ruled out. However, extraction is possible from the NP in the continuous order, as was shown in (12) above.

Kayne (1985: 125ff.) furthermore rejects a complex head approach for both semantically compositional (resultative) and idiomatic PV's on the following grounds. First, he argues, a complex head would be inflected as in (29a), rather than as in (29b).

(29)   a.   *John look up-ed the information.
       b.   John looked up the information.

According to the *Righthand Head Rule (RHR)* (Williams 1981: 248), the head of a morphologically complex word is the righthand member of that word. Abstract features such as *tense* are realised in head position, i.e. on the righthand member of a complex word. Under the complex head analysis, the tense affix *-ed* would thus be expected on the particle rather than on the verb. Moreover, a PV would be a particle rather than a verb. However, Selkirk (1982: 19) and Olsen (1997a: 47) have argued that the particle verb in English forms a complex V head which is exceptional in that it is left-headed. Inflection on the verb instead of the particle then follows from this exceptional status of the complex verb. The case of PV's is covered by Selkirk's (1982: 20) *Revised RHR* which holds that for every word of the form $X^n [P\ X^m\ Q]$ (where X is a syntactic feature complex, and Q contains no category with the feature complex X), X^m is the head. By this rule, the rightmost category in X^n with the feature complex X will be the head. In the case of PV's, X is V, and the rightmost member with a verbal feature complex, which is the verb but not the particle, is the head. Notice also that even if this point made by Kayne (1985) was considered an argument against the complex head analysis, it would not necessarily demand a SC analysis.

Second, Kayne argues that a complex head should be allowed to be followed by a pronominal complement. With PV's, this is not possible (*John looked up it*), but the discontinuous order is obligatory with unstressed pronouns. Basically, this argument can be reduced to the more general argument that has been given in favour of the SC-analysis, namely that the discontinuous order as such provides evidence for this analysis. This argument has already been rejected above as it can at most challenge the complex head analysis, but does not necessarily demand a SC analysis. Moreover, the continuous order is

possible with a focused pronoun, as will be shown in subsequent chapters of this study (compare Bolinger's 1971: 39 example *The school board contemplated throwing out Spanish in order to through out ME*). I will return to the case of pronominal complements in later chapters of this book and I will show that the ungrammaticality of examples like **John looked up it* follows straightforwardly from the syntactic analysis I suggest in chapter V below.

Finally, Kayne argues that complex constructions such as in (30) should be possible with a complex PV head (all examples and judgements taken from Kayne 1985: 126).

(30)   a.   *?They handed down John the tools.
      b.   *?They're trying to make out John a liar.
      c.   *They're trying to make out advantage to have been taken of them.
      d.   *Which tools should we hand down John first?

Again I would like to emphasise that even if this argument can be taken as a challenge for the complex head analysis, the necessity of assuming a SC instead does not follow.

Hoekstra (1988) in his article develops an analysis of resultative constructions of the form *He washed the soap out of his eye*. In this connection, he dedicates a section to PV constructions. Hoekstra (1988: 114f.) argues that particles should not be regarded as a separate syntactic category, because they seem to have the same distribution as full PP's, e.g. they satisfy a PP subcategorisation in the examples in (31), taken from Hoekstra (1988: 114).

(31)   a.   send John *away*   vs.   send John *to the market*
      b.   put the books *down* vs.   put the books *on the shelf*

Hoekstra further argues that the particles in (31) are in a predicate position and thus have the distribution of corresponding predicate PP's. Particles, he continues, are never found in constructions where argument PP's are found. I conclude from this argumentation that Hoekstra assumes underlying subject-predicate relations for the examples in (31) that are of the following form (predicates in italics):

(32)   a.   John is *away*.   / John is *at the market*.
      b.   ?The books are *down*. / The books are *on the shelf*.

I have shown in the examples in (13) above that there is no real subject-predicate-relation between the postverbal NP and the particle. Moreover, notice that with regard to the argument status of particles, Emonds (1985: 256f.)

and Jackendoff (1997: 541) argue the opposite, namely that particles do satisfy a PP argument position in sentences such as the ones given in (33).

(33) a. Beth carried the food *up*.
          vs. Beth carried the food *up the stairs*.
      b. Beth took the food *in*.
          vs. Beth took the food *into the house*.

Both Hoekstra's examples *send John away* and *put the books down* given in (31) above seem to be similar in this respect. Interestingly, both Emonds (1985) and Jackendoff (1997) argue that particles have the same distribution as full PP's do, with the difference that in their framework particles (and PP's) function as full arguments to the verb, not as prediates.[5]

   However, based on his distinction between predicate and argument positions and on the argumentation in Kayne (1985), Hoekstra analyses particles as heads of SC's. As predicates, they need subjects. This function is taken over by the postverbal NP. Hoekstra's analysis, given in (34), thus equals the suggestion made by Kayne (1985).

(34) V $_{SC}$[NP Prt]

Hoekstra suggests that "the fact that the verb combines with a SC may be regarded as a lexical property of the relevant verbs", that the SC receives a θ-role from the matrix verb, and that this role may in general also be assigned to a full clausal complement, as in the examples in (35), taken from Hoekstra (1988: 115).

(35) a. I find this difficult.
      b. I find that this is difficult.

But note that the PV examples Hoekstra provides do not undergo this alternation with a full clausal complement (36) through (38) and compare also (14) above:

(36) a. They send John away.
      b. *They send that John is away

(37) a. They put the books down.
      b. *They put that the books are down.

(38) a. They look the information up.
      b. *They look that the information is up.

We would have to conclude then, that PV constructions cannot be small (or short) clauses in Hoekstra's sense.

Guéron (1990) analyses the particle in PV constructions as a syntactic head within an unaccusative SC of which the postverbal NP is the predicate. The underlying structure is given in (39) (taken from Guéron 1990:161).

(39)   He brought $_{TP/SC}$[$_{PrtP}$[up $_{NP}$[the package]]].

The postverbal DP, which is subject within the SC in Kayne's analysis, is in a complement position to the particle in this analysis. (I refer the reader to Johnson 1991:596ff. for a critical discussion of Guéron's analysis.) A similar idea with regard to the unaccusativity/ergativity of the particle has been proposed by den Dikken (1995). Den Dikken is primarily concerned with more complex PV constructions such as (40). The structure he suggests is given in (41) (taken from den Dikken 1995:55).

(40)   They made out John a liar.

(41)   [$_{IP}$ They [$_{VP}$ made [$_{SC1 [Spec\theta^\prime}$ John$_i$] [$_{PP}$ out [$_{SC2}$ t$_i$ a liar]]]]]

Den Dikken (1995:33) refers to particles as "the class of non-Case-assigning, argument-taking prepositional elements". A particle in a complex particle construction is analysed as the head of the SC that is selected by the verb. According to den Dikken (1995:35) it is "an *ergative* small clause head, selecting another SC as its complement". The postverbal DP (*John*) is base generated in the subject position of the lower SC and moves to the empty Spec-position of SC$_1$ for case reasons. Case assigning in this position is by the governing verb. I will not discuss complex constructions such as these any further here, so I will not outline den Dikken's analysis in any more detail. I refer the reader to his book for supporting evidence for his analysis. Some of his arguments for the assumption of a SC construction have already been given above. However, there is one point I want to mention with regard to the unaccusativity of particles and the resulting structures assumed by Guéron (1990) and den Dikken (1995). Svenonius (1994:Ch. 3) and Andrew McIntyre (p.c.) pointed out that such an analysis does not conform to Baker's (1988) *Uniformity of Theta Assignment Hypothesis* (UTAH), which states that "[i]dentical thematic relationships between items are represented by identical structural relationships between those items at the level of D-structure" (Baker 1988:46). Notice that den Dikken (1995:21) aims "for the strongest possible formulation of UTAH", which he formulates as in (42).

(42)   *The Strongest Uniformity of Theta Assignment Hypothesis*
                                            (from den Dikken 1995:22)
        Identical thematic relationships are assigned in identical D-structure configurations within and across languages.

The idea behind Svenonius' and McIntyre's objection is the following. Typically, prepositions denote spatial relations that hold between a certain entity (theme; also called *figure*) and a certain reference object (source/goal/place/time; also called *ground*). Svenonius (1996a) gives the examples in (43) in order to illustrate this relation.

(43) a. The cat is in the bag.
      b. Terese studies in Copenhagen.

(44) a. She pulled the sticker off. / She pulled off the sticker.
      b. She pulled the sticker off the wall.

In (43a) and (b), the relation holds between the subject of the sentence (or, following some version of the predicate internal subject hypothesis, the subject of the preposition) and the complement of the preposition: the preposition *in* denotes the relation that holds between *the cat* and *the bag*, or between *Terese* and *Copenhagen*. In an example such as (44), Svenonius and McIntyre argue, the relation that *off* denotes holds between the postverbal DP (*the sticker*) and the post-prepositional DP (*the wall*) (cf. (44b)). According to the original version of the UTAH and den Dikken's stronger version in (42), the relationship between *off* and *the wall* and between *off* and *the sticker* should be the same as for the corresponding elements in (43a) and (b). To put it more precisely, *the sticker* should start as a subject to *off*, *the wall* as a complement. This is guaranteed in the structure suggested by Svenonius, which I will introduce below, but is not in structures where the particle (as a preposition) is assumed to be unaccusative. For illustration, the sentences in (44a) are translated into a structure with an unaccusative preposition in (45).

(45) a. She pulled $_{SC}$[*Spec* off [the sticker]]
      b. She pulled $_{SC}$[the sticker$_i$ [off t$_i$]]

Here, the DP that is the thematic subject to the preposition (*the sticker*), starts as its complement. The thematic object (*the wall* in (44b)) is not realised and, as it cannot be generated in object position, there is no obvious position for it in the structure.

A related point concerning the UTAH has been made by Baker (1997:647). He notes that in the simple pair of sentences given in (46), *the ball* would be generated as the complement to the verb *threw* in (46a), but as a complement to the particle *down* in (46b) in den Dikken's account, despite the fact that *the ball* seems to have the same θ-role (Theme) in both sentences.

(46) a. John threw the ball.
      b. John threw the ball down.

An analysis for PV constructions involving unaccusativity as suggested by Guéron (1990) and den Dikken (1995) thus cannot be maintained.

Svenonius (1996a, b) follows Kayne (1985) in assuming a SC structure for PV constructions, where the particle is the predicate of a SC complement to the verb. Svenonius is concerned with what he calls "the most common type" (1996a: 3), namely PV's that are based on spatial/directional prepositional relations, such as the examples in (47) and (48), where the complement of the preposition can or cannot be expressed.[6]

(47) a. This hat doesn't stay on (my head).
      b. The doctor is out (of his office).

(48) a. The doorman threw the drunks out (of the bar).
      b. The fire-fighters hoisted the equipment up (the side of the building).

Svenonius argues that constructions of the form in (48) are typical PV constructions in that they are essentially causative or resultative and mean something like Subject *cause* Object *go* Particle *by means of* Verb (e.g.: *The fire-fighters caused the equipment to go up by hoisting it*).[7] When the complement to the preposition is not expressed, the construction can occur in the continuous order:

(49) a. The doorman threw out the drunks.
      b. *The doorman threw out of the bar the drunks.
      c. *The doorman threw out the drunks of the bar.

Svenonius (1996a) assumes the SC structure in (50) for the examples in (48). The SC structure, he argues, is a direct reflection of the meaning of the resultative construction, in which the postverbal NP acquires the property denoted by the particle, in the syntax.

(50) a. The doorman threw $_{SC}$[the drunks [out (of the bar)]].
      b. The fire-fighters hoisted $_{SC}$[the equipment [up (the side of the building)]].

The SC consists of a subject and a predicate, the subject being the postverbal DP, the predicate being the particle plus its complement, where the complement is overtly realised. Before introducing the exact syntactic structure of the SC according to Svenonius, let me show how he accounts for the fact that the so-called complement of the particle may or may not be realised. Hale and Keyser (1993: 54f.) suggest that certain intransitive verbs, such as *dance*, involve incorporation of an underlying direct object. The verb originates in a construction where a dummy light verb governs a NP, out of which the head

noun moves and adjoins to the verb. Svenonius extends this suggestion and proposes for a verb such as *eat* that it, when used intransitively, incorporates a dummy object. In the case of *dance* the surface form reflects the underlying object, in the case of *eat* the underlying verb is reflected. He further argues that similar underlying relations are found with prepositions. The expression *home*, he suggests, is parallel to the *dance* type in that it originates from an underlying dummy P taking a NP complement headed by *home* which adjoins to P. Cases such as *out* in *The doctor is out* or *He threw the drunks out* is parallel to the *eat* type of verb in that there is a dummy nominal complement to *out* that incorporates into the preposition.

With regard to the exact structure of the SC in (50) above, Svenonius follows Hornstein & Lightfoot (1987) in their assumption that every SC contains a functional head (cf. also Hoekstra 1992:147). Moreover, the postverbal argument is argued to be base-generated as external argument within the projection of the particle, which results in the structure shown in (51) (FP being the functional projection; in Svenonius 1996b the functional projection is PredP).

(51) a.   The doorman threw $_{FP}$[F $_{PP}$[the drunks [out]]].
      b.   The fire-fighters hoisted $_{FP}$[F $_{PP}$[the equipment [up]]].

Svenonius assumes that the *Extended Projection Principle* (EPP) operates in these SC constructions and that the strong feature being responsible for the EPP, namely the categorial N feature, is present in the F head. Therefore, overt movement of a nominal element to FP is obligatory before Spell-Out. In (52), the DP has raised to Spec-FP.

(52)   The doorman threw $_{FP}$[the drunks$_i$ F $_{PP}$[t$_i$ [out]]].

Now consider the derivation of the continuous order in (53). The particle undergoes head movement to F, thereby satisfying the EPP and obviating the necessity for a DP to move to Spec-FP.

(53)   The doorman threw $_{FP}$[out$_i$ $_{PP}$[the drunks [t$_i$]]].

This (head-movement) operation requires the particle to have no complement (cf. (49b)): **The doorman threw out of the bar the drunks*). Svenonius argues that this is due to the fact that only if the dummy nominal object incorporates into the particle, the particle has nominal properties and can thus check the nominal feature in F. The particle cannot inherit the nominal features in cases where the nominal object is overt. Therefore, the particle cannot move to F and check the nominal feature in F in these cases.[8] Now, why do other nominal predicates not shift (cf. the ungrammaticality of the examples in (54))?

(54) a.   The club elected {*president} John {president}.
      b.   The bandits made {*dance} the cowboy {dance}.

Svenonius argues that this is due to the fact that particles, but not other pred-
icates are l-selected by the verb in the sense of Pesetsky (1995: 135), and that
l-selection is a further requirement for head-movement of the predicate. Fur-
thermore, the particle incorporates into the verb at LF for semantic reasons.

As opposed to Svenonius, I am not so certain whether Pesetsky's notion of
l-selection is the right concept to use in connection with a large group of PV's.
Notice that according to Pesetsky (1995: 135), l-selection "is a special case of
idiomaticity. Under l-selection, as in an idiom, a predicate receives an inter-
pretation only if in construction with a designated element, as a consequence
of an unpredictable lexical specification". This, of course, is true for idiomatic
PV constructions. But it should not be so clear with compositional PV's, i.e.
with the type of PV constructions that Svenonius bases his analysis on. Con-
sider Svenonius' examples for spatial prepositional relations in (55a) and (b),
compared with the PV examples in (55c) and (d).

(55) a.   Marion gazed out the window.
      b.   The doctor is out (of his office).
      c.   The doorman threw the drunks out (of the bar).
      d.   The doctor threw the drunks out (of his office).

It seems to me that *out* has equal meaning in all these examples. It denotes a
spatial relation. Remember that in Svenonius' discussion, this relation serves
as an argument for the SC analysis. *Out* in (55c) and (d) seems thus not to be
particularly selected by the verbal head as this is the case in idiomatic expres-
sions, or otherwise we would have to assume that *gaze* l-selects *out* in (55a),
too, which does not seem to be a reasonable assumption. Therefore, if under
l-selection a predicate receives an interpretation that it only receives in this
special relation with the selecting head, then there seems to be no independent
need to l-mark particles in compositional PV constructions. The meaning of
out in (55c) and (d) is not unpredictable. But remember that the process of
l-selection is a necessary condition for "particle shift", as Svenonius puts it. In
other words, without assuming that the particle gets l-selected by the verb, the
derivation of the continuous order crashes. In my opinion, this seems to be a
serious problem of Svenonius' analysis.

In a recent approach, Kayne (1998), referring to his 1985 article, considers
particles "a subtype of small clause predicate" (1998: 137). The examples given
in (56), he argues, have parallel underlying structures, which are represented
in (57). In (56a), the adjective *smart* heads the SC that is complement to the

verb *considers*, *no linguist* is the SC subject. In (56b), the particle is the head of the SC, taking the DP *no strangers* as its subject.

(56) a. John considers no linguist smart.
      b. John invited no strangers in.
          (compare: John invited in no strangers.)

(57) a. John $_{VP}$[considers $_{SC}$[no linguist smart]]
      b. John $_{VP}$[invited $_{SC}$[no strangers in]]

With regard to the underlying structure, there is no obvious difference to Kayne's older (1985) suggestion. Now consider how Kayne (1998) derives the discontinuous and the continuous surface structures. The derivation of the continuous order is given in (58). Negative object phrases in English, such as *no strangers*, he argues (1998: 132ff.) on independent grounds, must move overtly to Spec-NegP, NegP dominating VP (58a).[9] The next step is preposing of the whole VP (58b), including the trace of the negative DP (examples (58) and (59) taken from Kayne 1998: 136, my bracketing).

(58) John $_{VP}$[invited $_{SC}$[no strangers in]]

      a. *Negative phrase preposing*
          John $_{NegP}$[no strangers$_i$ $_{VP}$[invited $_{SC}$[t$_i$ in]]]
      b. *VP-preposing*
          John [$_{VP}$[invited $_{SC}$[t$_i$ in]]$_k$ $_{NegP}$[no strangers$_i$ t$_k$]]

In order to derive the discontinuous construction, an additional movement operation is necessary that removes the particle from the VP and thus allows it to appear in the final position after VP-preposing. Following Zwart (1994) among others in his analysis of SC predicates in Dutch, Kayne (1998: 136) suggests that this movement operation is particle preposing to the Spec-position of an additional projection in the functional domain, positioned between NegP and VP: the *Predicate Phrase* (PredP). According to Zwart (1994), PredP is an additional functional projection, next to AgrOP, which serves to license embedded (SC-) predicates.[10] Now consider the derivation of the discontinuous order of the PV construction in (59). First, the particle is preposed to Spec-PredP (59a). The next step is preposing of the negative DP to Spec-NegP (59b). Then, the whole VP is preposed to a position preceding NegP (59c), without carrying along the particle which has been moved out of the VP in step (a).

(59) John $_{VP}$[invited $_{SC}$[no strangers in]]

      a. *Particle preposing*
          John $_{PredP}$[in$_m$ $_{VP}$[invited $_{SC}$[no strangers t$_m$]]]

b. *Negative phrase preposing*
John $_{NegP}$[no strangers$_i$ $_{PredP}$[in$_m$ $_{VP}$[invited $_{SC}$[t$_i$ t$_m$]]]

c. *VP-preposing*
John [$_{VP}$[invited $_{SC}$[t$_i$ t$_m$]]$_k$ $_{NegP}$[no strangers$_i$ $_{PredP}$[in$_m$ t$_k$]]]

One obvious question to ask is what the landing site of the VP-preposing is. Kayne (1998:150) suggests an abstract head W in the functional domain, which incorporates a feature +w ("mnemonic for 'word order'") and projects WP. VP-preposing is to Spec-WP. I do not want to go into much detail about the VP syntax that Kayne suggests in his 1998 article.[11] The main point of interest here is that with regard to PV constructions, he basically suggests the same under-lying order as in his 1985 article, but then assumes movement operations to derive the two possible word orders that are distinct from what he suggested earlier. (Remember that Kayne 1985 suggested NP-adjunction to the SC to de-rive the continuous order.) As the underlying structure is still of the form $_{VP}$[V $_{SC}$[Part DP]], the same objections hold that have been mentioned above. To these, I would like to add the following points.

Note that according to Zwart (1994), overt predicate raising to Spec-PredP is obligatory in Dutch, i.e. the feature incorporated by the functional head is strong, it must be checked in the overt syntax. According to Kayne's analysis, this is equally true for adjective SC's in English. The derivation of the surface order of the adjective SC in (56a) and (57a) above (*John considers no linguist smart*) is intended to follow the same steps as the derivation of the discontin-uous PV construction, with *predicate* (i.e. *adjective*) *raising* instead of particle raising as the first step (Kayne 1998:137). Since there is no adjectival equivalent to the continuous PV construction (*John considers smart no linguist*), predi-cate raising must be obligatory with adjectival small clauses. Now, if adjectival SC's and PV constructions behave alike, then why is predicate raising obliga-tory in one case, namely adjectival SC's, but optional in the other? And, in the case of PV constructions, what determines the choice of the word order, i.e. what determines whether particle raising takes place, or not. We would have to assume that only in the case of PV constructions (but not in the case of other SC constructions) is it possible to select Pred^0 with either a strong or a weak feature, depending on which order is going to be derived. The factors that de-termine this choice remain open. Furthermore, since the derivation without particle preposing, which is the derivation of the continuous order, converges, then why is it possible to derive the discontinuous alternate at all? For the adjec-tival cases, we could put it the other way round and ask the following question. If predicate raising is optional in English, as appears to be the case with PV

constructions, then why does the derivation of the adjectival counterpart to the continuous PV construction (*John considers smart no linguist*), crash? The derivation of the continuous order is, after all, even more economical, since it involves one step less than the derivation of the discontinuous alternate, which is the only grammatical order for adjectival SC's.[12]

Before I proceed to a different kind of analysis for PV constructions in English, namely the *extended-VP-analysis*, let me add some general comments on the SC approach. I have already shown at the beginning of the section some of the problems that are raised by the arguments provided in favour of the SC analysis. I have also shown shortcomings of the individual analyses I have outlined. However, there are more points to be made. The first point is concerned with the underlying structure of PV constructions. The SC analyses suggest that the discontinuous rather than the continuous order is the underlying one. However, I will show in Chapter 3 below that this is not true. This objection is supported not only by syntactic tests, but also, and perhaps more importantly, by experimental studies which show that it is indeed the continuous order that is the neutral and underlying one (cf. also Hunter & Prideaux 1983; Dehé 2001a; and Section 3.5 of this book). Now, if the continuous order is derived from the discontinuous alternate through syntactic operations, as the SC analyses suggest, one would expect the discontinuous order to be underlying, which is not the case. Therefore, one might argue that the class of SC analyses lacks intuitive appeal. This point has also been brought up as an argument against the SC approaches to PV constructions by Nicol (1999). Nicol argues that from the behaviour of PV's in contexts such as nominalisation, wh-extraction, *too*-insertion, and complement selection, where the discontinuous order is more restricted than the continuous one, it follows that the continuous (or in his terms the *merged*) construction must be the unmarked, the discontinuous (or *split*) order the marked one.

An empirical problem for the SC analysis of PV constructions that has been brought up by Booij (1990: 56) in his approach to PV's in Dutch is that the SC analysis can only account for transitive and complex PV constructions, but is impossible for intransitive PV's, since for the latter, the SC would lack a subject. Compare the examples in (60).

(60) a.   The dogs played (*DP) around.:   play $_{SC}$[? around]
      b.   The player kicked (*DP) off.:   kick $_{SC}$[? off]
      c.   She grew (*DP) up in L.A.:   grow $_{SC}$[? up]

Under the assumption that particles are heads / predicates of SC's in the syntax, what are particles in intransitive SC constructions?

Another problem for the SC-analysis results from co-ordination facts. Recall that den Dikken (1995: 43), uses the example in (22) above, repeated here as (61), as an argument for the constituency and SC-status of the DP + particle string. I have shown in (24) above, repeated here as (62), that co-ordination is not possible with the continuous PV construction.

(61) Turn the oxygen off with your knee, and [the acetylene on] with your elbow.

(62) a.   *Gary looked up Sam's number, and Mary ?[up my number].
      b.   *Turn off the oxygen and ?[on the acetylene].

But now consider the (selected) analyses as suggested by Kayne (1985, 1998) and Svenonius (1996a) for the (derived) continuous order, summarised in (63) through (65).

(63) *SC analysis, continuous order, Kayne (1985)*:
      … V $_{SC}$[[e]$_i$ Part] NP$_i$

(64) *SC analysis, continuous order, Kayne (1998)*:
      John [$_{VP}$[invited $_{SC}$[t$_i$ in]]$_k$ $_{NegP}$[no strangers$_i$ t$_k$]]

(65) *SC analysis, continuous order, Svenonius (1996a)*
      The doorman threw $_{FP}$[out$_i$ $_{PP}$[the drunks [t$_i$]]].

The particle and postverbal DP in the continuous order form a constituent in all these analyses, namely a SC-complement to the verb (FP as the functional projection involved with the SC in Svenonius' approach). Syntactic movement operations take place within the (functional domain of the) SC. So, if the string particle + DP / DP + particle forms a constituent both in the discontinuous and the continuous construction, then it remains unclear to me how the SC-analysis can account for the ungrammaticality of (62).

Pesetsky (1995: 160f.) notes another problem with co-ordination as motivation for SC-like constituency for the sequence *Theme-predicate-Goal*, as it is postulated e.g. by Svenonius (1996a, b) and others. Pesetsky (1995: 160) argues that assuming a SC constituent for such a sequence in the syntax motivates similar constituencies "for sequences whose elements cannot be related by any plausible small clause semantics". He (1995: 161) gives the examples in (66)

among others, arguing that there is no "plausible interpretation" of the bracketed constituents in which some predicate links *a record* with *on Thursday* in (66a), although there is a similar thematic relationship between the two as can be found between the participants in a typical SC.

(66)   a.   Mary bought [a book on Friday] and [a record on Thursday].
       b.   John gave Bill [money in Boston] and [supplies in New York].

Another point that I would like to bring up as an objection against the SC analysis of PV constructions is concerned with binding. Anaphors must be bound and pronouns must be free within a local domain that is frequently called *governing category* (GC). The corresponding conditions on binding are given in (67) (taken from Chomsky 1995: 100). Chomsky (1995: 102) defines a GC as in (68):

(67)   A: If α is an anaphor, interpret it as co-referential with a c-commanding phrase in D.
       B: If α is a pronoun, interpret it as disjoint from every c-commanding phrase in D.
       [where D is the relevant local domain, i.e. the GC; N.D.]

(68)   The GC for α is the minimal CFC that contains α and a governor of α and in which α's binding condition could, in principle, be satisfied.

A *complete functional complex* (CFC) is "a projection containing all grammatical functions compatible with its head". Now consider the typical SC's in (69). They obviously form a CFC and are thus opaque for anaphor binding from outside (cf. Pesetsky 1995: 159; examples in (69) taken from his discussion; my bracketing).

(69)   a.   *Sue considered $_{SC}$[Bill angry at herself].
       b.   *The boys$_i$ made $_{SC}$[the girls fond of each other$_i$].

(70)   a.   Sue considered $_{SC}$[Bill angry at her].
       b.   The boys$_i$ made $_{SC}$[the girls fond of them$_i$].

The anaphors *herself* in (69a) and *each other* in (69b) cannot be bound from outside the SC by *Sue* or *The boys*, respectively. The SC serves as a CFC which provides a potential anaphor binder, namely the subject of the SC (*Bill* in (69a), *the girls* in (69b)). Due to the lack of agreement in gender, *herself* cannot be bound by *Bill*, *each other* cannot be bound by *the girls*. The ungrammaticality of the sentences in (69) is thus due to a violation of principle A in (67). The anaphors *herself* and *each other* are not co-referential with a c-commanding phrase within their GC, the SC. The sentences in (70) are correct according to

principle B. The pronouns *her* and *them* are disjoint from the c-commanding phrase (*Bill* and *the girls*, respectively) within their GC, the SC. Now consider the PV examples in (71) through (73).

(71) a.   John$_i$ invited $_?$[strangers in to himself$_i$]
     b.   *John$_i$ invited $_?$[strangers in to him$_i$]

(72) a.   The fire-fighters$_i$ pulled $_?$[the equipment up to themselves$_i$]
     b.   *The fire-fighters$_i$ pulled $_?$[the equipment up to them$_i$]

(73) a.   She$_i$ pulled $_?$[the sticker off (of) herself$_i$]
     b.   *She$_i$ pulled $_?$[the sticker off (of) her$_i$]

If the PV constructions were typical SC's, we would expect the a) examples in (71) through (73) to behave in the same way as the SC's in (69) above, i.e. we would expect the bracketed constituents to be CFC's and hence opaque for anaphor binding. Apparently, this is not the case. Here, the anaphors *himself*, *themselves* and *herself* can obviously be bound by the subjects of the corresponding matrix clause without yielding ungrammaticality. Since anaphors must be co-referential with a c-commanding phrase within their GC, we have to conclude that the matrix clause, but not the bracketed string, is the GC for the anaphors in (71) through (73). The DP-subjects within the so-called SC's (*the strangers*, *the equipment*, *the sticker*) obviously do not count as potential anaphor binders. As opposed to this, the use of the pronouns in the (b) examples is ungrammatical, which is due to a violation of principle B in (67) above. The GC for the binding of the pronouns is the matrix clause. Pronouns must be disjoint from a c-commanding phrase within their GC. However, the pronouns are co-referential with the subjects of the corresponding matrix clauses, thus yielding ungrammaticality. (A slight deviance of the (a) sentences in (71) through (73) might be due to semantic anomaly, but note that the (b) examples are worse without doubt, so that it cannot be the use of the reflexive that results in the slight deviance.)

I therefore conclude that, besides the problems resulting from the co-ordination facts and the lack of intuitive appeal, PV constructions differ from typical SC's with respect to binding and their CFC status and that they should thus not be analysed as SC's. On the grounds of the argumentation provided above I reject the SC analysis for PV constructions in English.

3.   Extended-VP-analyses

The term *extended-VP-analyses* (EVPA) refers to those analyses where the particle verb is assumed to be part of a single extended VP without a SC being involved. It has been argued in the literature at least since Larson's (1988) VP-shell-hypothesis that it is necessary to split the VP up into a number of projections, including the projection of the light verb v and an additional functional projection positioned between vP and VP, leading to the so called split-VP-assumption (Koizumi 1993; Kratzer 1996; Harley & Noyer 1998 among others). There have been a number of different suggestions in the literature with regard to the proposed category of the functional projection, some of which consider AgrO. Most of the EVPA's outlined here also involve overt object movement and overt verb movement within the extended VP. The object raises to the specifier of the functional projection to have its case features checked, the lexical verb raises to the functional head, then to the v head. Radford (1997: 431ff.) summarises the main points that have led to the assumption of these overt movement operations within the VP in English: Moving the complement-DP overtly within the extended VP provides a unified account of case and agreement checking, in which all case and agreement features are checked under a specifier-head relation. As nominative subject DP's raise to the specifier of AgrS to check the relevant features under spec-head-agreement with $AgrS^0$, object DP's raise to the specifier of AgrO to check their features in the corresponding Spec-head relation. Case features in English in general are assumed to be strong which accounts for both overt subject and overt object movement. All case features are then checked within agreement phrases (or corresponding functional projections), the head checking its features against those of its specifier. There are of course more arguments in support of overt object and verb movement than those given by Radford (1997). Cf. e.g. Lasnik (1995, 1999a, b). I will come back to the structure of VP and the overt movement operations involved in Chapter 5.1 below. I will now introduce selected analyses that have been proposed in the generative literature. Within the group of EVPA's I will distinguish between analyses where the particle verb is generated as one complex head and those where two separate heads within the VP are assumed.

3.1 Particle and verb as separate heads

The underlying idea for assuming that the verb and the particle are two separate heads in the syntax that both project their own phrases is one that has also been used to support the SC-analysis, namely that the particle can be ac-

companied by an adverbial modifier (*right* and *straight* have been mentioned in particular) in the discontinuous order so that a syntactic position within the projection of the particle is needed for the modifying element.

Radford (1997:373ff.) assumes without further argumentation that the (non-projecting) particle is a complement to the verb as indicated in (74) below. The particle can optionally adjoin to the verb (cf. (75)) in order to make movement of the complex verb possible or it can remain in its base position.

(74) $_{V'}$[$_V$ close $_P$ down]

(75) $_{V'}$ [$_V$ [$_V$ close $_P$ down$_i$] t$_i$]

The analysis further outlined in Radford (1997:436ff.) assumes that AgrOP is positioned between *v*P and VP. Three possible orders (including adverb placement) are dealt with. They are given in (76). (76a) and (b) represent the discontinuous order, (76c) represents the continuous order.

(76)   a.   He poured the whiskey slowly out.
         b.   He poured the whiskey out slowly.
         c.   He poured out the whiskey slowly.

The corresponding syntactic structure for the discontinuous PV construction in (76a) is given in (77) below.

(77)   He poured the whiskey slowly out.
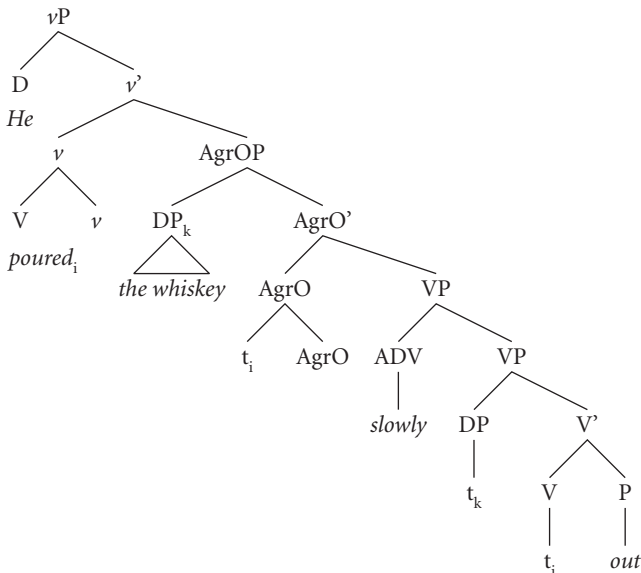
The verb raises overtly and adjoins to AgrO^0 and subsequently to the light v head, stranding the particle in its base position. Overt object movement is to Spec-AgrOP. To derive the discontinuous order in (76b) (*He poured the whiskey out slowly*), the particle adjoins to the verb as indicated in (75) above, the complex verb moves to AgrO^0, then the verb excorporates out of the complex head and moves further up to adjoin to v, leaving the particle stranded under the functional head. To derive the continuous surface order in (76c) (*He poured out the whiskey slowly*), the particle adjoins to the verb and pied-pipes along with it all the way up to v.

Harley & Noyer (1998) suggest a VP-shell-analysis of the form given in (78) for the discontinuous construction, and in (79) for the continuous order.

(78)   Discontinuous construction (cf. Harley & Noyer 1998: 146)
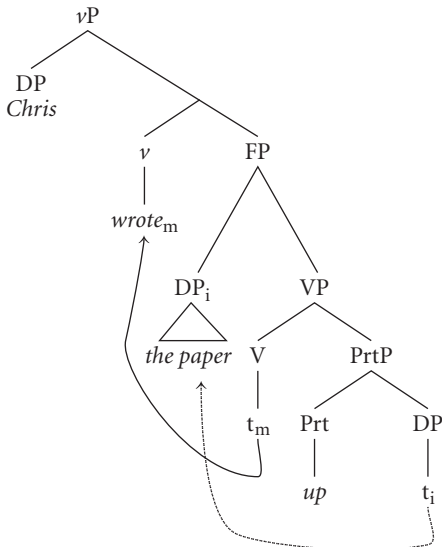
(79)   Continuous construction (cf. Harley & Noyer 1998: 146)
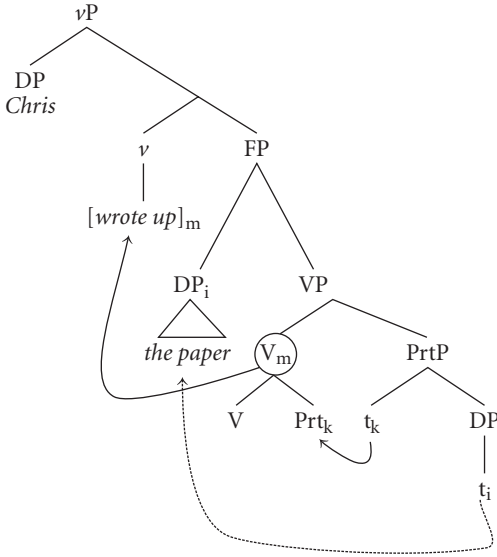
FP is a functional projection which provides a position for structural case checking. According to Harley & Noyer, accusative-marked objects in English must raise from their base position – complement of the verb – in the overt syntax to appear in the FP-Spec-position in order to receive case. The corresponding movement process is overt object shift. The (simplex) verb selects a PrtP headed by the particle, which in turn selects the nominal object as its complement. The PrtP is generated as sister to the verbal head. The presence of PrtP as a projection of the particle accounts for the fact that modification by *right* and *straight* is possible with the discontinuous construction. The continuous construction (cf. (79)) is derived by particle shift. The particle cliticises to the verb via head-movement (incorporation), then it moves along with the verb to *v*. The object follows the entire moved verb + particle complex. In this order, the particle's incorporation into the verb accounts for the fact that modification is not possible (**Chris turned right off the light*). To derive the discontinuous order (cf. (78)), the verb moves from its position in the lower VP, leaving the particle behind. The object moves around the particle to Spec-FP, where it checks case. In the discontinuous construction no adverbs are possible between the verb and the object (**Chris wrote completely the paper up*) under the assumption that FP as a functional category is not a legitimate adjunction site for adverbs, since it does not contain the relevant semantic content.

I consider it a shortcoming of this analysis that the verb takes as its complement the PrtP with the particle as the head and the object DP as complement to the particle. Such an analysis wrongly suggests that the string [Prt DP] is a constituent at some basic point in the derivation, similar to what has been proposed in the SC analyses. Harley & Noyer (1998: 147) argue that co-ordination facts such as those given in (80) can be accounted for by their suggestion. Notice that this is the example which has also been provided by den Dikken (1995: 43) in favour of the SC-analysis. (Cf. the discussion of example (22) in Section 2.2 above.)

(80) a.   Chris turned the oxygen on and the acetylene off.
       b.   *Chris turned on the oxygen and off the acetylene.

In (80a), Harley & Noyer argue, object + particle are co-ordinated as phrasal categories, which is possible because the particle is stranded. Both object and particle are therefore dominated by one FP (compare (78)) and can thus freely be co-ordinated with another FP. In (80b), on the other hand, the particle has incorporated into the verb and pied-piped along with the verb to v. It is therefore not within the same FP that dominates the object (compare (79)). Consequently, the string particle + object cannot be co-ordinated with a similar string. However, that the particle and the DP are within one functional projection at some stage in the derivation (after overt movement processes have taken place) does not necessarily mean that they form a constituent in the underlying structure. Consider the structure suggested by Radford (1997), given in (77) above. Here, the particle and the object do not start as a constituent, but end up within one projection, namely AgrOP, in the overt syntax. It follows from this that co-ordination facts do not sufficiently motivate an analysis where the DP is base-generated as a complement to the particle. It is also unclear to me whether Harley & Noyer assume that there is a θ-assigning relation between the particle and the DP such that the DP receives its θ-role from the particle and/or whether the verb assigns a θ-role to its complement PrtP which would then have a SC-like status. Furthermore, it remains unclear how the choice of the word order is motivated, or, to be more precise, the question is what triggers incorporation of the particle into the verbal head or non-incorporation and stranding of the particle.

Nicol (2002 and earlier work) assumes a VP-shell-structure along the lines of (81), where w and x are additional light heads. The w head expresses directional / possessional content, x is meant to express resultative / stative aspect.

(81) ... $_{vP}$[subject v $_{wP}$[w $_{xP}$[x $_{VP}$[DO V]]]]

The particle is inserted under the light head *w*. It is accompanied by a formal checking feature which is either nominal ([+N]) or verbal ([+V]). Consequently, particles are considered to be alternatively nominal or verbal.[13] According to the category of the feature it bears, the particle (or *w* head) triggers either movement of the verbal head to *w*, or DP-movement to Spec-*w*P, resulting in the derivation of the continuous or discontinuous construction, respectively. The corresponding structures are given in (82) and (83) below.

(82)   Continuous construction (cf. Nicol 1999, 2000, 2002)
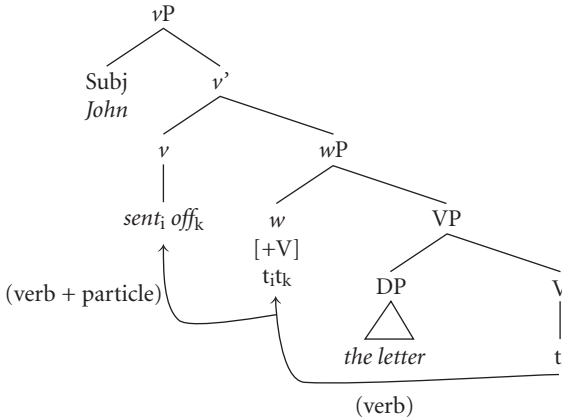
The continuous construction, Nicol (1999, 2000) argues, is the unmarked one due to the fact that it is less restricted in certain syntactic surroundings, such as wh-extraction and nominalisation. The particle is inserted under *w* with the verbal feature. V moves to *w* to check the verbal feature which is then erased. The particle incorporates into the verb and the V-particle complex then raises on to *v*.

(83)   Discontinuous construction (cf. Nicol 1999, 2000, 2002)

```
                    vP
                  /    \
              Subj      v'
              John    /    \
                    v        wP
                    |      /    \
                  sent_i  Spec    w'
                         /  \    /  \
                    the letter_k  w    VP
                              [+N]  /  \
                               off DP    V
                                   |     |
                                   t_k   t_i
```
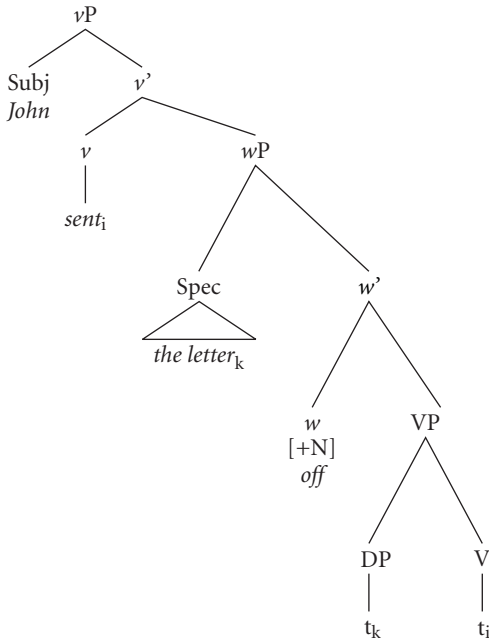
The discontinuous construction is the marked one. The particle is inserted with the nominal feature. The nominal object moves to Spec-*w*P to check the categorial feature which is then erased. V raises to *v* in one step, without landing at *w* since there is no verbal feature to be checked. The particle does not move but remains in its base position *w*. With respect to modification, Nicol (2002) assumes that "[s]uch particle modifiers as *right* adjoin to the particle itself", a suggestion that seems to solve the problems with this element: modification in the continuous order is impossible (**He sent right off the letter*) because lexical material blocks the adjunction of the adverb to the particle in (82). In the discontinuous order, adjunction to the particle is possible, since there is no need for the verb to adjoin to it.[14] Nicol further argues that other modifiers, which are "less category-specific", as he puts it, are ungrammatical with both the continuous and the discontinuous order (Nicol's example given in (84) below).

(84)   a.   *John figured *carefully* out the problem.
       b.   *John figured the problem *carefully* out.

Nicol puts this down to the fact that these modifiers adjoin to maximal projections, which is impossible in both constructions. Grammaticality judgements

of the kind indicated in (84) have been confirmed by native speakers in my own research. Compare the data in (85) for the continuous construction and in (86) for the discontinuous order.[15]

(85) a. *We'll get inside this trunk and take quickly out your dresses.
     b. *She took curiously up the handout.
     c. *They have brought gently up their children.
     d. *They gave finally up those useless plans.
     e. *They called finally off the strike.
     f. *They kept the economy alive by carrying regularly out manufactured goods.

(86) a. *We'll get inside this trunk and take your dresses quickly out.
     b. *She took the handout curiously up.
     c. *They have brought their children gently up.
     d. *They gave those useless plans finally up.
     e. *They called the strike finally off.
     f. *They kept the economy alive by carrying manufactured goods regularly out.

However, there is more to particle modification than the simple assumption that modification in the discontinuous order is possible with *right*, but not with other elements. Modification is certainly possible with *all* in the examples in (87) (taken from Fraser 1976: 26).

(87) a. They cleaned it *all* up.
     b. The housewife dusted them *all* off.

Fraser argues that *all* in these examples comes with two possible readings. It can be interpreted as part of the pronominal object (*all of it*, *all of them*), in which case it would have to be analysed as part of the DP. On the other reading, *all* is interpreted as a verbal modifier, in the meaning of *completely* or *thoroughly*. On this latter reading, Nicol would have to assume that *all* behaves like *right* in that it adjoins to the particle. On the other reading, where *all* is part of the pronominal object, Nicol might run into problems with his analysis of the weak pronoun *it*. Nicol argues that *it*, since it occurs obligatorily in the discontinuous order, adjoins to *w*, checking a formal affix feature [aff] that *w* hosts. In this case, *w* is verbal, so that the pronoun incorporates into the complex PV, yielding the complex $_w$[*threw-it-up*] which subsequently moves to *v*.

Another element that modifies the particle is *clean* in (88), taken from Olsen (2000: 157). *Clean* would also have to be adjoined to the particle in Nicol's analysis.

(88)   He broke the handle *clean* off.

But note that it has been argued in the literature that modification of the particle (or the complex verb) is allowed in the discontinuous order with true adverbs like *quickly* and *entirely* in examples such as those in (89) (taken from Jackendoff 1997: 535f.).

(89)   a.   Dan slept the long afternoon *entirely* away.
      b.   Sue threw the paper *quickly* away.

It seems that Nicol cannot account for the grammaticality of these data, as there is no position in his analysis that could host the adverbs involved (other than equal adjunction to the particle). Moreover, modification by *right* is not always possible in the discontinuous order. Compare the examples in (90), borrowed from Olsen (1998b: 325).

(90)   a.   *He slept his hangover *right* off.
      b.   *A good player can fake his opponent *right* out.

There is one more problem with Nicol's analysis of *right*. This problem concerns the syntactic position of the modifier. Nicol argues that *right* is adjoined to the particle because it is a particle modifier. However, this does not necessarily seem to be the case.[16] Consider the examples in (91).

(91)   a.   Andrew looked the information *right* up.
      b.   Andrew looked the information up *right away*.

It appears that the sentence in (91a) is adequately paraphrased by (91b), which suggests that *right* in (91a) modifies the VP rather than the particle alone. *Right* should therefore have scope over the lower VP. However, if *right* is in adjunction position to the particle, it has scope only over the particle, but not the VP.

    The problem of modification of the particle (or the complex verb) seems to be more complex than Nicol's discussion suggests. Another, perhaps more serious problem with the analysis lies in the derivation of the discontinuous order. Nicol (p.c.) does not see a problem in that the movement of the verb in the derivation of the discontinuous order given in (83) is non-cyclic head-to-head movement and thus violates the *Head Movement Constraint* (HMC), which holds that a moved head can only move into the head position in the next-highest phrase immediately containing it in a single movement operation, i.e. the head cannot pass over the closest c-commanding head (cf. Travis 1984; Chomsky 1986a: 71; Chomsky 1995: 49f., 133f.).[17] Nicol (p.c.) argues that the HCM is somehow "old-fashioned" and need therefore not be part of a modern

analysis. Let me take a closer look at this claim. Chomsky (1995: 141f.) notes that "if the HMC is reducible to the ECP, then we can dismiss the HMC as a descriptive artifact, valid only insofar as it does in fact reduce to the ECP". The Empty Category Principle (ECP, in terms of Chomsky 1986b) states that traces must be properly governed, where proper government is by theta-government or antecedent-government. Chomsky (1995: 134) reduces the ECP to the property of antecedent government. One condition on government is (relativized) minimality (Chomsky 1986a: 42ff., 1995: 81f.). Consider the configuration in (92), taken from Chomsky (1995: 81).

(92) $\ldots \alpha \ldots \gamma \ldots \beta \ldots$
[α c-commands γ, γ c-commands β; N.D.]

Under (relativized) minimality, α cannot govern β if the intervening element γ is of the same "type" as α. If α is a head, it cannot govern β, if the intervening γ is a head, too. Now consider Nicol's derivation of the discontinuous order in (83) above. The trace t_i under V must be properly governed. Its antecedent is the verbal head $sent_i$ in its surface position under v. But according to the relativized minimality condition, $v[sent]$ cannot antecedent-govern $V[t_i]$, since $w[off]$ is an intervening head, thus violating the ECP. Now let us go one step further and suppose that the ECP is as "old-fashioned" as the HMC in Nicol's sense and suppose that it is reducible to the *shortest movement principle* and the *minimal link condition* (MLC) in the sense of Chomsky (1995). These principles favour shorter movement over longer ones, i.e. they favour the formation of movement chains with minimal links. The MLC requires that "at a given stage of a derivation, a longer link from α to K cannot be formed if there is a shorter legitimate link from β to K" (Chomsky 1995: 295). In more formal terms, the MLC is defined as in (93), where "close" is tentatively defined in terms of c-command and equidistance.[18]

(93)   *Minimal Link Condition (MLC), Chomsky (1995: 296)*
α can raise to target K only if there is no legitimate operation Move β targeting K, where β is closer to K.

A "legitimate operation" is one satisfying *Last Resort*:

(94)   *Last Resort, Chomsky (1995: 280)*
Move F raises F to target K only if F enters into a checking relation with a sublabel of K.

The MLC is then modified towards the notion of *Attract*. Instead of α raising to target K, K attracts the closest appropriate α:[19]

(95)   *Attract F, Chomsky (1995:297)*
        K *attracts* F if F is the closest feature that can enter into a checking relation
        with a sublabel of K.

Now reconsider Nicol's derivation of the discontinuous order in (83) above.
The movement of the verb fails to make the shortest move in that it skips one
head position, namely *w*. However, I guess that Nicol would argue that given
the definitions in (93) through (95), V moves directly to *v* (or: *v* attracts V, V
crossing *w*), because *w* is not an appropriate or legitimate head to enter into a
checking relation with *v* due to the nominal feature that enters the derivation
with *w*. This nominal feature cannot be checked by *v*. The question remains
whether there is independent evidence that the ECP reduces to *Attract F* in this
case of overt head movement.

   However, given this argumentation which would apparently justify Nicol's
claim that in more recent approaches crossing of a head position by V-
movement does not necessarily have to be a violation of a condition on move-
ment (or attraction), there is one other thing that remains unclear to me. This
point concerns the motivation for the alternation of the discontinuous and
the continuous word order. Remember that the choice of the word order in
Nicol's analysis is triggered by the categorial feature on the particle and that
this feature can be either nominal or verbal. Recall from footnote 13 Nicol's
argumentation that this feature alternation is empirically supported by the fact
that particles can be nominalised or made into verbs. Even if Nicol is correct in
this assumption, it still seems completely arbitrary to me, when and why one
of the features is selected over the other. The selection of the feature seems to
be exclusively motivated for reasons of word order. Nicol's argumentation is
therefore circular: the discontinuous order is derived if the particle (or the *w*
head) is inserted with the nominal feature, the particle bears the nominal fea-
ture if the discontinuous order is going to be derived – and correspondingly
for the continuous order. This means, it remains unclear, which independent
factor determines the choice of which categorial feature is selected, a solution
which I think is unattractive. Furthermore, Nicol's analysis suggests that the
particle is a functional rather than a lexical category, since it is inserted under
the additional functional light head *w*. I will argue in Section 2.4 below that
particles in PV constructions are not functional categories.

3.2 The PV as a complex head

We have seen in the previous section that some authors assume that the particle verb is inserted into the syntactic structure as two separate heads. In this section I will introduce structures suggested for PV's in English that analyse the PV as a complex verbal head. Johnson (1991:590) notes that the PV construction is "one of the few places in English syntax where it appears that individual words do not map onto single syntactic positions", but where parts of one word or lexical item can be split up by a nominal object. The idea that a PV is a single lexical item and thus a complex head in the syntax, Johnson argues, is supported by the following facts. First, PV's are able to undergo morphological processes, such as nominalisations (96), adjective formation (97) and formation of middle constructions (98) (examples taken from Johnson 1991:590f.). Consider also the adjectives (in italics) in the examples in (99) which are formed of underlying transitive PV's.[20]

(96) a. Mikey's *looking up* of the reference
      b. Their *calling out* of his name

(97) a. The dance seemed *called off*.
      b. The relationship seemed *broken up*.
      c. the *dusted off* table

(98) a. Bridges *blow up* easily.
      b. His car *breaks down* easily.

(99) a. And it was this love-hungry little girl that had been offered the *stored-up* affection of twenty-five years.   (E. H. Porter, *Pollyanna*: 165)
      b. It would have been better to have told a carefully *thought out* lie.[21]
      c. Looking through the *bent back* tulips to see how the other half lives.[22]

Second, the selectional requirements have been argued to support the assumption of the PV as a complex head. Those requirements are not derived from the selectional properties of their parts. Instead, PV's as complex units can select CP-complements ((100); cf. Johnson 1991:591) or idiosyncratic prepositional objects ((101); cf. Olsen 1997a:58).

(100) a. We can't *make out* CP[whether he is lying or not].
       b. *Fill in* CP[whether you are married or not].

(101) a. *let* someone *in* PP[on something]
       b. *fix* someone *up* PP[with something]

Thirdly, PV's behave like single verbs in gapping constructions involving co-ordination (cf. Johnson 1991:591f.). Johnson argues that the data in (102) show that the complex V head $_V$[V Part] undergoes verb raising. In both (102a) and (b) two VP's are co-ordinated, the latter of which missing its head. If the particle were an independent head in the syntax but not part of the complex verbal head, it should be possible to have the particle overtly realised in the co-ordinated VP.

(102) a. Betsy looked up the address quickly and (*up) the phone number slowly.
       b. Gary looked up Sam's number, and Mittie, (*up) my number.

Moreover, PV's in the continuous order can be co-ordinated with simplex verbs, which is another piece of evidence for their head status. Note that this is true for both compositional PV's ((103), examples taken from Bolinger 1971:167) and idiomatic PV's (104).

(103) a. I [brought out] and [aired] the flag.
       b. He [picked up] and [threw] the ball.

(104) a. She [made up] and [told] the story.
       b. She [brought up] and [spoiled] her children.
       c. She [put up] and [entertained] her friends.

Olsen (1997a:59f.) provides examples involving topicalisation in *though*-constructions in support of the complex head assumption. Topicalisation of the verb without the particle is deviant, whereas topicalisation of the complex verb is not (compare (105)).

(105) a. *Show off* his new car though he did, he still didn't impress them.
       b. ??*Show* his new car *off* though he did, he still didn't impress them.

After having given some of the arguments that have led linguists to assume that the PV is a complex head in the syntax, I will now introduce some of the analyses suggested in some more detail. Johnson's (1991) approach is a "pre-split-Infl-analysis", but, to my knowledge, the first detailed syntactic analysis of PV constructions that includes the complex head idea and assumes overt verb and object movement. Johnson's (1991:584) basic assumptions are that (1) specifiers of XP precede X', that (2) verbs always move out of the VP they head and that (3) accusative case-marked NP's move to Spec-VP. On the grounds of these assumptions, Johnson can account e.g. for the co-ordination data given in (106) in the way indicated by the bracketing. The example in (106b) requires the additional assumptions made by Johnson that the PV is a complex head in

the syntax and that this complex head undergoes verb raising. (Examples in (106) taken from Johnson 1991:584, 592).

(106) a. Chris ate$_i$ $_{VP}$[$_{VP}$[t$_i$ the meat slowly] and $_{VP}$[t$_i$ the vegetables quickly]].
      b. Betsy [looked up]$_i$ $_{VP}$[$_{VP}$[t$_i$ the address quickly and $_{VP}$[t$_i$ the phone number slowly]].

As a target position for overt verb movement Johnson (1991:585) introduces the functional category μ and its projection. μP is the projection responsible for objective case in all configurations. Pesetsky (1995:280) notes that μP "still has the status of speculation". However, it can be argued to be related to FP / AgrOP in more recent work on the topic (cf. Koizumi 1993; Radford 1997; Harley & Noyer 1998; Lasnik 1999a, b among others), an idea that is already present in Johnson (1991:611, 628). Now consider the underlying structure that Johnson suggests for PV's in English as given in (107) below.

(107) Underlying structure (Johnson 1991:600)
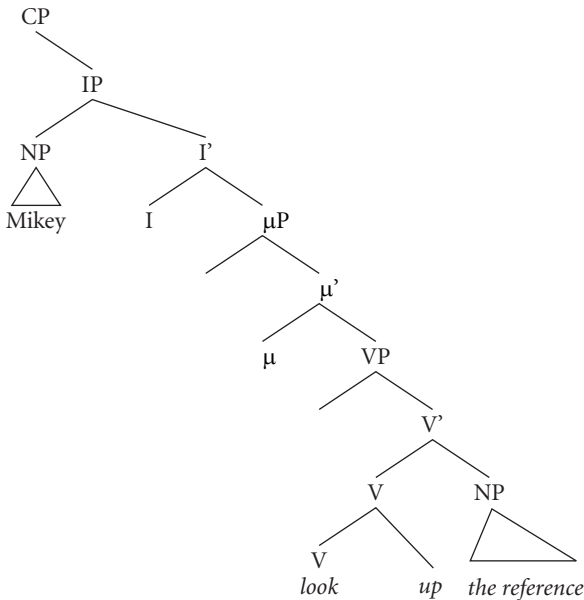
The PV is inserted as a complex head under V. In the course of the derivation, one option is raising of the complex head $_V$[V Part] to μ. Another option in the syntax is separation of the particle from the complex PV and raising of the verb alone to the functional head.[23] Johnson (1991:602ff.) further assumes that it is overt head movement to the Tense head (TP dominating μP) that separates the

verb and the particle. The verb adjoins to inflectional morphology, but since it is the verb that is inflected but not the particle (*looked up* vs. **look up-ed*) the verb raises alone. Since the particle can optionally accompany the verb to the μ head or remain in its base position, there must be an independent operation that is responsible for bringing the object-NP between the verb and the particle. Johnson (1991:604ff.) argues that this operation equals *object shift*, a process that relocates object-NP's in the Scandinavian languages. Both object shift and preposin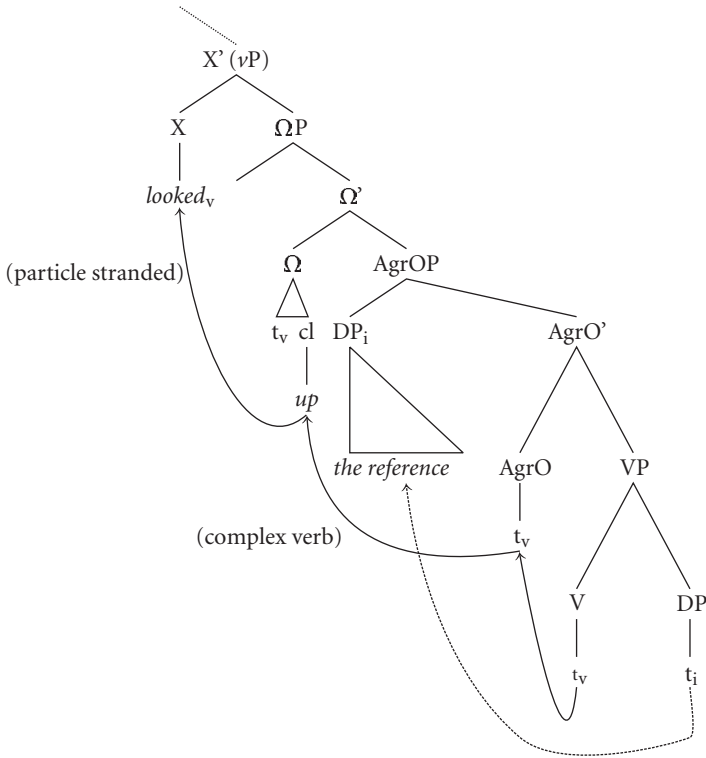g of the object-NP in PV constructions are optional with full NP's but obligatory with unstressed (but not emphatic) pronouns. Johnson (1991:606) calls these properties of the two constructions "idiosyncrasies [that] presumably arise as a result of particularities of the environment in which these cases of A-movement occur". Using the additional assumptions that structural case may be assigned anywhere from D- to S-structure and that structural case is assigned under government to the object-NP by μ, Johnson concludes that the derivations of the alternating word orders possible with PV constructions are as follows. To derive the continuous order, the complex particle verb raises to μ. Subsequently, the object-NP moves to Spec-VP to receive case from the governing verb. The verb then moves on to T for inflection, leaving the particle stranded under μ. In the case of the discontinuous construction, the particle is stranded in its base position, not accompanying the verb to μ. The object-NP moves to Spec-VP to receive case, yielding the discontinuous order. Note that Johnson argues that for the object in the discontinuous order, it is also possible to raise on to Spec-μP, depending on whether μ assigns case before or after its movement to T. Since in the continuous order the particle has moved to μ but is stranded there when the verb raises to T, μ cannot raise to T, thus can assign case to the object only when the object is in Spec-VP. It is therefore not possible for the object to raise to Spec-μP when the particle is in μ. For the case of weak pronouns, which appear obligatorily between the verb and the particle, Johnson (1991:613) assumes the following. The object shift operation obligatorily moves weak pronouns as close to the verb as possible. For PV constructions in English it follows then that weak pronouns must move to Spec-μP. This is possible, since the particle has been stranded in its base position.

As we have seen, the characteristic paradigm of English PV constructions in Johnson's account results from the assumption that object shift operates in English combined with the assumption that μ functions as a case assignor of structural case to the NP-object. Notice that I will show in Chapter 5.2.1 below that, indeed, a number of properties of object shift structures are similar to PV constructions in English. However, I will follow Svenonius (1996b) and Olsen (1997a) in their conclusion that the preposing of the object in discontinuous

PV constructions in English is not a type of object shift and evidence supporting this assumption will be provided. For Johnson's account of PV constructions this means that both the optionality of the alternating word orders and the fact that unstressed pronouns obligatorily occur between verb and particle remain unexplained.

Koizumi (1993) follows Johnson (1991) and also Keyser & Roeper (1992; cf. below) in assuming that particle verbs behave as single lexical items in many respects. He mentions their behaviour in gapping constructions, where the particle cannot be stranded (*Gary looked up Sam's number, and Mittie, up my number*), the co-occurrence of particle and adverb to the right of the verb, where the particle has to precede the adverb (*Colleen looked the reference carefully up*), and the fact that non-NP arguments and adjuncts may not precede particles (*Amber pointed that Bob had left out* vs. *Amber pointed out that Bob had left*) (Koizumi 1993:120f.). Koizumi takes these facts as evidence for the assumption that verb and particle are a single lexical item as opposed to the assumption that particle and object form a unit of any kind. His aim is to suggest a structure that accounts for these facts in addition to the fact that two word orders are possible with PV constructions. Koizumi suggests the following structure for the continuous word order where the complex particle verb is inserted as a single head into the syntactic structure:

(108)   Continuous construction (Koizumi 1993: 122)

X' (vP)

X   ΩP

looked$_v$

(particle stranded)

Ω'

Ω   AgrOP

t$_v$ cl DP$_i$ AgrO'

up

the reference   AgrO   VP

(complex verb)   t$_v$

V   DP

t$_v$ t$_i$

The internal structure of the verb he proposes (cf. (109)) is based on Keyser & Roeper's (1992) *Abstract Clitic Hypothesis* (ACH) which states that all verbs in English have an invisible clitic position that may be occupied by certain markers, where the verbal particle is one possible marker besides the abstract dative marker, the prefix [re-] and N and A in idioms (cf. Section 2.5 below).

(109)   Internal structure of the PV (Koizumi 1993: 122)

V

V   cl

look   up
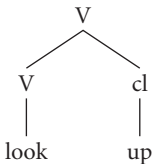
Koizumi (1993: 122) argues that ΩP is a "functional category that has to do with the end point of the event described by the verb/sentence." In English, its head Ω^0 is phonetically null. He assumes that clitic particles also have a sense

of expressing an end point, goal, or result, and that the corresponding feature is to be checked by Ω^0.[24]

If we now take a quick look at Koizumi's (1993: 108–113) suggestion for a VP-structure, we can explain the movement processes indicated in (108). Based on Chomsky (1993), Koizumi assumes object movement for case checking reasons. A strong accusative case feature triggers overt verb movement to AgrO^0 and overt object movement to Spec-AgrO. A strong V-feature of X (XP being VP, cf. Koizumi 1993, Section 3) triggers overt V movement to X via AgrO^0. Consequently, overt verb movement is triggered by a strong case feature in Agr and a strong categorial feature in X, overt object movement by the strong accusative feature, and particle movement by the strong feature in Ω. The structure in (108) is therefore derived as follows: the complex verb is base generated as V^0. It moves overtly to Ω. Then the verb excorporates and moves overtly to X^0, leaving the particle behind. The object moves overtly to Spec-AgrO.

The tree diagram in (110) illustrates how Koizumi (1993) derives the discontinuous order.

(110)   Discontinuous construction (Koizumi 1993: 123)
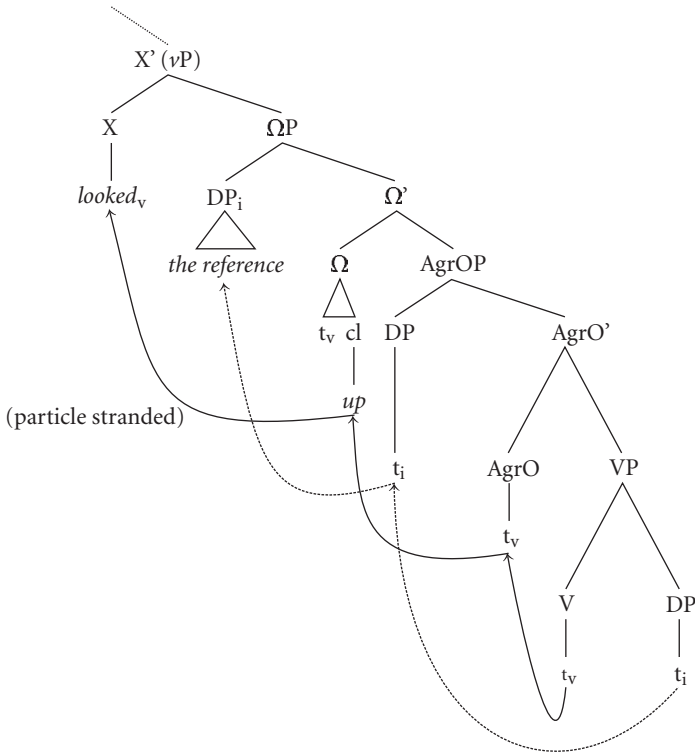
The discontinuous order is derived by overt object movement to ΩP-Spec, which "might be attributed to the 'strength' of the NP-feature of Ω", as Koizumi (1993: 123) suggests. The verb and particle movement is the same as for the continuous construction. Koizumi further argues that if Ω hosts a NP-feature, the apparent free alternation between the continuous and the discontinuous construction indicates that English has both Ω with a strong NP-feature and Ω with a weak NP-feature. Apparently, both of them or one over the other can be selected from the lexicon relatively freely. According to Koizumi, the un-marked case is Ω with a strong NP-feature as suggested by the behaviour of pronouns, which raise to the position between verb and particle almost obliga-torily. Koizumi speculates that this "has to do with something like definiteness" (1993: 124). The operation, he argues, is motivated by feature checking by Ω rather than by case reasons.

In neither construction can adverbs appear between V and the particle be-cause adverbs adjoin to VP, but not to AgrOP, where they are not semantically licensed. However, one problem of the analysis, mentioned by Harley & Noyer

(1998:147), is that there is no position for modification by *right* or *straight* in sentences such as those given in (111a) below.

(111) a. John looked the information *right* up.
       b. *John looked *right* up the information.

Koizumi (1993:120, fn.14) addresses particles modified in this way as 'heavy' particles, but does not discuss the contrast between (111a) and (b). But note that this kind of modification seems to be a general problem. Positions as different as the following have been suggested in the literature: head adjunction to the particle (Nicol 2002, cf. above, Johnson 1991:626), specifier in PP (e.g. Emonds 1985; Jackendoff 2002), adjunction to a maximal prepositional projection PP (e.g. Olsen 2000:155), and specifier of a projection within the functional domain of P (Rauh 1996).

Let me draw the reader's attention to the fact that there is a contradiction between Nicol's (1999, 2000, 2002) analysis outlined in the previous section and Koizumi's suggestion with regard to the marked/unmarked construction distinction. Nicol argues for the continuous order as the unmarked case and the discontinuous order as the marked case, because the discontinuous (or *split construction* in Nicol's terms) is more restrictive in its syntactic behaviour. As opposed to that, Koizumi suggests that the discontinuous construction be the unmarked one due to the strong NP-feature and definiteness and supported by the behaviour of pronouns. Of course only one of the constructions can be the unmarked one and it does not seem plausible that the decision whether one or the other is marked is a question of the syntactic structure we want to assume. Rather, the syntactic structure should reflect the cognitively underlying order. I will show in Chapter 3 below that there is evidence both from syntactic and non-syntactic studies on the behaviour of PV's in English that supports the assumption that the continuous order is the neutral and unmarked one.

Remember that with regard to Nicol's analysis, I mentioned that it remains unclear, which independent factor determines the choice of which categorial feature is selected with the light w head. Similar to this, Koizumi does not specify which factors determine the choice of the selection of either Ω with a strong NP-feature or Ω with a weak NP-feature.

New insights from the behaviour of PV constructions with regard to the complex head assumption are provided by Olsen (2000). In English, particles are homomorph with spatial prepositions, and at the same time a number of simple adverbs can function as particles, as well. Olsen (2000:152f.) argues that the true test of a PV in English is the ability of the particle to appear in the continuous order. Therefore, the elements given in italics in (112) can be particles,

but those in (113) cannot (cf. Olsen 2000:152 for her complete list). Only adverbial elements that are allowed in the position preceding the object are members of the class of particles. It follows, then, that some elements, such as those in (112a), are ambiguous between the two uses as particles on the one hand and adverbial elements / spatial prepositions on the other hand.

(112) a. Nicole carried the basket *out*, *in*, *down*, *away*.
       b. Nicole carried *out*, *in*, *down*, *away* the basket.

(113) a. Nicole carried the basket *ahead*, *behind*, *upwards*.
       b. *Nicole carried *ahead*, *behind*, *upwards* the basket.

Olsen (2000:153) proposes an analysis along the lines of (114) for the verb + adverb cases, where the adverbial element is in complement position to the verb, projecting a PP. For the true PV's, Olsen suggests a structure as given in (115). Here, the PV is a complex head in the syntax.

(114)   VP-final *adverb* (Olsen 2000:153)

```
                    vP
           _____/  _____
          v                    VP
          |              _____/  _____
          |             DP               V'
          |            /|            ____/  \____
          |           / |           V          PP
          |          /  |           |         /|
      carried_i   the basket       t_i       / |
                                          out/in/down/away
                                          ahead/behind/upwards
```
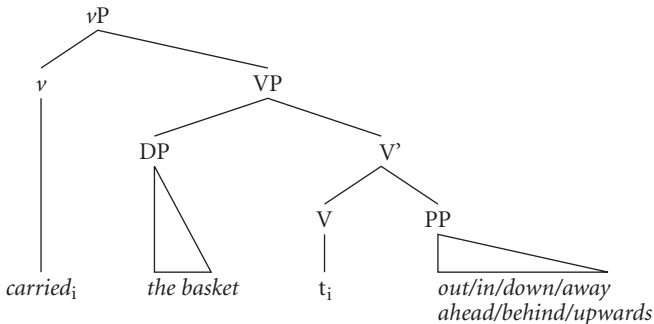
(115)   *Particle verb* (Olsen 2000:153)

```
                VP
        _____/  _____
       V                   DP
       |                  /|
       |                 / |
   carried  out/in/down/away  the basket
           *ahead/*behind/*upwards
```
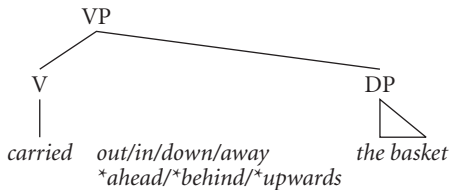
Olsen (2000) explicitly argues against the incorporation analysis as involved in Radford's (1997) and Harley & Noyer's (1998) analyses above, having its roots in Baker (1988). An important argument in support of the complex head analysis but against the incorporation approach is concerned with the scope of a modifier like *right* or *straight* in examples like (116) through (119) (cf. Olsen 2000:154ff.).

(116) a. The sun slanted down *right* into the shadow.
       b. They swam around *right* to the pier.
       c. He lurched off *right* along the river.

(117) a. The sun slanted *right* down into the shadow.
       b. They swam *right* around to the pier.
       c. He lurched *right* off along the river.

(118) a. His footsteps sent up air bubbles *right* to the surface.
       b. They take out tourists *right* along the river.
       c. The waves washed up the wooden object *straight* on the island's north coast.

(119) a. His footsteps sent air bubbles *right* up to the surface.
       b. They take tourists *right* out along the river.
       c. The waves washed the wooden object *straight* up on the island's north coast.

Olsen (2000: 155f.) argues that there is a difference in meaning between the examples in (116) and (117) and between (118) and (119) which has to do with the scope of the modifier. For the purpose of illustration, consider the a) examples. In (116a), we are concerned with a downward slant of the sunlight that is directly into the shadow, whereas in (117a), the sunlight slants directly down into the shadow. Similarly, in (118a) the PP *right to the surface* modifies the complex PV, with *right* modifying the preposition *to* and its projection, whereas in (119a), *right* modifies the upward movement, which is *to the surface*. An incorporation analysis along the lines of (77) through (79), where the particle originates as a prepositional complement to the verb and incorporates into the verbal head, cannot explain these differences in meaning. Incorporation leaves a trace in the base position which should then be in the scope of the modifying element in all cases. Since the particle is not in the scope of *right/straight* in (116) and (118), an incorporation analysis (as suggested by Radford 1997; Harley & Noyer 1998 among others), Olsen argues, cannot be the correct analysis. Instead, the correct assumption is that the true particles in (116) and (118) enter the syntactic derivation as part of a complex PV.

Another argument brought up by Olsen (2000: 157) against the incorporation analysis is concerned with the shift in meaning of *clean* and *right* in the examples in (120) vs. (121) "from an intensive adverbial modifier" in (120) "to that of a depictive subject or object predicative in the case of [...] *clean* or an adverb of manner in the case of *right*" in (121).

(120) a.   He broke the handle *clean* off.
      b.   He divided the money *right* up.

(121) a.   He broke the handle off$_i$ *clean* __$_i$.
      b.   He divided the money up$_i$ *right* __$_i$.

If the particles in (120) were able to incorporate into the verb, leaving a trace
in their original position as indicated in (121), the sentences in (121), Olsen
argues, should at least be ambiguous between the two meanings, since the trace
of the particle would be in the scope of the modifier. However, there is no
ambiguity in meaning. The sentences in (121) cannot be understood in the
same way as their counterparts in (120). This, then, is another piece of evidence
for the complex head analysis but against incorporation.

    With the exception of Olsen's analysis, who argues in an earlier approach
to PV constructions (Olsen 1996: 278ff.) that English has a movement rule that
preposes thematic objects which operates in PV constructions, the EVPA's out-
lined above fail to provide a motivation for the alternating constructions. By
this I mean that there are syntactic derivations for both word orders, but no
reasons as to why or when one order is chosen over the other. Both incor-
poration of the particle combined with movement of the particle along with
the verb (Radford 1997; Harley & Noyer 1998) and feature selection (Koizumi
1993 for Ω; Nicol 1999, 2000, 2002 for *w*) seem to be completely optional. I will
show in some detail in Chapter 4 below that the choice of the word order is not
optional and that it is therefore reasonable to assume that this non-optionality
is reflected in the syntactic structure of PV's.

4.   Particles as functional categories

A completely different view with regard to the categorial status of the particle
can be found in Solà (1996) and Dehé (1997, 2000a). Here, particles in verb
particle combinations in English are analysed as functional categories.

    Due to the lack of agreement morphology in English, Solà argues against
Agr as a functional category within the extended verbal projection in English.
According to his analysis the following functional categories are involved in the
extended VP of English sentences, where "extended VP" means the lexical VP
plus its functional domain: *Mood*, lexicalised by modal verbs, *Tense* and the fea-
ture [±past], *Relative Tense* which appears as auxiliary verbs, *Aspect* to which
participles with -ing and -ed correspond, and *Telicity* (Tel). Since verbal parti-
cles "convey a telic interpretation" (Solà 1996: 227), they are generated under

Tel^0. Due to the role that objects play for telicity, Solà argues, the functional category Tel corresponds to Chomsky's (1995) AgrO. Solà does not make the distinction between strong and weak features. In his analysis, movement of an element to its functional target position is driven solely by the overt morphological realisation of the appropriate functional feature on the moved element. Following Johnson (1991), Solà (1996:246) assumes that object movement is uniformly overt in all languages including English. Since the verb precedes its object in English, V-movement must be equally overt. The resulting structure for English PV constructions is given in (122).

(122)   Discontinuous construction (cf. Solà 1996:228, 246)

$_{CP}[\ldots_{MoodP}[\ldots_{TP}[\ldots_{RelTP}[\ldots_{AspP}[Spec \,_{Asp'}[_{Asp^\circ} ate_i \,_{TelP}[Spec\text{-}DP$ the cake$_k$ $_{Tel'}[_{Tel^\circ} up \,_{VP}[t_{Subj} \,_{V'}[t_i \, t_k]]]]]]]]]]]$

Under the assumption of overt object movement, Solà's analysis can only account for the discontinuous, but not the continuous structure. Overt object and verb movement leaves the particle in a position that cannot be adjacent to the verb. Solà deals with this obvious shortcoming of his analysis in a short note (1996:247, fn.51). He does not address the continuous structure at all, but argues that "the V-object-particle is felt as more natural [...], at least according to some native speakers." This alleged preference is neither satisfactorily confirmed in other research on the subject (e.g. Hunter & Prideaux 1983; cf. Chapter 3.4 below), nor by my informants. At any rate, there is no doubt whatsoever that the continuous structure is possible and even frequent. Therefore, Solà's analysis cannot be considered satisfactory.

In Dehé (1997, 2000a) I argue that particles are a lexicalisation of a functional category within the extended verbal projection. (This is a former assumption of mine which I cannot maintain here as will become clear in the remainder of this study.) I assume a different structure than Solà (1996) but agree with him in that the functional category that is involved must be *Telicity*. I argue that particles cannot be lexical elements since they lack certain properties of lexical categories such as the property of having semantic content of their own other than the semantic meaning of the complex verb, and of having an argument structure of their own (cf. Dehé 2000a:108ff. for details; cf. below for some problems of these assumptions). Now, why *Telicity* as the category involved? The idea that particles in PV constructions are telicity markers is not new. In definitions of characteristic criteria of particle verbs they have been labelled perfective, resultative and telic among other properties (cf. Brinton 1985:157f. for an overview of the literature). Brinton (1985:158) argues

that "verb particles in Modern English function as markers of 'telic' aktionsart, not 'perfective' aspect".

> [Particles] may add the concept of a goal or an endpoint to durative situations which otherwise have no necessary terminus. That is, the particles may affect the intrinsic temporal nature of a situation and hence alter its aktionsart from atelic to telic.   (Brinton 1985: 160)

Consider the examples in (123).

(123)   a.   She ate up the meal (*for hours).
        b.   She buttoned up her coat (*for hours).
        c.   She cleaned up the attic (*for hours).
        d.   She filled up the cup (*for hours).
        e.   She finished the fruit off (*for hours).

All the actions expressed by the particle verbs are resultative. They are not durative, but have an endpoint, as illustrated by the incompatibility of the imperfective phrase *for hours*. Brinton (1985: 162ff.) uses a series of tests to establish the telic qualities of PV, including the use of the structure *take an hour/a year to PV* (*It took a year to use up the supplies.*), the verb *finish* (*I finished sending out the invitations.*), and the phrase *for/in an hour*. Furthermore, the actions in (123) include an agentive argument, realised as *she*.

Based on these facts, I assumed in my 1997 thesis and in the 2000a article that the functional category *Telicity* (Tel) was involved within the extended projection of the PV, as does Solà (1996).[25] I further analysed particles as clitic elements, based on the fact that particles and clitics share certain morphological properties (cf. Dehé 1997: 120f., 2000a: 112ff. for details). As a syntactic analysis I suggested the following: Tel^0 incorporates the feature [tel]. In the case of telic PV constructions, Tel^0 is positively specified for [tel], as is the complex verb. Tel projects TelP within the extended verbal projection. The particle enters the computational system (C_{HL}) as a lexicalisation of the verbal [tel]-feature. In the case of convergence, it combines with a lexical element of the category V, which must be equally specified for the feature [+tel]. [tel], like [tense] and [aspect], is a verbal feature. It is a weak feature, which means that it is covertly checked. The verb features including [tel] (and other formal features (FF) in the sense of Chomsky 1995) move to their checking positions at LF. The resulting syntactic structure for the continuous PV construction is indicated in (124).

(124)   Continuous construction (cf. Dehé 2000a: 116)
        $_{CP}[\ldots_{TP}[_{DP}He_i \ _{T'}[T^0 \ _{TelP}[Tel^0 \ _{VP}[_{Spec} \ t_i \ _{V'}[_{V[+tel]}[\text{looked up}] \ _{DP}[\text{the information}]]]]]]]$

As a bound morpheme and clitic element $_{tel}$[up] is adjoined to the verbal head V^0. I did not assume that the particle as a lexicalisation of the telicity-feature is base-generated under Tel^0 and then moves to V, but it is selected from the lexicon and adjoined to V as a C_{HL}-process. Its feature [tel] is checked covertly by movement to the functional head position, as are the other formal features of the verb such as [tense]. This movement obeys the restrictions on movement such as the economy principles *shortest move* and *procrastinate*.

The syntactic structure I assumed for the discontinuous construction is given in (125).

(125) Discontinuous construction (cf. Dehé 2000a: 116)

$_{CP}$[. . .$_{TP}$[$_{DP}$He$_i$ $_{T'}$[T^0_{TelP}[$Tel^0_{[+tel]}$$_{VP}$[$_{VP}$[t$_i$ $_{V'}$[$_{V[+tel]}$ looked $_{DP}$[the information]]] up]]]]]

I argued that clitics are free with regard to the projectional level to which they adjoin. This argument is based on the assumption that clitic elements do not project a phrase and can therefore be considered both as minimal and maximal. In this assumption I followed Chomsky (1995: 249) who notes that clitics appear to share both XP and X^0 properties. It follows then that a clitic can equally adjoin to X^0 and XP. This means that the particle can adjoin either to V^0 or VP, as long as both the verb and the particle are equally specified for the telicity-feature. With the discontinuous PV construction, the clitic particle is base generated in the VP-adjoined position. The feature [tel] moves to the functional head position Tel^0 covertly where it is checked. Adjunction of the particle to the maximal projection VP makes modification within the PV construction possible. Following Chomsky (1995: 329) I assumed that adverbs are adjoined to the XP-level of a projection. VP-internal modification can therefore precede or follow the particle. The derivation, I argued, does not converge if either the feature specification does not match or a modifying element is inserted between verb and particle with the complement following the particle. In the latter case the clitic particle is adjoined to the verbal head. Consequently, there is no position for the adverb other than adjunction to V^0. Adjunction to V^0 would yield an ungrammatical derivation, since the adverbial phrase as a maximal projection cannot adjoin to a head position, neither by base generation nor by a movement operation. This was my explanation for why modifiers can appear with the discontinuous verb particle construction but not the continuous alternate. If the particle is adjoined to the VP, as in the case of the discontinuous structure, the adverbial modifier can be equally adjoined to the VP-level. On the contrary, adjunction to the mid-position is not possible if the particle is generated in a verb-adjacent position, i.e. adjoined to the lexical head.

However, I have already mentioned in Dehé (2000a: 118f.) a few points which pose problems for my analysis in particular and the particle-as-a-functional-head assumption in general. As I consider these rather powerful objections against my former analysis, I would like to repeat them here.

With regard to my analysis it remains open whether ungrammatical sentences can be generated as well, since clitics can be adjoined to both X^0 and XP and since the only constraint to the process of derivation is the presence of the feature [tel]. Furthermore, the claim that particles do not have any semantic content other than the meaning of the complex verb certainly needs to be modified. Consider the (compositional) PV's in (126). The particles in these constructions contribute their own semantic content, namely a directional meaning, to the meaning of the complex verb.

(126) a. I will *send* her *up* (to your room).
      b. She had to *carry out* the hot muffins she had just *brought in* (out of the room / into the room).
      c. The doctor *let* the visitor *in* (to the patient).

The functional status of particles, if based on this argument, can therefore not be maintained. The second argument supporting this functional status, i.e. the claim that particles do not have arguments of their own, is not precise, either. It has been argued in the literature that particles have an argument structure or at least have influence on the argument structure of the verb with which they combine (cf. Zeller 2001b; Olsen 1998b, 2000 among others).

With regard to the category *telicity*, it seems necessary to mention that there might also be atelic PV's or PV's where it is not the particle that adds the telic aspect but the verb or the verbal complex as a whole.[26] It would follow then that in such a case the particle could not be the lexicalisation of the [tel]-feature. Recall from the introduction to this study that within the threeway classification of PV's, aspectual PV's form one of three groups. It certainly does not follow from this that PV constructions that belong to the other classes are necessarily atelic, but it does certainly mean that (1) the particle contributes its own semantic content in the case of compositional PV's, and that (2) it might be the complex PV as a whole that is telic (as opposed to the particle adding the telic aspect) in the case of idiomatic PV's. A structure as suggested by Solà (1996) and in my own earlier research thus cannot be equally applied to all PV classes. To assume a different structure (one treating the particle as a functional category and as such as a lexicalisation of the telicity feature) for aspectual PV's as opposed to idiomatic or compositional PV's does not seem attractive to me.[27]

The last problem that was already mentioned in Dehé (2000a) is modifi-
cation by *right*. The examples in (127) show that *right* can only modify lexical
prepositions (127a), but not case prepositions in the sense of Rauh (1995, 1996,
1997) and Dehé (1997) (127b) or any other categories (127c–e).[28]

(127)   a.   He went _{PP}[*right* [[_{Plex} into] the room].
      b.   *He relied _{KP}[*right* [_K on] me].
      c.   *He _{VP}[*right* went into the room].
      d.   *_{DP}[*Right* the man] went into the room.
      e.   *He found that story _{AP}[*right* interesting].

Therefore, with PV's it should neither be possible for *right* to modify the com-
plex VP, nor the functional category *Telicity*. However, we know that *right* as a
modifier is possible with discontinuous PV constructions. (But remember that
I have already mentioned the problematic status of *right*).

More evidence against the particle-as-a-functional-category analysis that
I did not mention in Dehé (2000a) comes from phonology. First, functional
categories in general bear little or no stress. Cruttenden (1997:17) notes that
words such as definite and indefinite articles, auxiliary verbs, personal pro-
nouns, shorter prepositions and conjunctions most commonly occur in an un-
stressed form in connected speech. Particles, however, do bear stress, hence
do not share this characteristic property of functional categories. Wurmbrand
(1998:284) illustrates this property for PV's in German as opposed to prefix
verbs. Consider the example in (128), taken from Wurmbrand's article. The
German verb *umfahren* has two different stress patterns, one corresponding to
the prefix verb *umFAHren* (*drive around*), the other one corresponding to the
PV *UMfahren* (*knock down*) (capitals indicating stress).

(128)   a.   Prefix verb
        weil   er   das   Verkehrsschild   umFUHR
        because   he   the   traffic.sign   prefix-drove
        'since he drove around the traffic sign'
      b.   Particle verb
        weil   er   das   Verkehrsschild   UMfuhr
        because   he   the   traffic.sign   Part-drove
        'since he knocked down the traffic sign'

Nespor & Vogel (1986:179) note that particles, since they are stressed, can-
not be phonologically reduced, whereas monosyllabic prepositions, not being
phonological heads and treated similar to unstressed function words with re-
gard to stress (Nespor & Vogel 1986:168f.; Gee & Grosjean 1983:434), can un-

dergo reduction. They give the examples repeated here as (129) (φ stands for phonological phrase; cf. Chapter 4 below for details).

(129) a.   [The sluggers]$_\varphi$[boxed]$_\varphi$[in the crowd]$_\varphi$.   (reduced *in*)

     b.   [The cops]$_\varphi$[boxed in]$_\varphi$[the crowd]$_\varphi$.   (unreduced *in*)

I therefore reject the particle-as-a-functional-category analysis suggested in Dehé (1997, 2000a). I also reject Solà's (1996) approach for the same reasons besides the additional point that his analysis can only account for one possible word order, namely the discontinuous construction. This order will turn out to be the derived one in the next chapter, with the continuous order, which Solà cannot account for, as the basic one.

5.   Others

Of the numerous other suggestions that have been made with regard to the syntactic structure of PV's in English I want to mention the following. As was briefly mentioned in the introduction, Aarts (1989) suggests that there are two distinct classes of PV's. Evidence for such a distinction comes from both a semantic difference between idiomatic constructions such as *look up a word* (*B-verbs*) and spatial-resultative constructions such as *switch off the light* (*A-verbs*) and the difference in their syntactic behaviour. First, Aarts (1989: 280f.) argues that the [NP + Part] strings that follow the A-verb (and which, Aarts argues, are complements of A-verbs) must be constituents as they appear as complements of other categories as well, e.g. of P (130a), whereas the [NP + Part] strings that follow B-verbs do not (130b).

(130) a.   Jim turned the radio off. [With [the radio off]] he could finally relax.
     b.   He brought the kids up by himself. *[With [the kids up]] he could go on holiday.

Second, [NP + Part] as complements of A-verbs can function as subjects (131a), those of B-verbs cannot (131b) (Aarts 1989: 281):

(131) a.   [The oven off] is less dangerous than the oven on.
     b.   [*The kids up] is very desirable.

Third, [NP + Part] as complements of A-verbs can occur on their own as in the imperative form *Hands up!*, but those of B-verbs cannot (*Kids up!*) (Aarts

1989: 282). And fourth, Aarts (1989: 282f.) argues, the [NP + Part] sequences following the two verb classes differ with respect to co-ordination facts:

(132)   a.   He switched the light on and the television off.
        b.   *He sorted the problem out and the clothes out.

All these facts seem to suggest that the string [NP + Part] following a verb of type A forms a constituent, whereas the one following the verb of type B does not. Based on these differences, Aarts assumes different syntactic structures for *A-verbs* and *B-verbs*, respectively. *A-verbs*, he argues, select a small clause complement, of which the particle is the head. Idiomatic PV's, *B-verbs* in Aarts' terminology, do not subcategorise for a SC. The complex verb analysis is rejected because modification of the particle is possible in the discontinuous construction (Aarts 1989: 284). The structures suggested by Aarts (1989) are given in (133) and (134) below.

(133)   Discontinuous construction (cf. Aarts 1989: 283)
        a.   A-verbs: $_{VP}[V \ _{IP=SC}[NP \ PP]]$
                         $_{VP}[switch \ _{IP}[_{NP}[the \ light \ _{PP}[off]]]]$
        b.   B-verbs: $_{VP}[V \ NP \ PP]$
                         $_{VP}[_V[look] \ _{NP}[the \ word] \ _{PP}[up]]$

(134)   Continuous construction (cf. Aarts 1989: 284f.)
        a.   A-verbs: $_{VP}[_{VP}[V \ _{IP=SC}[e_i \ PP]] \ NP_i]$
                         $_{VP}[_{VP}[switch \ _{IP}[e_i \ off]] \ the \ light_i]$
        b.   B-verbs: $_{VP}[_{VP}[V \ e_i \ PP] \ NP_i]$
                         $_{VP}[_{VP}[look \ e_i \ up] \ the \ word_i]$

Particles in both verb types are analysed as intransitive prepositions heading a PP. In A-verbs, the particle heads a SC, in B-verbs it is a "quasi-argument" of the verb in the sense of Chomsky (1981): It occurs in a θ-position where it receives a dummy θ-role because of its idiomatic status. The discontinuous order is the underlying one. The continuous order is derived by NP-movement and adjunction to VP (Aarts 1989: 284f.).

Shortcomings of the analysis suggested by Aarts (1989) can be formulated both with regard to the structures for A-verbs and for B-verbs. A-verbs select a SC-complement, Aarts argues, because the string [NP + Part] following the verb forms a constituent. Crucially, the general objections given in Section 2.2 above against the SC analysis hold here, too. The structure Aarts (1989) suggests for B-verbs corresponds to the one suggested by Radford (1988) and

Burton-Roberts (1997) for PV's in the discontinuous construction, an analysis that I rejected in Section 2.1 above.

An analysis similar to that by Aarts (1989) in some way has been suggested by Wurmbrand (2000a, b) for PV constructions in German. Based on the differences in behaviour displayed by semantically transparent (compositional) PV's on the one hand and idiomatic PV's on the other hand (cf. also Chapter 1 above), Wurmbrand argues that the two groups of PV's are subject to different licensing conditions. Compositional PV's are licensed thematically, i.e. they have to be in a thematic relation with an argument. Syntactically, this is represented by a SC-structure. The particle is the predicate of the SC, taking the postverbal DP as its subject. Idiomatic PV's are licensed in a local relation. They are represented by a complex V'-structure of the form V'[Part V^0] in the syntax.

Different syntactic structures for purely idiomatic PV's on the one hand and compositional PV's on the other hand have also been suggested by Ishikawa (1999) for English. For the former type, Ishikawa assumes a complex head structure, for the latter a V plus PP complement structure. I will come back to Ishikawa's analysis in some detail in Chapter 5.2.3 and will therefore postpone the discussion of his suggestions.

Keyser & Roeper (1992), in postulating their *Abstract Clitic Hypothesis* (ACH), assume that all verbs in English have an invisible clitic position that may be occupied either directly by every major syntactic category or by markers. The following elements function as markers: (1) the abstract dative marker which serves as an invisible indirect object in double object constructions that occur without an indirect object (*We gave money.*); (2) the verbal prefix [*re-*]; (3) N and A in idiomatic V plus N or A constructions (e.g. *lose touch, lose face* for V plus N; *shake lose, hang tough* for V plus A); and (4) particles in verb particle combinations. In the case of PV's, the particle originates in the clitic position. Here, the clitic position is overtly realised, as it is with overt indirect objects, [*re-*] and N and A in idioms. The corresponding structure is given in (135) for the VP and (136) for the complex verb.

(135)   [$_{VP}$ [$_V$ [$_V$ give] $_{Cl}$[up]] Object]

(136)

```
        VP
        |
        V
       / \
      V   Cl
    give  up
```
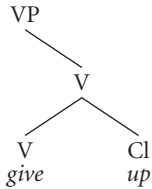
Keyser and Roeper argue that the clitic position is category neutral and abstract, which means that the corresponding element, e.g. the indirect object for the dative marker, is covertly present. The marker is holding its position. The various markers are complementarily distributed, i.e. the clitic position is unique for every verb, which is why affixation of [*re-*] is blocked by a particle (*regive up*). To derive the continuous construction, the complex V moves to a higher V position, the particle remaining in the clitic position, accompanying the verb. In order to derive the discontinuous order, only the verb moves to the higher V, leaving the particle stranded in the lower clitic position.

Ishikawa (2000:251f.) notes as a problem for the analysis that Keyser & Roeper (1992) do not provide any independent arguments for the assumption that markers as different as morphologically bound prefixes such as *re-* and morphologically free elements such as verbal particles are generated in the same syntactic position (Cl), other than the restriction on their co-occurrence shown in (137).[29]

(137)   a. *He rethrew out the ball.
        b. *He rethrew the ball out.

Safir (1995:287ff.), too, argues against Keyser & Roeper's (1992) analysis. Crucially, he argues that the clitic position is not unique. He provides examples from French as a typical clitic language, where clitics can co-occur in a clitic row. The complementary distribution e.g. of [*re-*] on the one hand and particles on the other, he argues, is due to the fact that the relevant operation that is involved is abstract incorporation rather than abstract cliticisation, along with some fellow assumptions (cf. Safir 1995:288ff. for details).

I will return to Keyser and Roeper's suggestion in Chapter 5 below. In particular, I will consider the idea that the particle is some kind of a verbal affix in some detail.

An analysis resembling a VP shell configuration in part is suggested by Pesetsky (1995). Pesetsky in his book on *Zero Syntax* adopts a traditional view of case. Verbs are directly responsible for licensing objective case, no intermediacy of a specifier-head-relation with a functional category is necessary. Therefore,

he also assumes the existence of an *adjacency condition* on objective case, i.e. the verb and the element whose objective case it licenses must be strictly adjacent. Within this tradition, Pesetsky sees a problem for continuous PV constructions where the particle intervenes between the verb and its direct object. Continuous PV constructions are therefore analysed as shown in (138).

(138)   verb particle *G* DP   (Pesetsky 1995:277)

Under the assumption that the assignment of objective case to two DP's by a single occurrence of V is impossible, *G* is an unpronounced element posited in double object constructions being responsible for case on the direct object (cf. Pesetsky 1995:124ff.). *G* is a phonologically zero preposition situated between the objects in the double object structure as illustrated in (139). It introduces Theme arguments in double object structures, such as the preposition *to* introduces Goal arguments in the *to*-alternate.

(139)   Subj V NP *G* NP

As a lexical property, *G* as a zero morpheme is marked [+affix] and must move from its base position to the governing V (cf. Pesetsky 1995:126ff. for a detailed discussion on *G* as an affix). *G* now is not limited to double object structures but occurs in PV constructions, too. In the PV construction as suggested in (138) above, the particle forms part of V, i.e. the PV is assumed to be a complex head of the form ᵥ[V Part] (cf. (140)). *G* licenses objective case on the direct object. What remains unclear to me is why the particle verb, as it is analysed as a complex V head, cannot license objective case on its complement in the first place and whether the affix *G* adjoins to the higher or the lower V. The base structure assumed by Pesetsky would have to be as in (140) (somewhat simplified for our purpose). We will have to assume that it is the lower V that cannot license case on its object because of the intervening particle.

(140)   Underlying PV structure according to Pesetsky (1995)
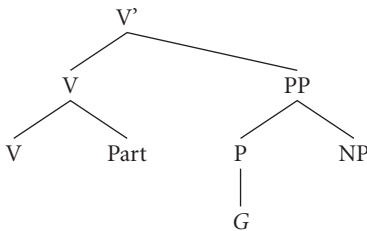
For more complex particle constructions, Pesetsky (1995: 278ff.) proposes Cascade structures (cf. Pesetsky 1995, Ch.6) including the introduction of *G* into the structures, as can be seen in (141) and (142):[30]

(141) a. The secretary sent out *G* a schedule to the stockholders.
       b. Some student paid back *G* his loan to the bank.

(142) a. The secretary sent the stockholders out *G* a schedule.
       b. Some student paid the bank back *G* his loan.

In the sentences in (141), *G* licenses objective case on the direct object, whereas the indirect object is licensed by the preposition *to*. In the examples in (142), case of the indirect (Goal) object is licensed by the adjacent verb, case of the direct object is again licensed by *G*.

6. Conclusion and outlook

I have shown in this chapter that there is a large and diverse number of syntactic approaches to PV constructions in English. The *traditional analysis* as well as the *small clause analysis* and the *particle as a functional category analysis* were explicitly rejected, but I have also shown the shortcomings of the different *extended-VP-shell analyses* suggested in the literature so far. Notice that from a syntactic point of view, the analyses outlined in this chapter imply that the choice of the word order is optional, i.e. that movement operations take place optionally and that features are selected from the lexicon in an equally optional way. With regard to feature selection, Koizumi (1993) suggests that English has both Ω with a strong and a weak NP-feature and that one or the other can be selected from the lexicon relatively freely. The strength property of this feature then determines the word order of PV constructions. The nominal object raises overtly to a position between the verb and the particle (Spec-ΩP) if Ω hosts a strong NP-feature, but remains in a position following the particle (Spec-AgrOP) if Ω hosts a weak NP-feature. Similarly, Nicol (1999, 2000, 2002) suggests that the light *w* head which hosts the particle enters the derivation optionally with either a nominal or a verbal feature and that this feature then determines which of the possible word orders is derived. With regard to apparently optional movement operations, Johnson (1991) suggests that the particle can optionally accompany the verb to the μ head or remain in its base position. In Harley & Noyer's (1998) analysis, particle incorporation into the verb as opposed to non-incorporation and stranding of the particle is optional.

On the basis of the discussion that I will lead in the subsequent chapters, I will suggest an EVPA type of analysis in Chapter 5 below. At that stage of the discussion, the preceding chapters will have shown that (1) with regard to the alternating word orders possible with PV's in English, the continuous order is the underlying one (cf. Chapter 3) and that (2) the choice of the word order is not optional, but is in a high degree driven by the information structure of the context in which the PV construction occurs (cf. Chapter 4). The syntactic structure I will suggest in Chapter 5 will account for these facts and thus will be more advantageous than prior analyses in this respect.

Notes

1. Note that Williams (1997: 15) assumes parallel structures, namely $_V$[V Part] for the continuous, $_{VP}$[V NP PP] for the discontinuous construction, with the former, but not the latter being a lexical construction. However, no new insights can be drawn from Williams' analysis. The discussion is based on known phenomena such as modification by *right*, and nominalisation facts (cf. below for the latter).

2. This problem about nominalisation data has also been indicated by Keyser & Roeper (1992: 121).

3. In Dehé (1997: 126) I accounted for the co-ordination data in (22) by arguing that not SC's are co-ordinated, but two VP's, with the verb of the second VP undergoing ellipsis. In fact, this is a reasonable explanation at first sight. However, it does not account for the data in (23).

4. I want to concentrate here on mono-transitive PV's. Cf. Kayne (1985: Section 3) for details concerning the analysis of complex constructions such as *There turned out to be a problem* and *They are trying to make John out a liar*. The analysis for the latter example involves rightward movement and adjunction of the second NP (*a liar*). Cf. also Sections 4 and 5 of Kayne's article for further discussion. Cf. den Dikken (1995: 46ff.) for a critical discussion of Kayne's analysis.

5. Wurmbrand (1998) also argues for PV constructions in German that particles can saturate an argument of the verb. The example in (x) is taken (and slightly modified) from Wurmbrand (1998: 276).

(x) Sie setzt den Hut *auf.*   / Sie setzt den Hut *auf den Kopf.*
     She puts the hat *Part*(*on*) / She puts the hat *on the head*
     'She is putting the hat on (the head).'

I understand from Hoekstra's article, though, that he would classify this use of the particle (or the full PP) as a predicate. Cf. the next chapter on the neutral order of PV constructions for some critical points against Emonds' and Jackendoff's assumptions.

6. But notice that it is indeed only true for a certain class of PV's, namely semantically compositional PV's, that the complement of the verb can be expressed. Compare: *They brought their children up (*the childhood)*.

7. Needless to say that PV constructions that are not "typical" in Svenonius' sense cannot be paraphrased in this way. Compare: **The man caused the information to go up by means of looking*.

8. Svenonius (1996b: 66f.) argues that according to the *Minimal Link Condition* (MLC) and the definition of *closeness* in terms of *minimal domains* (Chomsky 1995: 299, 311), the DP and the particle are equally close to the functional head, so that either can move to check the feature.

9. Kayne (1998) leads this discussion of overt movement of negative object phrases on the grounds of scope ambiguities with negation in English and other languages (such as Norwegian). I refer the reader to his article for details. In the course of the discussion, Kayne extends his analysis of overt object movement to a projection in the functional domain to non-negated DP's, so that he generally assumes overt object movement for English.

10. Zwart's (1994) main assumptions in his paper on Dutch syntax are the following: (1) the universal structure of syntactic projections is $_{XP}$[Spec $_{X'}$[X^0 Complement]], the structure of the VP is universally $_{VP}$[Subject $_{V'}$[V Object]]; (2) the SOV surface order as in Dutch is derived by leftward movement of the subject and object to positions within the functional domain, in combination with the absence of overt verb movement to a position to the left of the object. Zwart further argues that objects in Dutch move to Spec-AgrOP in overt syntax (cf. Zwart 1994 for supporting evidence). One point under discussion in his article is the position of small clause predicates as complements to verbs in embedded clauses. Zwart considers PV constructions in Dutch to be SC's (cf. (x) for a PV construction, (xx) a resultative SC; examples taken from Zwart 1994: 398).

(x) . . . dat Jan Marie op (*gisteren) belde
    . . . that Jan Marie Part(up) yesterday called
    'that Jan called Marie yesterday'

(xx) . . . dat Jan de deur rood (*gisteren) verfde
    . . . that Jan the door red yesterday painted
    'that Jan painted the door red yesterday'

In Dutch, SC-predicates as complements to verbs in embedded clauses differ from DP's in the same distribution in that they have to be adjacent to the verb, and from complement clauses in that they have to appear to the left of the verb. Therefore, Zwart (1994: 397ff.) suggests an additional functional projection, next to (below) AgrOP, for licensing SC-predicates. The SC-predicate (the particle in (x), the adjective in (xx)), he argues, obligatorily raises overtly leftward to the Spec-PredP position. The verb raises overtly to Pred, thus accounting for the adjacency of the verb and the predicate in the embedded clause. Verb and predicate are in a Spec-head-relation in overt syntax. (Cf. Zwart 1994: 398ff. for supporting evidence.)

11. The *w* head and projection are motivated in the course of the discussion of constructions involving *only*, such as *John critized only Bill* and *John only spoke to Bill*. As I would like to

concentrate on PV constructions here for reasons of coherence and space, I refer the reader to Kayne (1998:149ff.) for discussion. I will come back to his analysis in chapter V below.

12. Notice also that after VP-preposing has taken place, the trace of the SC-subject (t_i of *no strangers$_i$* in (58b) and (59c)) fails to be bound by its antecedent. The same is true for the trace of the particle within the derivation of the discontinuous order (t_m of *in$_m$* in (59c)). According to the Empty Category Principle (ECP) in terms of Chomsky (1986b), traces must be properly governed, where proper government is by theta government or antecedent government. Chomsky (1995:134) reduces the ECP to the property of antecedent government. In a framework that accepts the ECP as a valid principle, the derivation suggested by Kayne should be ruled out.

13. Nicol (2002) argues that this assumption, which appears stipulative at first sight, is empirically supported by the fact that particles can be nominalised (*They were bewildered at the* ups *and* downs *of the NASDAQ*) or made into verbs (*He* downed *the whole bottle*; *They are* outing *the governor*).

14. Note that this idea of *right*-adjunction to the particle verb or adjunction to the particle itself has already been mentioned by Johnson (1991:626). Johnson argues that *right* bears a close semantic connection to the particle portion of the verb and that therefore it is a reasonable assumption that "modifiers are adjoined to the particle verb or, perhaps, to the particle itself."

15. Many thanks to Sam Gage, Val Gage, Thomas Gardner, Andrew McIntyre, Howard Shaw, Katie White, and one more anonymous friend for their judgements on these (and many more) sentences.

16. I thank Andrew McIntyre for bringing this point to my attention.

17. The problem of Nicol's derivation of the discontinuous order violating the HMC has independently been brought up by an anonymous reviewer of Nicol (2002).

18. Two targets of movement are equidistant if they are in the same minimal domain (cf. Chomsky 1995:184f.):

(x) $_{XP}[Spec_1 \, _{X'}[X \, _{YP}[Spec_2 \, _{Y'}[Y \, ZP]]]]$

If Y adjoins to X, forming the chain (Y, t) with the minimal domain {$Spec_1$, $Spec_2$, ZP), then $Spec_1$ and $Spec_2$ are equidistant from ZP. ZP may thus cross $Spec_2$ and raise to $Spec_1$.

19. Equidistance carries over to *Attract* without essential change (Chomsky 1995:298).

20. It should be noted, though, that it has also been argued in the literature that it is empirically wrong to claim that only lexical heads, but not phrases, undergo word formation. Among others, Lüdeling & de Jong (2002:319ff.) give examples in favour of the claim that phrases do undergo word formation processes.

21. I am grateful to Uwe Junghanns for this example. It is taken from: Eric Ambler, *The Mask of Dimitrios*, London: Pan Books, 1993, p. 83.

22. I am grateful to Andrew McIntyre for this example. It is taken from the Beatles song "Glass Onion" (White Album).

23. Johnson (1991:601) draws a parallel to PV's in Dutch, where the PV can raise as a complex verb or the verb can raise alone, leaving the particle stranded in the base position.

24. Koizumi (1993: 122, fn.16) notes that he cannot give any precise information about the nature of the category Ω, but adds that it might be another instance of Agr or some aspectual category. The idea that particles express an end point, goal, or result is of course not new. Cf. for example Brinton (1985). Cf. also Chapter 1 of this study and Section 2.4 below.

25. Solà (1996) argues that verbal particles are only one possible realisation of the functional head Tel^0, namely the lexical one. The Tel-projection will be generated in any event. For reasons of economy I assumed the overt presence of the Tel-projection only in the event of its lexical realisation by a particle.

26. See Brinton (1985: 165ff.) for a discussion on *on, along*, and *away* as in *to drive on for miles*, *the politician bubbled on about the campaign*. Cf. also Jackendoff (1997, 2002).

27. Note that this does not mean that there is no telicity feature in the derivation at all, but only that it is not necessarily lexicalised by the particle.

28. I follow Rauh (1995, 1996, 1997) in her classification of prepositions in English. With regard to prepositional properties such as distribution, case assigning properties, case realisation, argument structure, and projectional and selectional properties she proposes three classes of prepositions: *Lexical prepositions* (e.g. *from, under, after*) have all the properties of lexical heads: They are semantically meaningful, are able to assign internal, external and referential θ-roles, i.e. allow for complement-, adjunct- and Spec-positions within their projections and license functional categories within their extended projections. They occur in argument-, predicate and adjunct positions. *Grammatical prepositions* (e.g. *with, without*) share both properties of lexical and of functional heads. They do not occur in argument positions and they do not assign a referential θ-role. *Case prepositions* (e.g. *of*) only occur in complement positions of lexical heads. They do not have an argument structure or any lexical properties but appear as realisation of inherent case. Also, they assign objective case to their nominal complement. In Dehé (1997), I argue that case prepositions have lost their case assigning ability and are pure realisation of inherent case [case:INH:OBJ] assigned by the governing lexical category.

29. Cf. Ishikawa (2000: 265ff.) and footnote 10 in Chapter 5 below for Ishikawa's alternative assumption to the co-occurrence restriction on particles and prefixes.

30. Pesetsky (1995) observes that both SC-analyses of complex verbal constructions and VP-shell-structures have serious shortcomings with regard to phenomena like binding, nominalisation, among others. His *Cascade Structures* model (cf. Pesetsky 1995: Ch. 6 in particular) offers an alternative approach to complex VP's. The two important properties of Cascade structures are (1) that the branching in these structures is binary, and (2) that "the relation 'internal argument of α' [...] does not correspond exclusively to the syntactic relation 'sister of α', but rather it may also correspond to the relation 'specifier of the sister of α'" (Pesetsky 1995: 175). Pesetsky provides evidence for his assumption e.g. from co-ordination facts and binding phenomena.

The neutral order of transitive PV constructions in English

It is a well known fact and has already been mentioned in the introduction to this study that transitive PV's in English occur in two different constructions, namely the continuous one where the particle follows the verb and precedes the nominal complement, and the discontinuous one where the nominal object precedes the particle. This is illustrated again in (1) and (2) for convenience.

(1) Continuous order
   a. Peter looked up the word.
   b. Peter ate up his lunch.

(2) Discontinuous order
   a. Peter looked the word up.
   b. Peter ate his lunch up.

In the linguistic literature, many factors have been suggested that govern this alternation and the speaker's choice of one construction over the other. These factors include the nature of the direct object (particularly pronoun vs. full DP), length and news value of the direct object, and the presence of modifying elements among others. Also, as we will see below, both orders have been suggested as the neutral or underlying one, from which the other one has to be derived syntactically. Or, alternatively, the two occurring orders could simply be considered as alternate options for inserting the particle and assume two underlying syntactic structures accordingly, which are not related by movement at all.

In this chapter, I will first list factors that have been suggested as governing the alternation between the two orders in more detail. I will briefly introduce suggestions that have been made in the literature about one or the other order as basic. The survey that I am giving here cannot be complete but does hopefully cover the main ideas. I provide evidence for the claim that the continuous order is indeed the underlying, the neutral one. Evidence will come from both the syntactic and morphological behaviour of PV's in English and from an ex-

perimental study reported on in the literature. Finally, in Section 3.5, I report on an experiment in speech production that supports the assumption that the continuous construction is indeed the neutral one.

3.1 Factors governing the alternation (as given in the literature)

This section is intended as a brief survey of the factors that have been suggested in the literature as contributing to the choice of one word over the other (cf. also Gries 1999: 109ff., 2000: 20ff. for a more comprehensive survey). I will argue in Chapter 4 below that nearly all of these factors are instances of the same phenomenon, namely information structure.

As a first and most obvious factor, the *category of the direct object* has been mentioned in many studies on the topic (cf. e.g. Bolinger 1971: 39; Fraser 1976: 16f.; Johnson 1991: 594; Svenonius 1996b: 49; Olsen 1996: 279). If the direct object is a pronoun, the continuous order is unacceptable in most cases, whereas full DP's are in general possible in both constructions.

(3) Discontinuous order
   a. Sam looked the word up.
   b. Sam looked it up.

(4) Continuous order
   a. Sam looked up the word.
   b. *Sam looked up it.

Particles are allowed in the final position only if they are focused (cf. Bolinger 1971: 39, his example is given in (5) below; Fraser 1976: 17; Olsen 1996: 279; cf. also Chapters 4.2 and 5.2.3 below).

(5) I knew that the school board contemplated throwing out Spanish in order to throw out *ME*.

Van Dongen (1919), Fraser (1976), and Svenonius (1996b) among others suggest that the *stress pattern* determines the choice of the word order insofar as the continuous constructions is obligatory with a stressed nominal element, the discontinuous order with a stressed particle. I will set aside the discussion of the role of accent placement in PV constructions in English for the moment but will return to this question in some detail in Chapter 4.3.

A third factor that has been proposed as governing the alternation is *length* or *syntactic complexity of the direct object* (van Dongen 1919: 329,

352; Fraser 1976: 19; Chen 1986: 86ff.; Olsen 1996: 279; Svenonius 1996b: 50, among others).

(6) a. ??She sewed the sleeve with lace around the cuff on.
     b. She sewed on the sleeve with lace around the cuff.

(Olsen 1996: 279)

A long and complex object as the complement DP in (6) will follow the complex PV, i.e. will appear in the continuous construction. However, Svenonius (1996b: 50) notes that this effect might be due to the difficulty of parsing a particle in the final position in examples where the particle is superfluous for the grammaticality of the sentence. He argues that the example in (7b) is better than the one in (7a) (both examples taken from Svenonius 1996b: 50) because *lock* is not obligatorily a particle verb, whereas *turn* in this context must be followed by the particle.

(7) a. ?Lock all the doors on the second and third floors up.
     b. Turn all the lights on the second and third floors off.

Furthermore, he argues, in the heavy NP shift construction, very heavy DP's alternate in order even with non-particle elements.

I will argue below that the continuous order with heavy DP's is due to their news value. Long and complex DP's include modifying elements which increase the news value of the corresponding constituent, which therefore tends to be placed at the right edge of the sentence. This, of course, is true for both PV constructions and heavy NP shift constructions.

The *presence of a directional adverbial after the construction* has also been suggested as contributing to the choice of one construction over the other (cf. Fraser 1976: 17). If a directional PP is added to the VP, the discontinuous construction seems to be more frequent.

(8) a. He put the junk down onto the floor.
     b. ?He put down the junk onto the floor.   (Gries 1999: 110)

Furthermore, *modification of the particle* leads to the V DP Part word order, i.e. the continuous order is not allowed if a modifying element precedes the particle (cf. e.g. den Dikken 1995: 40; Svenonius 1996b: 50). Consider the example in (9) below.

(9) a. You must wipe spilt milk *right* up.
     b. *You must wipe *right* up spilt milk.

As will be outlined in more detail in Chapter 4.2 below, the *news value of the direct object* has been given as a factor related to the choice of word order (Erades 1961:57f.; Bolinger 1971:56f.; Chen 1986; Olsen 1996:278f., 1998b:315f.; Dehé 2000b:93ff.). If the nominal object has been mentioned before in the discourse or can be inferred from the preceding context the discontinuous construction is preferred, whereas the continuous order is preferred in cases where the object introduces new information into the context. This factor includes at least two of the aforementioned factors, namely the category and the length/complexity of the nominal object. Pronouns refer back to known entities, i.e. their content is not new to the discourse. Long and complex DP's include modifying elements which increase the news value of the constituent.

As has been argued e.g. by Fraser (1976:19), Chen (1986:82) and den Dikken (1995:92), the *idiomaticity of the construction* may contribute to the choice of the word order. At first sight it seems that the continuous order is preferred with (more) idiomatic PV's, whereas the discontinuous order is chosen for (more) compositional PV's. However, both den Dikken (1995:93) and Fraser (1976:19) give examples for both idioms in the continuous and the discontinuous order. The examples in (10) and (11) are taken from Fraser (1976:19) (10a) and (11a, b), and from Jackendoff (2002:86) (11c).

(10) a. shut up shop   ('to stop any kind of work')
          *shut shop up
      b. let off steam   ('to behave actively, using up strength')
          *let steam off
      c. give up the ghost   ('to die')
          *give the ghost up

(11) a. *take off Friday
          take Friday off
      b. *boss about someone[1]
          boss someone about
      c. *sing out one's heart
          sing one's heart out

Moreover, we find PV constructions that show a change in meaning or at least a preference with regard to interpretation according to the word order in which they occur. Consider the example in (12):

(12) a. pull up one's socks
      b. pull one's socks up

In (12a), the only possible reading is the compositional one, i.e. it is about socks that are pulled up, whereas (12b) can have both the compositional reading and an idiomatic one, namely *to pull oneself together*. (But note that not all native speakers of English might know the idiomatic reading, which may be peculiar to Australian English. The example was mentioned to me by Andrew McIntyre, p.c.)

To these factors that all contribute to the choice of word order, Gries (1999) in his functional/cognitive approach to PV constructions adds the factor of *degree of cognitive entrenchment* or *cognitive familiarity* of the referent of the object DP. According to Gries, the degree of entrenchment is measured by the position of the object's referent on an entrenchment hierarchy (Gries 1999: 124), which lists "abstract entities" as least entrenched, and "1st person singular pronoun" as most entrenched. According to Gries (1999: 115), the concept of *entrenchment* denotes its "familiarity due to the frequency of its successful use". Accordingly, a highly entrenched concept may be easily activated, a less entrenched concept is more difficult to activate. Highly entrenched referents are most likely to appear in the discontinuous construction, whereas barely entrenched referents appear in the continuous order. Roughly speaking, the more familiar, the more accessible the referent of the DP object is in the discourse, the more likely it is to appear in the discontinuous order. The concepts of the *news value of the direct object* and the *cognitive entrenchment of the referent of the object DP* are certainly related in some respect.

Contrary to what has sometimes been claimed in the literature (cf. Chen 1986: 84), definiteness or indefiniteness of the object-DP in English PV constructions play no independent role in the choice of its position. Both definite and indefinite objects occur with both constructions (cf. (13) for the discontinuous construction; cf. also Svenonius 1996b: 52; Olsen 1997a: 65f.). If the (in)definiteness of the DP plays a role at all, then this is due to the relation between the news value of the object and the corresponding choice of the article (examples in (13a–b) taken from D. H. Lawrence, *The Virgin and the Gipsy*: 11, 32, 73, (13c′) from the British National Corpus, (13c″) from the Olsen 1997a: 66, (13d′) from the Daily Mirror, January 2, 1992, (13d″) from Sue Grafton, *M is for Malice*: 86, (13‴) from the TIME Magazine May 11, 1998: 4).

(13) a. *Definite, Singular*
          Cynthia had *let the rector down* with a bang.
      b. *Definite, Plural*
          b′. [They were] all *lifting their skirts up* and warming their legs at the fire.
          b″. I suppose we shall have to *drag the old bikes out*.

    c.   *Indefinite, Singular*
       c′   Do not hesitate to *throw a card away* after rewriting it in a better form.
       c″   She doesn't want to *pass an opportunity up*.
    d.   *Indefinite, Plural*
       d′.   WHO are *putting prices up* so often you could think they had fitted a taxi meter to their products.
       d″.   "Why'd you have to come back abd *stir things up*? I was doing fine."
       d‴   In 1948, Soviet troops in eastern Germany cut Berlin's road and rail links to the west. For 11 months U.S., British and French airforces, … , flew food, fuel, and medicine into the blockaded city and kept the economy alive by *carrying manufactured goods out*.

Apart from the factor of the idiomaticity of the construction, all the factors are context-dependent. Therefore they do not provide an answer to the question of whether one of the orders is the underlying one in a context-free situation. In the next section, I will summarise suggestions that have been made about which order is the neutral one, if any.

3.2 Are there two underlying orders?

I have mentioned in the previous chapter that traditional syntactic analyses basically suggest two different (and very simple) structures for the two possible word orders. Remember that the main argument for the assumption of two structures is that the particle can be modified by an adverb *right* in the discontinuous, but not the continuous order (*put the customers right off* vs. **put right off the customers*). The projecting particle thus provides a specifier position that hosts *right*. This position is not needed in the continuous construction since modification is not possible. Although this observation is of course true, it does, in my opinion, not necessarily lead to the analysis suggested here, namely two different syntactic structures. Various different solutions have been put forward in the literature (cf. e.g. den Dikken 1995; Harley & Noyer 1998 among many others). Convincing arguments have been provided with regard to why *right* cannot modify a particle in the continuous order. In analyses where the PV starts as a complex head, modification becomes possible in the discontinuous order due to excorporation of the verb. If the PV starts as two separate heads, incorporation of the particle into the verb is assumed

to take place at some stage in the derivation of the continuous order, block-ing a possible modifier position. Moreover, as Olsen (2000) illustrates on the grounds of modification by *right* and similar elements, for some constructions there is an ambiguity between a PV and a V + adverb construction. For true PV constructions, I believe that it is not very attractive to assume two underlying orders with the particle projecting its own phrase in the discontinuous, but not the continuous order.

3.3   The discontinuous order as the neutral one

In this section, I want to summarise some of the suggestions made in the liter-ature in favour of the assumption that the discontinuous order with transitive PV's in English is the underlying one. It will become clear in the course of the discussion that I do not agree with this assumption. I have already men-tioned in the previous chapter that the SC-analysis of the form [V $_{SC}$[NP Part]] suggests that the postverbal DP forms a constituent with the particle which implies that the discontinuous order is the underlying construction, whereas the continuous alternate is the derived order. However, I have argued against the SC-analysis. Therefore, I cannot take points that are brought up in favour of this analysis as evidence for the assumption that the discontinuous order is underlying. Further arguments that I want to discuss in this section come from both purely theoretical and empirical perspectives.

   Based on evidence from purely theoretical grammar, Emonds (1972, 1985: 252ff.) and, following Emonds, Jackendoff (1997: 542f.) assume the dis-continuous order to be the underlying one for both compositional (direc-tional) and idiomatic PV constructions. Emonds analyses particles as intran-sitive members of the category P (i.e. as intransitive prepositions). He argues that this categorisation implies that the base position (deep structure position in his terms) of particles is the same as that of other PP's as complements of V, i.e. they should follow the direct (NP-) object. In order to derive the con-tinuous order, the particle must move around the NP-complement. Emonds mentions three facts in support of his claim. Firstly, he argues that particles in their directional use can satisfy a PP argument position to the right of the NP-object with verbs that may or must have directional complements, such as *put*, *take* and *carry* (cf. the examples in (14) and (15) below; cf. Emonds 1985: 256f.; Jackendoff 1997: 541f.).

(14) (examples taken from Emonds 1985: 257)

    a.   John put some toys in the garage.

    b.   John put some toys back/out/in.

(15) (examples taken from Jackendoff 1997: 541)

    a.   Beth took the food in.

    b.   Beth carried the food away.

It might be true at first sight for compositional PV's that the particle satisfies a PP argument position in these contexts, where particles can have an identical function to prepositional elements. Consider also the additional examples in (16), taken from Olsen (1997a: 46). It is less clear, though, for the examples in (17). Here, the particle is obviously not fulfilling the same function as a prepositional phrase, but changes the type of argument that is selected by the verb (17a, b), or the argument structures of the PV's do not seem to differ from those of the corresponding simplex verb at all (17c, d).

(16) a.   She took the mail in.   (…into the house)

     b.   She put her ring on.   (…onto her finger)

(17) a.   Andrew read the morning away.

         compare: Andrew read the book. / *Andrew read the morning.

     b.   Sue looked the word up.

         compare: *Sue looked the word up the dictionary. / *Sue looked the word.

     c.   Tom covered the computer up.

         compare: Tom covered the computer.

     d.   Holden drank his beer up.

         compare: Holden drank his beer.

Moreover, the examples in (18) and (19) below, taken from Olsen (2000: 156), show that the order given for transitive motion verbs plus particle such as the ones given in (15) above do have a continuous counterpart, where the particle does not occur in the position to the right of the object. This is not true for constructions where the verb is taking a full PP as complement, as shown in (20).

(18) a.   His footsteps *sent* air bubbles *up* to the surface.

     b.   They *take* tourists *out* along the river.

(19) a.   His footsteps *sent up* air bubbles to the surface.

     b.   They *take out* tourists along the river.

(20) a. Tom carried the food *in*.
     b. Tom carried the food *into the house*.
     c. Tom carried *in* the food.
     d. *Tom carried *into the house* the food.

Olsen argues in this connection that a distinction must be drawn between simple verb plus complex PP constructions, where the "particle" is not a verbal particle but the head of a complex PP, and PV plus simple PP constructions, where the particle functions as part of a complex PV. Moreover, McIntyre (2001b, cf. (21) and (22) below) and Zeller (2001a, cf. (23) below) show that in many cases particles serve as transitivisers with verbs that are otherwise used intransitively. In these cases, the particles do not seem to merely satisfy one of the verb's argument positions, but have direct influence on the argument structure by adding a position.

(21) a. pour out the water / pour out the bucket
     b. *pour the bucket

(22) a. they voted the government out
     b. *they voted the government

(23) a. Peter lächelt das Mädchen an.
        Peter smiles   the girl   at (particle)
        'Peter smiles at the girl.'
     b. *Peter lächelt das Mädchen.

The influence of the particle on the argument structure of the verb has been frequently discussed in the literature (cf. Booij 1990 for Dutch; Zeller 2001b, 2001; Olsen 1998b; McIntyre 2001a, 2001b among many others), and is certainly not answered in such a simple way as has been suggested by Emonds (1985) and Jackendoff (1997) by saying that the particle satisfies an argument position that is normally satisfied by a PP.

    Emonds (1985: 257ff.) and Jackendoff (1997: 542f.) further argue that evidence for the claim that the discontinuous order is the underlying one comes from the fact that the modifier *right* can be added to the particle only in the discontinuous construction. The element *right* is known as a modifier of prepositions of space and time, but of no other categories. That *right* and other modifiers occur with post-verbal (but not pre-verbal) particles (24), is taken as evidence for the claim that particles are intransitive prepositions.

(24) (examples from Emonds 1985: 258 and Jackendoff 1997: 543)
     a. He put the toys *right* back. / *He put *right* back the toys.
     b. They looked the answer *right* up. / *They looked *right* up the answer.

      c.   John brought the bottles *right* down. / *John brought *right* down the bottles.

      d.   sleep the night *half* away / *sleep *half* away the night

Jackendoff (1997: 543) argues that the continuous order appears to be the marked one because it is not possible in this particular syntactic surrounding, namely with such a modifier. It has to be mentioned though that there are also several syntactic surroundings where the discontinuous order is more restricted than the continuous one – and must therefore be assumed to be the marked one, e.g. constructions involving nominalisation, the co-occurrence of complex DP-objects, and wh-extraction, among others (cf. Chapter 2.3.2 above, and Section 3.4 below). Moreover, this point about modification has been used as an argument for various analyses, including suggestions as different as Radford's (1988) analysis, Small Clause analyses (e.g. den Dikken 1995: 38ff.), and extended VP analyses (e.g. Harley & Noyer 1998), so that it does not really seem to support one single analysis.

    Emonds' and Jackendoff's third argument in favour of the assumption that the discontinuous order is the underlying one concerns idiomatic particle verb constructions. The idea is that the opposite assumption, namely that the left-hand position is the underlying one, comes from considering only idiomatic PV constructions. Therefore, Emonds and Jackendoff give constructions such as for example *take NP to task* as evidence for the fact that there are numerous other idioms consisting of a verb and a PP, separated by an argument NP, and that therefore elements in idiomatic expressions do not have to appear adjacently. However, this latter idea is not new in the literature on PV's. As has been shown in Section 3.1 above, it has been argued before by Fraser (1976) and den Dikken (1995) among others that idiomatic PV constructions which do not undergo the word order alternation exhibit both the continuous and the discontinuous order, so that we cannot really draw conclusions from those examples, anyway. Moreover, the claim that only the idiomatic PV constructions have been considered in assuming the continuous order as the basic one is not true in the first place. Rather, the argumentation that the left-hand particle position is the underlying one, is based on other facts besides idiomaticity, too, among them the frequency of occurrence (van Dongen 1919), and the syntactic behaviour of particle verbs in morphological processes and syntactic constructions such as nominalisation, wh-extraction, and complex objects (cf. Johnson 1991; Olsen 1996, 1997, among others). Furthermore, additional evidence for the continuous order as the underlying order comes from experimental studies

(Hunter & Prideaux 1983; Dehé 2001; cf. Section 3.4 below). In these studies, both non-idiomatic and idiomatic materials were analysed.

I conclude that the points brought up by Emonds and Jackendoff do not convincingly support the claim that the discontinuous order is the underlying one.

Aarts (1989) concludes from his investigation of PV constructions in English that the discontinuous order is the underlying one and that the continuous order is derived by adjunction of the object-NP to VP. Remember that Aarts distinguishes between (spatial-resultative) A-verbs that select a SC-complement of which the particle is the head and the post-verbal NP is the subject, and (idiomatic) B-verbs which are subcategorised for one NP- and one PP-complement, the PP-position being taken over by the particle. For B-verbs, he thus assumes that the particle satisfies an argument position of the verb, similar to the assumptions made by Emonds and Jackendoff, which we have seen do not survive a closer look at the data. For A-verbs, Aarts' conclusion is straightforward from his point of view, since he seems to provide evidence for the claim that the sequence [NP Part] forms a constituent. However, I have already rejected Aarts' analysis in Chapter 2 above and will therefore not take it as evidence in support of the hypothesis that the discontinuous order is the neutral one.

In addition to these theoretical studies, there are more empirical studies that seem to provide evidence in support of the hypothesis that the discontinuous order might be the underlying one.

With respect to parsing strategies, Hawkins (1992, 1994) suggests that the discontinuous order is the underlying one on the grounds of his *Early Immediate Constituent Principle* (EIC). The EIC states that words and constituents in an utterance are ordered in a listener-orientated fashion in that hearers must be able to recognise syntactic groupings and their immediate constituents as rapidly and efficiently as possible. The EIC therefore results in orderings where longer/more complex constituents follow shorter constituents within one clause. In the example in (25), taken from Hawkins (1994:57), the structure in (b) would be preferred over the one in (a), since it provides a more rapid presentation of the immediate constituents of VP.

(25) a. I $_{VP}$[gave $_{NP}$[the valuable book that was extremely difficult to find] $_{PP}$[to Mary]]

b. I $_{VP}$[gave $_{PP}$[to Mary] $_{NP}$[the valuable book that was extremely difficult to find]]

In fact, the observation that long, complex constituents tend to follow shorter ones, i.e. that complex constituents tend to be positioned at the end of their clauses, goes back to Behaghel (1909, 1930). Behaghel (1909: 139, 1930: 86) refers to this observation as the *Gesetz der wachsenden Glieder* (Law of the Growing Elements), which states that of two constituents of different size, the larger one follows the smaller one. (But note also that Behaghel's *Gesetz der wachsenden Glieder* does not solely rely on length and complexity of the relevant constituents, but also on their news value (Behaghel 1930: 84ff.; cf. also Chapter 4.1.1. below)).

At first sight, both Behaghel's law of the growing elements and Hawkins' EIC would predict that the continuous order be the basic one, since the object-DP is more complex than the particle whenever the number of elements within the DP is ≥ 2, that is whenever it does not consist of a pronoun or any other single word DP. However, two points are given by Hawkins as arguments in support of the opposite hypothesis which states that the discontinuous order is the underlying one: Firstly, were the continuous order the basic one,

> we predict that there would never be any grammatical rearrangements to [V NP Part], because the former is already optimal for EIC. If the latter [= the discontinuous order, N.D.] is basic, however, we predict both the existence of two orders in performance and more rearrangements to [V Part NP] the greater the length and complexity of NP. This is exactly what we find [...].
>
> (Hawkins 1994: 88)

In other words, there would be no reason for the discontinuous order to exist at all, if the continuous order were basic, because it fits perfectly into the EIC. This argumentation brings up the question, though, whether a principle can be right that predicts a word order that perfectly fits into the principle to be the marked/derived one. It does not seem logical to me to assume that the order which is optimal for EIC (namely the continuous one) should be the derived, rather than the basic construction. The trouble is due to the fact that Hawkins' principle relies solely on the factor of syntactic weight, which leads to the problem that the discontinuous order need not be derived (and should therefore be ungrammatical) if the continuous order were basic. So why not include other factors into the theory such as context-dependency. In a context such as (26) as opposed to (27), for example, it is clearly not syntactic weight that is responsible for the word order that is chosen in the answer sentences, but the information status of the categories involved, a fact that will be difficult to explain solely in terms of the EIC. According to the EIC, the continuous order would be preferred for the answer sentences in both (26) and (27), since the number of elements within the DP's is equally 2 in both sentences. The

two answer sentences do not differ with regard to the length or complexity of the object-DP's involved. On the contrary, the two objects are exactly the same in this respect. However, there is a clear preference for the discontinuous order in (26), whereas in (27), the continuous order is clearly preferred due to the information status of the nominal object. I will return to the influence that the information status (new information vs. given information) has on the choice of the word order in some detail in the next chapter. At this stage of the discussion it is crucial to note that the EIC fails to account for the word order alternation as illustrated in (26) and (27).

(26)   (Q: What happened to the cat?)
       A: Someone locked *the cat* in.

(27)   (Q: Who/What did you lock in?)
       A: I locked in *the cat*.

A similar point has also been brought up by Gries (1999: 137) who argues that the basicness of the discontinuous order is "a striking exception to Hawkins' general line of reasoning since, in general, basic word orders are those orders whose arrangements conform to EIC rather than violate it [...]" and that Hawkins will not be able to explain the phenomenon related to PV constructions, since arguments concerning syntactic weight are the only arguments he admits. However, Hawkins (1994: 92) himself realises that it is not optimal with regard to the EIC to assume that the discontinuous order is the basic one. "From the perspective of EIC", he goes on,

> the grammaticalization of [V NP Part] as a basic order of English is anomalous, and it is predicted to be cross-linguistically infrequent and historically transient. It is inefficient and unmotivated to conventionalize a basic order that requires rearrangement in a majority of instances [...].
>
> (Hawkins 1994: 92)

Then why does he hold on to his hypothesis? Hawkins (1994: 93) argues that the [V NP Part] order is a relic of the earlier, more productive, rule which positions verbs and verbal dependants finally in the VP. Hence, his argumentation is derived historically, but he also notes that the performance motivation for the basic order no longer exists, and that in modern English the instances of rearrangements outnumber the retentions. Still, he assumes the discontinuous order to be basic and suggests the rule of *Particle Movement* in English, that converts the discontinuous order into the continuous one by moving the single-word particle from its underlying position to the position next to the single-word verb in the VP (Hawkins 1994: 100). This operation then improves

the EIC ratios whenever the DP is more than one word in length. However, in my opinion, it would be more economical to call the order basic that occurs in the majority of cases and that is more optimal with regard to the stated principles.

Hawkins (1994:181) also argues, that the grammaticalisation of the pre-particle position of pronouns is one of the arguments in support of the basicness of the discontinuous order (cf. examples (3) and (4) above). The particle movement rule is blocked in this case, since the EIC ratio is optimal in the discontinuous order, the pronominal DP consisting of only one word. This argument about the pronominal object, however, loses force under the consideration that pronouns refer back to aforementioned entities and therefore do not introduce new information into the context, which means that the discontinuous order is induced for that reason, as has been argued by Bolinger (1971), Erades (1961), Chen (1986), Olsen (1996, 1998b), and Dehé (2000b) and will be argued in more detail below. Moreover, the continuous order (and hence application of the particle movement rule in Hawkins' terms) is certainly possible with both single-word proper nouns (e.g. *lead up Dora* (to my room) vs. *lead Dora up*), and also with focused pronouns (cf. (5) above) which will be difficult to account for solely in terms of the EIC.

I conclude that the arguments discussed in this section do not convincingly support the idea of the discontinuous order as the basic one.

3.4   The continuous order as the neutral one

Having rejected the idea that the discontinuous order might be underlying, let us consider the continuous order. The idea that the continuous order is the neutral or at least more frequent one has been present in the discussion on PV's at least since van Dongen (1919). Van Dongen (1919:324) argues that the continuous construction is the "by far more usual one" and that it is "of great frequency". In his paper, he reports a study including 899 quotations containing PV constructions "taken from a great number of books without skipping any relevant examples". 740 out of these 899 occurrences were in the continuous order.

Chomsky (1957:75f.) argues that the continuous order is the basic one, analysed as $[V \rightarrow V_1 + Prt\ plus\ nominal\ complement]$. To allow for the discontinuous order, an optional transformation is set up which interchanges the particle and the nominal object and which is applied obligatorily when the object is a pronoun.

In more recent papers, Johnson (1991), Olsen (1996, 1997), and Nicol (2002) give syntactic evidence for the assumption that the continuous order is the basic one. I want to briefly summarise the main points supporting this idea. First, arguments in support of the PV as a complex head must be taken as evidence for the claim that the continuous order is basic. Word formation processes, selectional requirements, the behaviour of PV's in gapping constructions and topicalisation contexts have been mentioned in this connection in Chapter 2.3.2 above. In addition, the following syntactic phenomena are more restricted with the discontinuous construction than with the continuous alternate. Olsen (1996, 1997) and Nicol (2002) among others mention that, for example, *wh-extraction* from the complement-DP is only possible with the continuous, but not the discontinuous construction (examples in (28) taken from Olsen 1996: 280, (29) from Nicol 2002: 167):

(28) a. John *filled {out}* the forms from his wife's office *{out}*.
      b. Which office did John *fill out* the forms from?
      c. *Which office did John *fill* the forms from *out*?

(29) a. He *took {on}* the wife of his cousin *{on}*.
      b. Whom did he *take on* the wife of?
      c. *Whom did he *take* the wife of *on*?

Under the assumption that the continuous order is basic and the discontinuous alternate is derived by movement of the complement to a higher position, the ungrammaticality of the starred examples in (28) and (29) is straightforward. We know that a moved DP forms an island for extraction. If the complement DP is in its base position in the (b) examples, but has been preposed to the position between verb and particle in the (c) sentences, further extraction from the DP in (c) is prevented.

Furthermore, Olsen (1997a: 60f.) shows that the continuous construction, but not the discontinuous order is unproblematic with Verum-focus and it-cleft-constructions.[2] The examples in (30) (Verum-focus) and (31) (it-clefts) are taken from her article.

(30) a. He DID *show off* his new car.
      b. ??He DID *show* his new car *off*.

(31) a. It was to *stir up* trouble that he intended.
      b. ??It was to *stir* trouble *up* that he intended.

Similarly, the continuous order is preferred over the discontinuous alternate in the colloquial constructions *try and VP* (32) and *come and VP* (33) (cf. Olsen 1997a: 61):

(32) a. *Try and draw up* a serious contract.
     b. *??Try and draw* a serious contract *up*.

(33) a. *Come and check out* the house.
     b. *??Come and check* the house *out*.

There is also evidence from non-syntactic studies in support of the assumption that the continuous order is the underlying one. In an experimental study, Hunter & Prideaux (1983) have refuted the *Free Position Hypothesis*, which states that the particle can be freely inserted in either position, i.e. that sentence acceptability is unaffected by particle position. If this hypothesis were viable, then there should be no real differences in acceptability among sentences in which the particle is placed in any of its permitted positions. The aim of Hunter & Prideaux' (1983) study was to show that (1) sentence acceptability is affected by the position of the particle, and that (2) the structural complexity of the material intervening between the verb and the particle plays a role. Their study consisted of overt acceptability judgements on sentences of various types, containing PV's. Type 1 consisted only of a subject, a PV and a direct object NP, with the particle positioned either before or after the object (cf. (34a) and (b)). Type 2 was different from the first one in that the particle verb was within an infinitive (35). Type 3 contained a direct object plus a PP, with three subtypes defined in terms of particle placement (cf. (36a) through (c)). Finally, Type 4 contained a direct object NP plus a relative clause (RC), again with particle placement determining three subtypes (37).

(34) Type 1
     a. NP(Subj) V Prt NP(Obj)
         (e.g. *The janitor threw out the chair.*)
     b. NP(Subj) V NP(Obj) Prt
         (e.g. *The janitor threw the chair out.*)

(35) Type 2
     a. NP V to V Prt NP
         (e.g. *The janitor wanted to throw out the chair.*)
     b. NP V to V NP Prt
         (e.g. *The janitor wanted to throw the chair out.*)

(36) Type 3
     a. NP V Prt NP PP
         (e.g. *The janitor threw out the chair with a badly damaged leg.*)
     b. NP V NP Prt PP
         (e.g. *The janitor threw the chair out with a badly damaged leg.*)

    c. NP V NP PP Prt
       (e.g. *The janitor threw the chair with a badly damaged leg out.*)

(37) Type 4
    a. NP V Prt NP RC
       (e.g. *The janitor threw out the chair which has a badly damaged leg.*)
    b. NP V NP Prt RC
       (e.g. *The janitor threw the chair out which has a badly damaged leg.*)
    c. NP V NP RC Prt
       (e.g. *The janitor threw the chair which has a badly damaged leg out.*)

The participants were instructed to judge the sentences using a nine-point acceptability scale. The results of the study that are of interest for the present discussion can be summarised as follows: The types of sentences in which the particle was placed immediately after the verb were judged significantly more natural and acceptable than those in which the particle was displaced from the verb. Sentences (a) (continuous order in our terminology) were judged significantly more acceptable than sentences (b) (discontinuous order) for all four types. Similarly, sentences (b) were judged significantly more acceptable than sentences (c) for Types 3 and 4. Certainly, modification of the object noun by a PP (Type 3: (36)) or by a relative clause (Type 4: (37)) increases not only the complexity of the object NP, but also its news value, which leads, as has been mentioned above and will be shown in some detail in the next chapter, to the preference for the continuous order over the discontinuous alternate. It is thus not surprising that Types 3 (b) and (c) were significantly less acceptable than Type 3 (a). The same is true for Types 4 (b) and (c) as compared with 4 (a). However, in Type 1 (34) and Type 2 (35) the object NP is simple, but still the continuous order was judged significantly more natural and acceptable.

    I conclude at this point of the discussion that the arguments that have been brought up in support of the assumption that the continuous order with PV constructions in English is the underlying one seem more convincing than those provided in favour of the opposite hypothesis outlined in Section 3.3. In the next section, I will provide more supporting evidence in favour of this conclusion.

3.5 Evidence from an experiment in speech production

To further investigate the question whether one of the orders is the underlying one and indeed to enrich the evidence for the claim that the continuous order is

neutral I carried out the experiment in speech production that I want to report on in this section (cf. also Dehé 2001a).[3] The result of this experiment was that in a context-free experimental situation, the continuous order was produced significantly more frequently.

It was one aim of the experiment to find out if one of the two possible constructions was the basic or neutral one. It was a second aim to discover a potential difference in the production of different classes of PV's with regard to the choice of word order. The hypotheses were that (1) the continuous order is the neutral one and that (2) this result should be even more obvious for the idiomatic PV's (e.g. *polish off the meal*) than the compositional PV's (e.g. *carry out the washing*), because of the potential structural ambiguity between compositional PV constructions on the one hand and V plus adverb constructions on the other hand (cf. Olsen 1998b, 2000). The distinction between compositional, idiomatic, and aspectual PV's was made according to classifications of PV's in English that have been assumed in the literature (cf. e.g. Emonds 1985; Jackendoff 2002; cf. also Chapter 1.2 above). Accordingly, I chose three verb groups as experimental conditions, namely compositional PV's, idiomatic PV's, and aspectual PV's. Remember that the meaning of compositional PV's is made up of the meaning of the verb plus the meaning of the particle. Idiomatic PV's form a semantic unit whose meaning is not fully predictable from the meaning of its constituents. In aspectual PV's as used in the experimental material, the particle adds a telic interpretation to the verb, such as in *eat* vs. *eat up*.

The participants of the experiment produced simple sentences, consisting of a subject *She*, a particle verb, and a definite complement-DP. The linear order produced by the participants was the main dependent variable.

Let me make one additional remark. Recall from Chapter 1 above that the kind of classification used here is not undisputed for various reasons. Nevertheless, I chose this classification for the purposes of the experiment in order to find potential differences between the groups with regard to the preferred construction. As such differences were indeed found, the classification does seem to have some validity to it. However, note that with regard to intonation, differences between the classes were not found (cf. Chapters 4.3.3 and 4.3.4 below). I will therefore not make any difference between the PV groups in developing a syntactic structure in Chapter 5. I suggest that the differences between the verb groups that I found in the speech production experiment I report on in this section are due to the structural ambiguity between compositional PV's on the one hand and V+adverb constructions on the other hand. Cf. below.

3.5.1 Method

3.5.1.1 *Participants*

The experiment was carried out at the University of Leipzig with 28 paid participants. All participants were native speakers of English and were staying in Leipzig at the time of the running of the study. The participants did not know any details about the aims of the experiment. Each experimental session took about 30–40 minutes.

3.5.1.2 *Materials*

As materials I chose 30 experimental items per experimental condition, i.e. per verb group. The items were simple sentences of the form *She + PV + complement*. Examples are given in (38) through (40) below. The sentences were checked by a native speaker of English with regard to their grammatical correctness and semantic unambiguity. It was, to mention but one example, crucial not to use items such as throw up (throw up a ball in the compositional meaning 'to cause to rise by throwing' vs. throw up the dinner in the idiomatic meaning 'to vomit'), since these examples are not completely unambiguous in an isolated context.

(38) *Compositional PV* (verb group 1, experimental items 001-030):
    a. She carried in the tray.
    b. She turned away her eyes.

(39) *Idiomatic PV* (verb group 2, experimental items 031-060):
    a. She showed off her car.
    b. She polished off the meal.

(40) *Aspectual PV* (verb group 3, experimental items 061-090):
    a. She drank up her beer.
    b. She chopped up the cucumber.

Furthermore, three types of filler items were chosen. The first type consisted of a subject, a verb and a PP, as illustrated in (41).

(41) *Filler type 1: PV construction plus PP*
    a. She agreed with the boss.
    b. She flew to London.

Since with prepositional verbs it is only grammatical to produce the order V P DP, this filler type could not be used exclusively, as it might have primed the continuous PV construction. The second type were simple sentences with transitive verbs:

(42)   *Filler type 2: Transitive verbs*
  a. She opened the letter.
  b. She accepted the truth.

Since with transitive verbs the order V DP is the only possible order of constituents, this filler type could possibly prime the discontinuous PV construction, if there were no other kinds of filler items. The third type of filler items was formed by passive sentences with additional adverbials as given examplarily in (43) below:

(43)   *Filler type 3: Passive sentences including an adverbial*
  a. She had been stopped finally.
  b. She had been warned repeatedly.

Various positions within the sentence are possible for the adverb. Consequently, neither the discontinuous nor the continuous order of the experimental items could be primed by this filler type. To avoid priming effects of any kind, I used all three types of fillers, 60 per type.

3.5.1.3 *Design*
The sentences were split up into three fragments each (verb, particle, complement) as indicated in Table 3.1. For filler type 2, there were only 2 fragments, namely the verb and the nominal complement. Since the subject was identical for all types, it was not taken into account here.

  The fragments were presented on a computer screen in six different orders (= presentation types (PT)). These orders are given in Table 3.2, including an example. The frames in the last row represent computer screens.

  The subjects of the sentences were not presented on the screen, but the participants were instructed to start every sentence with *she*.

  The order of the experimental items was balanced across participants using a Latin square design, such that six experimental lists were set. Across the lists every sentence appeared in each order. Within one list, every experimental item appeared only once, the order according to the schema in Table 3.3. In each list, every presentational order was represented by five experimental items. This is

Table 3.1 Item types and fragments

	Exp. items	Filler 1 (V + PP)	Filler 2 (trans. V)	Filler 3 (passive)
Fragment 1	V	V	V	V
Fragment 2	Part	P	–	Adv
Fragment 3	DP	DP	DP	DP

Table 3.2 Presentation types (PT)

PT 1	PT 2	PT 3	PT 4	PT 5	PT 6
V-Part-DP	V-DP-Part	Part-V-DP	Part-DP-V	DP-V-Part	DP-Part-V
carried in the tray	carried the tray in	in carried the tray	in the tray carried	the tray carried in	the tray in carried

Table 3.3 Distribution of items and presentation types across and within experimental lists (1 = verb, 2 = particle, 3 = NP)

Exp. item	List 1	List 2	List 3	List 4	List 5	List 6
001-005	1-2-3 (PT1)	1-3-2 (PT2)	2-1-3 (PT3)	2-3-1 (PT4)	3-1-2 (PT5)	3-2-1 (PT6)
006-010	3-2-1	1-2-3	1-3-2	2-1-3	2-3-1	3-1-2
011-015	3-1-2	3-2-1	1-2-3	1-3-2	2-1-3	2-3-1
016-020	2-3-1	3-1-2	3-2-1	1-2-3	1-3-2	2-1-3
021-025	2-1-3	2-3-1	3-1-2	3-2-1	1-2-3	1-3-2
026-030	1-3-2	2-1-3	2-3-1	3-1-2	3-2-1	1-2-3

exemplified in Table 3.3 for verb group 1 (experimental items 001-030). Verb groups 2 and 3 (experimental items 031-060 and 061-090) and all the filler items were correspondingly dealt with.

The experiment was thus presented in six different variants (lists 1–6). The participants were distributed among the lists. Every list consisted of 90 experimental items and 180 fillers. The presentation of the filler items was the same in all the lists. The order of the items was pseudo-randomised under the restrictions (1) that no more than three experimental items were shown in an unbroken sequence and (2) that the same presentation type was not shown more than three times in an unbroken sequence. The lists were organised in three experimental blocks, the first block was preceded by a practice block. The practice block was the same for all six lists. It consisted of 10 items, i.e. two sentences containing compositional PV's, one sentence containing an idiomatic PV, one item containing an aspectual PV, plus two sentences of each filler type. None of the practice items occurred in the experimental blocks. The experimental blocks consisted of 30 experimental items, i.e. 10 for each condition, and 60 fillers, i.e. 20 for each type.

The materials were presented by the experimental software programme ERTS (*Experimental Run Time System*).[4] A trial scheme was set up as follows: at the beginning of each block the word ATTENTION was presented in order to

be sure of the participants' attention. Each trial was then started by a warning signal +, which was presented for 500 milliseconds (msecs). Then the item was presented for 2500 msecs: the three fragments at the same time one below the other, as indicated in the last row of Table 3.2. After that there was a pause of 1000 msecs, before the warning signal of the following trial appeared on the screen. After the last item of the practice block and of the first and second experimental blocks the pause signal 'HAVE A BREAK' was presented, the last experimental block was followed by 'THAT'S ALL – THANKS!!'.

3.5.1.4 *Procedure*

The participants were tested individually in a quiet, closed room. Before starting the experiment, they read the instructions. In addition to the description of the experimental procedure the participants were asked to say the sentences spontaneously, loudly, and clearly. After having studied the instructions, the participants had the opportunity to ask questions about the procedure. Then they triggered the presentation of the practice block by pressing any key on the computer. After the last practice item was presented, they again had the opportunity to ask about anything that was unclear. By pressing the space-bar, the participants started off the presentation of the first experimental block. The participants determined the length of the breaks between the experimental blocks. The presentation of the next block was triggered by their pressing the space-bar. On pre-prepared protocol lists, I recorded the word order chosen by the participants for each of the experimental items. On these protocol lists, all the items were listed in order of appearance. The order produced was encoded in the following way: I took down 0 for the continuous order, 1 for the discontinuous order, and 9 for error. (These values were recoded for the statistical analysis; cf. below.) The data raised in this manner were analysed descriptively and statistically.

3.5.2 Results and discussion

28 participants produced 90 experimental items each, i.e. 30 for each verb group, that is 2520 experimental items altogether, 840 for each verb group. No participant or experimental item had to be completely removed from the analysis for reasons of high error figures. 21 (or 0.8%) of all 2520 produced utterances were erroneous and were therefore excluded from the analysis. Utterances were classified as errors (1) if the particle was missing, or (2) if the produced sentence was otherwise incomplete. Other types of errors did not occur.
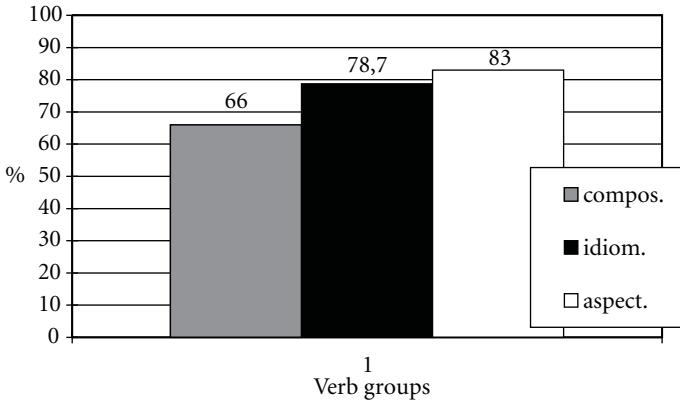
Figure 3.1 Percentages of continuous order productions
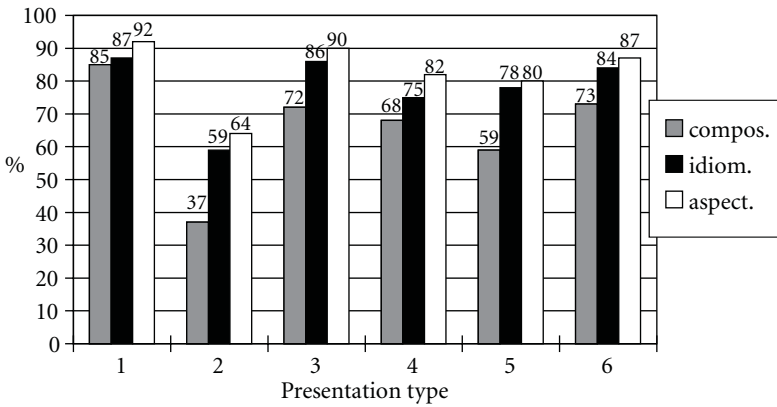
Figure 3.2 Percentages of continuous order productions as a function of verb type and presentation type

The results of the descriptive analysis are as follows. For all verb groups the continuous construction was the clearly preferred one. This pattern was even clearer for the idiomatic and aspectual PV's than for the compositional ones. 66% of all compositional PV's, 78.8% of all idiomatic PV's and 83% of all aspectual PV's were produced in the continuous order. These results are summarised in Figure 3.1.

Figure 3.2 shows the percentages for the items produced in the continuous order depending on verb group and presentation type. (Compare Table 3.2 for the order of the fragments in the various presentation types.)

The figure shows that the general pattern is the same in all six presentation types, i.e. the total number of items formed in the continuous order rises clearly from the compositional PV's, via the idiomatic PV's to the aspectual PV's. This is equally true for presentation types 1 and 2, which, due to the order of the fragments on the screen, could easily prime one of the constructions, namely the continuous one in the case of PT1, the discontinuous order in the case of PT2. Although PT2 presented the items in the discontinuous order on the screen, the percentages show that still more items were produced in the continuous than in the discontinuous order at least for idiomatic and aspectual PV's.

In order to confirm these results statistically, the response values were submitted to analyses of variance (0 = error, 1 = continuous order, 2 = discontinuous order produced). To allow generalisations over both subject and item populations, separate corresponding analyses were computed. The presentation types used in the experimental design were coded in the factor PRESENT (6 levels, cf. Table 3.2). VERB GROUP was the second factor involved in the statistic analysis (3 levels: compositional PV's, idiomatic PV's, aspectual PV's).

With regard to the produced linear order, main effects were obtained for both VERB GROUP (subject analysis: $F_1[2, 54] = 53.02$, MSE = 3.49, p < 0.001; item analysis: $F_2[2, 87] = 10.96$, MSE = 15.76, p < 0.001) and for PRESENT ($F_1[5, 135] = 31.36$, MSE < 1, p < 0.001; $F_2[5, 435] = 31.18$, MSE<1, p < 0.001).

These results indicate that both VERB GROUP, i.e. the class of PV, and the presentation type played a role in the produced linear order, as was suggested by Figure 3.2. The main effect found for PRESENT can easily be explained in terms of priming in the way suggested above. However, no interaction was found between PRESENT and VERB GROUP ($F_1[10, 270] = 1.44$, MSE = 1.04, p > 0.15; $F_2[10, 435] = 1.04$, MSE < 1, p > 0.4). Thus, the observation made in the discussion of Figure 3.2. above is confirmed, namely that the general pattern is the same in all six presentation types. The continuous order was clearly preferred for all verb groups and presentation types with the exception of compositional PV's in PT 2 (but remember that in this presentation type the discontinuous order was primed by the order of the fragments as they appeared on the screen). Aspectual PV's were most frequently produced in the continuous order, followed by idiomatic PV's and then by compositional PV's.

T-tests as individual comparisons between the verb groups revealed significant differences between verb group 1 (compositional PV's) and verb group 2 (idiomatic PV's) and also between verb group 1 and verb group 3 (aspectual

Table 3.4 T-test results for individual comparisons between verb groups

	1 (comp) vs. 2 (idiom)	1 (comp) vs. 3 (asp)	2 (idiom) vs. 3 (asp)
Subject analysis	$t_1(27) = 6.72$, $p < 0.001$	$t_1(27) = 9.73$, $p < 0.001$	$t_1(27) = 3.01$, $p < 0.01$
Item analysis	$t_2(58) = 3.03$, $p < 0.005$	$t_2(58) = 4.52$, $p < 0.001$	$t_2(58) = 1.34$, $p = 0.18$

PV's). Groups 2 and 3 differed significantly only in the analysis by subjects, but not in the item analysis. The corresponding t-test results are given in Table 3.4.

These results are very welcome, though not very surprising after what was outlined in Sections 3.3 and, particularly, 3.4 above. Firstly, my findings are in line with the hypothesis that the continuous construction is indeed the neutral one. In a context free experimental situation it was formed more frequently to the extent outlined above. I will take these experimental results as evidence for the assumption that the continuous order must be taken as the underlying one for all three verb groups. Secondly, the results are less clear for the compositional PV's than for the idiomatic and aspectual PV's. Recall from Section 2.3.2 that Olsen (1998b, 2000) argued that for some PV's, there is a structural ambiguity between PV constructions and transitive verbs that select an adverb. I take the results of this experiment, in particular the statistically significant differences between compositional PV's on the one hand and idiomatic and aspectual PV's on the other hand, as evidence for the assumption that this ambiguity is indeed given for compositional PV's, but not for idiomatic and aspectual PV's. Only in the case of true PV's, the continuous order is underlying. In the case of the combination of a transitive verb with an adverb, the discontinuous order is the only possible one. Adverbs are not allowed in the position between the verb and its nominal complement (*Nicole carried *ahead, behind, upwards* the basket). Under these assumptions, the fact that the continuous order was formed less frequently for compositional than for idiomatic and aspectual PV's to the extent outlined above follows straightforwardly from the underlying structural ambiguity. For the purpose of illustration, I have given the examples in (44) and (45) below. (The compositional PV construction in (44) corresponds to experimental item e024, the idiomatic PV *think up* in (45a) to item e056, the aspectual PV *spend up* in (45b) to experimental item e087.)

(44) a. She pulled {up} her scarf {up}.
      b. She pulled {up} her scarf {up} *straight* to her ears.
      c. She pulled her scarf *straight* up to her ears.

Let us first consider the case of the compositional PV in (44). In the discontinuous word order, *up* can be both a particle and an adverb, which is illustrated along the lines of (44b) and (c). In (44b), *straight* has scope over the prepo-

sitional complement *to her ears*, but not over the PV. We are concerned with an upward pulling which is straight to the ears. In (44c), *straight* modifies the upward pulling which is to the ears. Only in the case of (44b) can *up* be a particle. But only when *up* is interpreted as a particle can the continuous order be produced, since adverbs do not precede nominal complements.

In the case of idiomatic and aspectual PV's, there is no such ambiguity between a PV construction and a V+adverb construction. In the case of the idiomatic PV in (45a), *up* is not used in the directional meaning and thus cannot be interpreted as an adverb. The same is true for *up* in the aspectual PV in (45b).

(45)   a.   She thought up the idea.
       b.   She spent up her money.

If particles in idiomatic and aspectual PV constructions cannot be interpreted as adverbs, but particles in compositional PV constructions can, and if the continuous order is impossible with adverbs, then the significant differences that were found between the verb groups with regard to the produced linear order can be accounted for without assuming different underlying syntactic structures for true PV's of different classes. Therefore, I conclude that the results of the experiments do not force us to assume different underlying structures for the different classes of PV's. Rather, all true PV's have the same underlying structure, which is the continuous one, whereas V+adverb constructions behave differently in this respect.

Let me make some additional remarks. The reader might wonder why I did not include any measurements of production latency or initiation times in the experimental design. This is due to the fact that I do not believe that the results of such measurements within my design would allow any satisfying conclusions with regard to the underlying order or the syntactic structure of PV constructions. Let me briefly explain why.

Roelofs (1998), for example, assumes that syntactic transformations, i.e. the derivation of one structure from an underlying one, would result in a difference with regard to production latency. As an example, he investigates imperative forms in Dutch (e.g. turn off: *wegdraaien* vs. *draai weg*). He argues that if the imperative of PV's in Dutch were derived from an underlying form such as the infinitive by a syntactic movement process, the production latency of verb particle combinations in the infinitive form should be faster than that in the imperative form, but, on the other hand, should be the same for both forms if both orders were derived directly. In an implicit priming experiment conducted by Roelofs (1998, Experiment 3), no main effect of mood was

obtained, i.e. the mean production latencies for the infinitive and imperative forms did not differ significantly. Roelofs (1998:912) concludes that "the results are compatible with the idea that the imperative and the infinite forms of a verb-particle combination are produced by directly ordering the lemmas rather than by deriving the order of the imperative form indirectly from an underlying infinitive order".[5] With respect to syntax, we would then have to assume two different structures for the imperative and the infinitive form respectively.

These findings are in line with the results reported by Bock, Loebell & Morey (1992). Using active and passive sentences as materials, they investigated experimentally whether the surface relations in sentences are related to underlying relations and are derived by syntactic transformations, or whether the surface structure is generated directly. Their results seem to support a lexicalist or direct mapping assumption without transformations.

However, Roelofs (1998:913) qualifies his conclusion by saying that it remains possible that derivations do take place but simply cannot be detected. This again would leave us with a rather unsettled situation. We would not be able to decide whether the conclusion is correct that surface forms are not derived from underlying forms, and that there must therefore be different syntactic structures for two related expressions. Moreover, Ferreira (1991) argues that syntactic complexity (as measured by the number of nodes in a phrase structure tree) affects initiation time, in that the greater the syntactic complexity of an utterance, the longer it takes speakers to initiate it. Ferreira's production experiments show that this effect cannot be attributed to either semantic plausibility or to propositional complexity, but must in fact be put down to syntactic complexity. Now if we compare the structures of alternate options of a construction such as the particle verb combination in English, the complexity of a syntactic structure can be due to more than one fact. Either one of the alternating options is derived from the other, in which case the derived one would be more complex due to the movement operation involved. Or we can have two basic structures for the two occurring orders respectively, then one structure might be more complex than the other for independent syntactic reasons. This means that there would be no way for us to decide whether a potential difference in the initiation times is due to a derivation process or to a difference in complexity of two underling syntactic structures. (In fact, if we followed Svenonius (1996b) in that with regard to the economy of derivations there is no grammatical difference between the two orders, there should be no difference in the initiation times despite the fact that a syntactic transformation process is involved. But his is only one of numerous suggestions concern-

ing the syntactic structure of PV's in English, and as a SC analysis it is not an undisputed one.)

I therefore conclude that initiation time measurements would not provide us with meaningful results within the experimental design reported on above.

3.6 Conclusion

At this point of the discussion I conclude that with true PV constructions in English the continuous order is the underlying, neutral one. I have provided evidence for this claim from both previous studies and from the results of a speech production experiment that I have conducted. Moreover, I have rejected arguments that have been provided in favour of the opposite hypothesis, namely that the discontinuous order might be the neutral one. For a syntactic structure, this means that the discontinuous order will have to be derived from the basic continuous structure by a syntactic movement process. Furthermore, with the idea of the continuous order as the neutral one in mind, we would expect this order in contexts of broad/maximal focus – a prediction that is born out as will become obvious in the next chapter.

Notes

1. Andrew McIntyre mentioned to me that in general, *about* and *around* are worse with the continuous order than with the discontinuous one.

2. With Verum-focus in English, *do* is used to emphasise the truth of an action or event.

3. I would like to thank Jörg Jescheniak for invaluable help. Thanks also to Andrew McIntyre and Thomas Pechmann.

4. Information about ERTS can be found on the following webpage: <http://www.erts.de>.

5. Roelofs (1998:904) defines a *lemma* as a "memory representation of the syntactic properties of a word [...] for example, a verb lemma specifies the word's syntactic class (verb) and its valency (e.g. what kind of complements the verb takes, such as direct and indirect object) among other things [...]". For more details about the *lemma* cf. e.g. Levelt (1989), and Levelt, Roelofs & Meyer (1999).

CHAPTER 4

The choice of the word order
The role of information structure and intonation

Remember that the main questions that I am pursuing in this study include the following: Why do speakers choose one of the constructions possible with PV's in English over the other? When do they use the continuous order, when the discontinuous order and why? We need to find answers to these questions in order to model the processes involved in the mapping of PV's onto their syntactic structure. It was one of my crucial points in Chapter 2 that most of the analyses suggested so far in the literature do indeed offer syntactic structures for both alternate word orders and also for the movement processes that derive one construction from the other, but that they do not offer explanations as to what determines the choice of one order over the other and how the corresponding syntactic processes are triggered. In this chapter, I will offer a proposal with regard to the former problem, addressing the latter in the subsequent chapter. It seems to me that the choice of the word order is highly influenced, if not in most cases determined, by the information structure of the context. Although several factors have been suggested in the literature that determine the choice of one order over the other (as has been made explicit in Chapter 3 above) it seems as if most of these factors can be summarised under the facts that follow from the Theory of Information Structure (IS). In this chapter, I give empirical evidence for this claim. In Section 4.2 I both review the literature on PV's and IS and provide additional data. In Section 4.3 I provide experimental evidence from the intonation patterns of PV constructions, based on the relation between IS and intonation. In Section 4.4 I come back to the factors that influence the choice of the word order and show that nearly all of them follow from IS theory. Let me first give a short introduction to the theory of IS.

4.1 Information Structure theory: The theoretical background

4.1.1 Information Structure theory: A brief introduction

The term *Information Structure* (IS) refers to the division or organisation of the clause/utterance and its elements according to the discourse situation. IS reflects the relationship between the speaker's assumptions about the hearer's state of knowledge and consciousness at the time of an utterance and the formal structure of the sentence. Subtypes of IS are for instance the *Focus-Background-Structure* (FBS), the *Topic-Comment-Structure* (TCS) and the *Theme-Rheme-Structure* (cf. Halliday 1967b; Jacobs 1992; Steube 1997; Steedman 1991, 2000; Welke 1992 among many others). *Theme* refers to clausal constituents that refer to entities and information known by both the speaker and hearer. It is the part of the utterance that connects it to the rest of the discourse. It is what is being talked about. The theme is usually assigned the initial position in the clause, it is, as Halliday (1967b: 212) puts it, the "point of departure for the clause as a message". *Rheme* refers to constituents that contribute new information about the theme. The rheme generally follows the theme. In Halliday's (1967b: 211ff.) terms, the *unmarked* theme is that element in the clause "which the speech function would determine as the point of departure for the clause". This is the subject in declarative sentences, the wh-element in interrogative questions, and the auxiliary in yes/no questions. Marked themes appear in utterances such as [*These houses*] *my grandfather sold* or [*That*] *I don't know*, i.e. the marked theme represents a fronted constituent, which for some reason the speaker takes as his point of departure. It usually forms a separate information unit. Steedman (2000: 657) also points out the difference between *marked* and *unmarked themes*. Unmarked themes are entirely background and unambiguously established in the context. They do not contrast with any earlier given theme. Therefore, with regard to intonation, they are de-accented throughout. Marked themes stand in contrast to a different established theme.

   The *Topic Comment Structure* (TCS) assumes that one string of a sentence, the comment, has the purpose of providing information which concerns another element, the topic. The *topic* is the element which the proposition expressed by the sentence is about. A typical topic is a constituent that is used referentially and occurs in the initial position of the sentence. It can but need not be used anaphorically. The information carried by a topic is, in general, known from the context. However, Levelt (1989: 99) among others notes that a topic does not need to carry given information, but that a speaker can introduce a brand-new entity and at the same time make a comment about it. The

comment is the constituent that contributes a predication about the topic. In general, the comment introduces new information. Gundel (1988: 210) summarises these characterisations of topic and comment in the form of the following definitions:

(1) *Topic*
      An entity, E, is the topic of a sentence, S, iff in using S the speaker intends to increase the addressee's knowledge about, request information about, or otherwise get the addressee to act with respect to E.

(2) *Comment*
      A predication, P, is the comment of a sentence, S, iff, in using S the speaker intends P to be assessed relative to the topic of S.

As will become clear in the following sections, it is the *Focus-Background-Structure* (FBS) which is of main interest in our context. The *presupposition* or *background* of a sentence is in general defined as the part of the sentence which the speaker assumes the hearer already knows, which (s)he can infer from the preceding context, or which (s)he is ready to take for granted at the time the sentence is uttered, i.e. it is the information in the sentence that is assumed by the speaker to be shared by him and the hearer (cf. Lambrecht 1994: 52; Jackendoff 1972: 230; Gussenhoven 1984b: 22 among many others).

The *focus* of the sentence is defined by Jackendoff (1972: 230) as "the information in the sentence that is assumed by the speaker not to be shared by him and the hearer", by Lambrecht (1994: 213) as the "semantic component of a pragmatically structured proposition whereby the assertion differs from the presupposition". The focused part of an utterance cannot be taken for granted at a corresponding time of utterance. It is not predictable and cannot be inferred/recovered from the preceding context or discourse situation. It is typically new information which has not been mentioned before.

In terms of Ladd (1980) *broad focus* is focus that is placed on whole constituents or whole sentences, whereas *narrow focus* is focus on individual words. We also find the distinction between *maximal focus*, which is focus on the whole sentence, *intermediate* or *non-minimal focus*, where part of the sentence is focused, and *minimal focus*, where only one constituent of the sentence is focused (cf. e.g. Junghanns & Zybatow 1995; Zybatow & Mehlhorn 2000; Mehlhorn 2002). The distinction between the three types can easily be demonstrated by the following question-answer pairs. In general, the focus of an answer sentence within a question-answer-pair can be identified as the part of the sentence that substitutes for the wh-phrase in the question.[1] (The bracketed string labelled F indicates the focused part of the sentence.)

(3)   What happened?
      [Samantha bought a newspaper.]$_F$

(4)   What did Samantha do?
      Samantha [bought a newspaper]$_F$.

(5)   What did Samantha buy?
      Samantha bought [a newspaper]$_F$.

In (3), the whole sentence *Samantha bought a newspaper* is a possible answer to the question and conveys new information. This is a case of maximal focus. In (4), only part of the answer sentence is focused, namely the VP. The subject *Samantha* is known from the question. We have non-maximal, or intermediate focus. In (5), only one constituent of the answer sentence, namely the DP *a newspaper*, conveys new information. It is assigned minimal focus.

In the phonological literature, *focus* (in the *narrow* sense) is often used as the term for the information marked by the pitch accent, whereas the *background* part of the utterance is unmarked by pitch accent (cf. e.g. Selkirk 1984).

Different types of focus have been distinguished, namely *neutral focus*, also called *new information focus*, and two types of *special focus*: *contrastive focus* and Verum *focus*. Constituents that are marked for *neutral focus*, or *new information focus*, convey new or otherwise important information in the discourse. I will return to *new information* as opposed to *given information* or *background* later in this section. Similar to the neutral focus, *contrastive focus* marks new and important information, but in addition to that, a constituent so marked is contrasted with other potential assumptions, other entities in the discourse, and the like. It thereby corrects misinterpretations by the hearer or other false information involved and negates certain aspects of a preceding statement in the discourse. Information which is new and contrastive will automatically fall within the scope of focus and be prosodically prominent. With regard to the syntactic structure and linear order of the utterance, contrastive focus is not bound to a certain position. It can be assigned to every constituent in the sentence, and can therefore be realised at every structural position, a fact that has already been brought up by Newman (1946: 177) and that has also been discussed for Russian by Junghanns & Zybatow (1995), Zybatow & Mehlhorn (2000), and Mehlhorn (2002).

Verum *focus* emphasises the truth of the predicate. The assertion introduced by the context statement is reasserted. In English, this is achieved by insertion of an affirmative *do* as is illustrated in (6).

(6) A: Bill, you don't know anything. I thought you read the paper.
    B: I DID read the paper, I am just nervous.

Gussenhoven (1999: 51) speaks of Verum focus as "counterassertive" focus, as opposed to "presuppositional" focus in examples such as (7), where speaker A's proposition (that John reads books) is erroneous.

(7) A: Has John read Slaughterhouse Five?
    B: John does not READ books.

In what follows, I will concentrate on neutral focus, but will come back to the case of contrastive focus briefly in Section 4.3.3.

   The focus-background distinction and related concepts have also been discussed in the literature as *given* or *old information* vs. *new information* (Halliday 1967b; Prince 1981, 1992; Cruttenden 1997; Arnold, Wasow, Losongco, & Ginstrom 2000, hereafter Arnold et al., to name but a few). Halliday (1967b: 211ff.) and Halliday & Hasan (1976: 326) define two elements of an information unit, namely *new* information and *given* information. *New* information is not necessarily new in the sense that is has not been previously mentioned, but in the sense that the speaker presents it as information that is not recoverable to the hearer from the preceding discourse. The "newness", i.e. import of the relevant string, may also lie in the speech function. *Given* information is recoverable to the hearer from some source or other in the environment, where the environment can be the situation, or the preceding linguistic context. It tends to be represented anaphorically. Anaphoric items inherently represent given information as their interpretation depends on their identification in the preceding discourse. According to Halliday (1967b: 212), the concepts of theme and given information are independent in that 'given' represents what the speaker and/or hearer have talked about before, whereas 'theme' means what the speaker is currently talking about. It follows from this definition that a constituent that carries given (or background) information does not have to be mentioned explicitly in the preceding discourse, but that it is sufficient that it is recoverable/inferable from the discourse situation as a whole.

   Givenness has been defined in the literature in quite different but related ways, which can roughly be summarised under the notions of recoverability/predictability (e.g. Halliday 1967b; Halliday & Hasan 1976), saliency, shared knowledge, and familiarity (cf. Prince 1981; and also Siewierska 1988: 67ff. for a survey and discussion). Clark and Clark (1977: 92) state that information is 'given' information if it is identifiable and that new information is unknown. Cruttenden (1997: 81) defines *old* information as "information which

the speaker assumes to be already in some way in the consciousness of the listener and which is hence not in need of highlighting". Old information falls outside the scope of focus.

Halliday (1967b: 205) notes that the functions *given* and *new* are not the same as those of *theme* and *rheme*, but that there is a relationship between the two such that in the regular, unmarked case the focus of information will fall on something other than the theme, i.e. the focus will fall at least within the rheme, though not necessarily extending over the whole of it. It was stated earlier in Halliday's discussion that what is focal is new information. So it must be concluded that the rheme part of the sentence is at least in part, but not necessarily completely, new information. This is in line with the example given by Steedman (2000: 659), given here in (8) below. Steedman's example serves to illustrate the difference between the *theme/rheme* and the *focus/background* distinction:[2]

(8)   Q: I know that Marcel likes the man who wrote the musical.
       But who does he ADMIRE?

       A: (Marcel   ADMIRES) (the woman who DIRECTED) the musical.
                    L+H*LH%   H*   LL%

       Background *Focus*   *Background*   *Focus*   *Background*

                    Theme   Rheme

Marcel admires is the theme of the answer sentence, i.e. it is the part of the utterance that is known to the participants of the discourse, which connects the answer to the question. The part *the woman who directed the musical* is information that is given with respect to the theme of the sentence, i.e. it is the rheme of the utterance. Within both the theme and rheme parts of the answer, we can distinguish between focus and background. Within the theme part, *Marcel* is a background constituent. He is the person the discourse is about, so he is known. The verb *admires* is focused not because it is *new* information, but it carries the accent of this part of the sentence and is in a way contrasted to *like* in the first part of the question. In this connection, Steedman (2000: 656) notes that the use of *new information* for *focus* in general is "not entirely helpful", as the focused part of the discourse need not be entirely novel to the discourse. Within the rheme part of the sentence, *the musical* is part of the background, as it is known from the previous context. The verb *directed* is focused. It carries the new information of the answer utterance. In addition, it can be interpreted as contrasted with *wrote* in the first part of the question.

It is beyond the scope of this study to illustrate in more detail all the characterisations of information status that have been suggested in the literature. As *background constituents* I will classify elements (object DP's in this study) that have either been mentioned in the discourse/the preceding context or are inferable from the preceding context, i.e. from something else that has been mentioned or from a situation that has been established. As *new information* and *focus* I will classify those constituents that are truly new to the context situation. This classification might be a simplified concept, but is certainly sufficient for our purpose.

Now – how is a text or a discourse organised to account for the focus-background-distinction? In general, the neutral focus is structurally realised at the right periphery of the sentence/utterance, or, as Krifka (1998:95) puts it, "focus is realised as late as possible in the clause". This observation goes back at least to Behaghel (1930:84) who notes that the order of the constituents within a sentence is related to their content in that old, less important information precedes new, more important information. This generalisation has since been made not only in the generative, but also in the psycholinguistic literature and is known as the *Focus Last* generalisation.

Clark and Clark (1977:91) note that the way we express a proposition depends on what the hearer already knows. The tendency to express given information before new information appears to be universal. The authors explain this tendency as follows:

> [L]isteners first search memory for an antecedent to given information – for example, a referent for a definite noun – then attempt to attach the new information to this antecedent. They must find the antecedent in memory before they can attach the new information to it. Thus it is optimal to take in the given information before the new information; otherwise, they have to hold the new information temporarily while they search for the antecedent to which it is to be attached. (Clark & Clark 1977:548)

Levelt (1989:120) remarks that speakers usually place newly introduced information later in the sentence than information that is currently focused or is already in the discourse model. He defines *new information* as the "information that the addressee was not attending to but should be attending to now". The speaker can mark the new focus in two ways, namely by assigning it a pitch accent and by placing it at the end of the sentence (Levelt 1989:100).

Analysing large sets of data from written and spoken corpora, Wasow (1997) gives an speaker-oriented explanation of end-weight.[3] He shows that word order is chosen primarily in order for the speaker to facilitate production

and planning, not for the listener to facilitate parsing. In combination with the assumption that it requires less effort to produce known material than new material, this means that the postponing of new material facilitates the production process. Arnold et al. (2000) come to a similar conclusion. By means of a corpus analysis testing heavy-NP-shifts and dative alternations (DA) and an elicitation experiment with DA they show that postponing both heavy and new constituents facilitates processes of planning and production and thus influences the word order following the rule *given before new*. As other factors besides newness and heaviness that influence constituent ordering, Arnold et al. (2000: 50) mention ambiguity avoidance, idiomaticity, and the priming of syntactic structure.

However, there are also stylistic devices that support the marking of focused constituents and their distinguishing from the background part of the sentence. Halliday and Hasan (1976: 325) note that in English, the organisation of the text into information units is expressed solely by intonation patterns, and that it is therefore a feature only of spoken English. This assumption is possibly based on the observation made by Halliday (1967b: 205) that there is a tendency for given information to precede new information, but that this order is far from obligatory. However, that Halliday and Hasan's assumption cannot be maintained has been made explicit by Prince (1986, 1992) and Gussenhoven (1984b) among others who show that in English (as in related languages such as Dutch) focus is indeed most typically marked by accent placement, and that it indeed does not suffice to say that given information precedes new information, but that focus is also highlighted by certain syntactic devices, such as it-clefts (9a) and (10a, b), wh-clefts (9b), focus movement such as fronting (9c), (10c, d), and passivisation.

(9) She gave the shirt to Harry. (examples taken from Prince 1986)
  a. *It-cleft*
      It was the shirt$_i$ that she gave t$_i$ to Harry.
  b. *Wh-cleft*
      What$_i$ she gave t$_i$ to Harry was the shirt.
  c. *Focus movement (fronting)*
      A: I heard she gave a few dishes to Harry.
      B: No. A whole SET$_i$ she gave to him t$_i$.

In (9a), the it-cleft marks the focusing of *the shirt*. The same function is served by the wh-cleft in (9b). In (9c), the phrase *a whole set* in the answer sentence is contrasted with *a few dishes* in the first statement. It serves as a correction. By fronting, the focused element is placed at the beginning of the sentence.

(10)   a.   *It-cleft*
Later [David] hears Bill and Bev talking in low voices, and knows *it is he* they are talking about.

(J. M. Coetzee, *Disgrace*: 103)

b.   *It-cleft*
I opened a door to the cabinet. *It was the books* that first caught my eye.

(Anita Shreve, *Strange Fits of Passion*: 231)

c.   *Focus movement (Fronting)*
[Soraya] knows the facts of his life. She has heard the stories of his two marriages, knows about his daughter and his daughter's ups and downs. She knows many of his opinions. *Of her life* outside Windsor Mansions Soraya reveals nothing.

(J. M. Coetzee, *Disgrace*: 3)

d.   *Focus movement (Fronting)*
[Dialogue between two female characters in the novel: Judith and Stella; N.D.]
"'You tried to talk to [that guy] in awful Italian [...]'
'I did?' said Stella.
'You did indeed.[...]'
[...]
'... the old lady who blessed the car,' said Stella.
'Really? *Her* I've forgotten entirely. Anyway, [...]'"

(P. Lively, *Spiderweb*: 165f)

In (10c) (as in (9c)) it is contrastive focus that is responsible for the movement of the PP. *Her (life)* in the last sentence is contrasted to *his (life)* in the first sentence of the passage. In (10a) the it-cleft is used to emphasise the subject of the conversation between the persons taking part in the discourse and the listener's awareness of the fact that he himself is the subject. In (10b), the cleft-construction draws the reader's attention to one item in the cabinet that has first been noticed by the narrator, and, in addition, might be an unexpected entity in the narrative context. In (10d), the object pronoun *her* in the last line of the example is fronted and thus focused. It refers to the old lady mentioned in the preceding sentence by Stella, one of the participants in the dialogue. It also serves as a kind of contrast to an utterance not long before in the preceding dialogue, when Stella didn't remember a man that Judith did remember.

In English (as in other languages) there are also certain focusing adverbs, also termed focus sensitive particles (e.g. by Drubig 1994: 18), which exert an

influence on the interpretation of the sentence. The examples in (11) are taken from Kayne (1998: 156ff.).

(11)   a.   *Only* John came to the party.
       b.   John *only* gave Bill a book.
       c.   John gave Bill a book, *too*.
       d.   *Too John gave Bill a book.
       e.   John *even* gave Bill a book.
       f.   *Even* John came to the party.

Referring to these examples, Kayne (1998) discusses some properties of *even*, *only* and *too*. For example, *too* differs from *even* in that the latter but not the former can precede its focus (compare (11d) vs. (f). In (11f), *even* focuses only *John*, whereas (11e) allows a range of interpretations. *Only* in (11a) and (b) is similar to *even* in this respect. Cf. Kayne (1998: 145ff. for a more detailed discussion; cf. also Rooth 1996: 272 among others).

I will argue below that the syntactic operation involved in PV constructions in English cannot be traced back to any of the stylistic syntactic devices mentioned above, but exemplifies a different kind of operation. In Dehé (2000b) I argued that the movement process in PV constructions differs from focus movement in Prince's (1986) sense in that it is a background constituent, i.e. the DP-complement of the complex PV, that has to leave the focus domain via movement and VP-adjunction, an assumption that is in line with what Rosengren (1993, 1994, 1995) among others suggests (cf. below). Thus, it is not the focused constituent that moves but the non-focused one. I will modify this analysis in Chapter 5 below.

4.1.2 Information structure and syntax

Let me go into the relationship between IS and syntax in more detail. With respect to syntax, two early works have had a significant influence with regard to the context-dependent division of the sentence into information-structural units, i.e. with the mapping of mainly FBS onto the syntactic structure. Chomsky (1972) determines the FBS in reliance upon accentual criteria. Explicitly, he argues that the "phrases containing the intonation centre in the surface structure determine focus and presupposition" (Chomsky 1972: 96). However, Drubig (1992: 149) notes that such a connection is excluded in a modular conception of grammar because the FBS is involved in semantic interpretation and can therefore not be determined by phonological properties.

Jackendoff (1972: Ch. 6) paved the way for a mapping of information structure onto the syntax. As mentioned above, Jackendoff (1972: 230) divides the sentence into focus constituents, focus being "the information in the sentence that is assumed by the speaker not to be shared by him and the hearer", and presupposition, which denotes "the information in the sentence that is assumed by the speaker to be shared by him and the hearer". This division of the sentence is mapped onto the syntax by a so called *focus assignment rule*. Contra Chomsky (1972), focus is not dependent on stress, but rather stress on focus. Stress is thus a necessary, but not a sufficient condition for focus (Jackendoff 1972: 237). In overt syntax the focus position is marked by a feature [F], which can be associated with any node in the surface structure. The feature is relevant both for syntax and phonology. The focus domain is established by the dominance relation: material which is dominated by [F] constitutes the focus of the sentence (Jackendoff 1972: 240ff.). What is important in Jackendoff's model and has been of great significance for both subsequent focus models and my analysis suggested below is the establishing of a syntactic focus feature and the division of the sentence into focus and background (presupposition) which is based on this feature.

In the recent generative literature, several attempts have been made to map information structure onto the linguistic form, i.e. the syntactic structure. For German and Russian in particular, but also for Romance languages and English, movement operations that are apparently triggered by information structure have induced several authors to establish corresponding syntactic features, thereby mapping information structure onto the syntax. Amongst these features are the topic feature and the focus feature, [F$_C$] as a contrastive focus feature, and [+Anaphoric] as a feature marking anaphoric constituents (Rosengren 1993, 1994, 1995; Junghanns & Zybatow 1995; Junghanns 1997; Haftka 1994, 1995; Rizzi 1997; Steube 2000, among others). Some of these analyses are roughly sketched in this section.

Before I proceed, let me briefly turn to the notion of the *focus domain*, which I have used above without further explanation. The term *focus domain* goes back at least to Halliday (1967b):

> The domain of focus is thus not the tonic component as such but, in general, the highest rank constituent within which the syllable that is tonic is the last accented syllable. [...] What lies outside that domain can be said to have the function 'given'.   (Halliday 1967b: 207)

A focus domain is a syntactic domain which is always phrasal, not lexical in nature. Lambrecht (1994: 215) notes that this is so because IS is concerned with

the "pragmatic construal" of the relation between entities and states of affairs in given discourse situations, but not with the meaning of words or relations between the meanings of words. In the syntax, entities and states of affairs are expressed by phrasal categories, not by lexical items. Technically, focus domains are generally established by F-marking constituents, i.e. by assigning a focus feature to a phrasal category, or by focus projection. I will come back to the notion of focus projection, and also to the question of where exactly focus assignment takes place, in Section 4.3.1.3 below in connection with the relation between focus and accent placement.[4]

Like Jackendoff (1972), Rosengren (1993, 1994, 1995) divides the sentence into a focus and a background domain. The FBS is grammatically defined. A focus feature [+F] is freely assigned to the highest dominating node (XP) of the relevant focus domain. The relevant configurational relation is dominance: all constituents that are dominated by the node that carries the [+F] feature are focused. As opposed to Selkirk's (1984) *bottom-up*-model, Rosengren's focus feature percolates downwards: she speaks of *top-down-projection* of the focus feature. Accordingly, the focus feature places an upper boundary on the focus domain. The part of the sentence outside the focus domain is the background of the sentence. The dominating focus feature corresponds to [+P] in phonology which is an abstract accent marker. The constituent carrying [+P] in the focus domain carries the accent and is called the *focus exponent*. In the case of *wide* (= non-minimal or maximal) focus, [+P] is normally placed on the sister argument to the verbal head as the most deeply embedded element within the focus domain. The focus domain corresponds to at least one accent domain with at least one accent. It is important to note that it is not [+P] but [+F] that determines the extension of the focus domain. [+F] is not an operator feature. It follows that the constituent that is assigned the focus feature is not an operator either. Its meaning is not grammatically determined, as is for instance the case with case and agreement-features, but its function is purely pragmatic. Therefore, [+F] does not project a focus phrase in the syntax (cf. Chapter 5.1.2 below for the question of how the focus feature is integrated into the syntactic framework).

Minimal, intermediate and maximal focus can all be characterised by assigning [+F] to the relevant constituent. Suppose that within a sentence, [+F] is assigned to the VP as a dominating node. As the feature projects top-down, all constituents that are generated within VP are part of the focus domain. The domain can be restricted by movement operations, so that only focused constituents remain within the focus domain, non-focused elements have to leave the focus domain. In German, the relevant movement operation which is in-

volved here is *scrambling*. Rosengren (1993, 1994) and Haider & Rosengren (1998:2) define *scrambling* as an "optional change of the base order of phrases within the domain of the lexical head". The basic function of the scrambling operation is to express the relations between the entities which participate in the discourse and which are encoded in syntactic constituents according to the information structure of the context of the utterance. This function is achieved by the change of word order and by the resulting change of the hierarchy of the involved constituents. Scrambling in Rosengren's (1993, 1994) and Haider & Rosengren's (1998) sense is a local operation, i.e. it is clause-bound. The target position for the movement operation is the adjunction position of the involved lexical XP, typically VP. Functional categories do not play any role. By movement of non-focused constituents out of the focus domain and their left adjunction to the dominating maximal node, the focus domain is restricted to those constituents that bear the focus.[5]

A similar assumption with regard to movement of non-focused constituents in order to highlight focused elements has been made by Krifka (1998:90) for German. Krifka argues that it seems reasonable that in order for a constituent within a VP to be focused, other constituents that intervene between this constituent and the verb are moved out of their base positions. He further argues that the type of movement involved is scrambling. Krifka's assumption is based on his observation that focus in German is "preferably assigned to a constituent that immediately precedes the verbal predicate" (Krifka 1998:86).[6] The examples in (12) and (13) are taken from Krifka (1998:88).

(12)   (A: What did Hans read to Maria?)

B: Hans hat der Maria   [den RoMAN]$_F$ vorgelesen.
     Hans has the-DAT Maria the-ACC novel read
     'Hans read the novel to Maria'

(13)   (A: Who did Hans read the novel to?)

B: Hans hat den Roman   [der MaRIa]$_F$ vorgelesen.
     Hans hat the-ACC novel the-DAT Maria read
     'Hans read the novel to Maria'

Also for German, Steube (1997, 2000) assumes that constituents are moved out of the VP for reasons of information structure in the overt syntax. Steube's analysis focuses on the mapping of syntactic representations onto semantic ones. Without going into much detail on subtleties in the theory of syntax, her analysis is confined to the determination of the focus domain. Steube assumes that the case features of the subject and the object(s) are checked in the positions where these constituents are base-generated, which is the mini-

mal VP. Therefore overt movement for feature checking reasons is unnecessary. She further assumes that overt scrambling operations are triggered by information structural features. In German as a Verb-second (V2) language, verbs in declarative clauses move to C^0 for grammatical reasons. In this position, the verb has to be preceded by another constituent, as in (14a), where the verb *kauft* is preceded by the subject, and in (14b), where the adverbial *vielleicht* precedes the verb.

(14) a. $_{CP}$[Der Mann$_k$ kauft$_i$ $_{VP}$[t$_k$ ein Buch t$_i$]].
           The man-NOM buys   a book-ACC
      b. $_{CP}$[Vielleicht kauft$_i$ $_{VP}$[der Mann ein Buch t$_i$]]
           Perhaps   buys   the man-NOM a book-ACC
           'Perhaps the man buys a book'

New information focus is marked by [+F]. [+F]-constituents are typically realised at the right periphery of the sentence. [−F] is an anaphoric feature, which denotes information that is known to the participants of the communicative situation. [−F]-constituents are realised by definite NP's, pronouns, PP's and anaphoric adverbials, which typically precede the new information in the linear order of the sentence. Topics, i.e. constituents used referentially in the sentence initial position of a main clause or in the position that follows the introductory conjunction in a subordinate clause, are marked by [T]. The anaphoric [−F]-features trigger the scrambling movement operations, the topic feature triggers movement into the topic position. The focus domain in Steube's framework is always VP. In the case of maximal focus, the traces of the moved constituents (e.g. verb and subject in (14a), verb and adverbial in (14b)) are marked for [+F], so that the whole sentence is within the focus domain. In (15) below, the case of minimal focus is illustrated (example taken from Steube 1997).

(15) Minimal focus:
      (A: Was liest Dein Bruder gerade?)
          What reads your brother just.now?
          'What is your brother reading at the moment?'
      B: Er$_i$ liest$_k$ $_{VP}$[t$_i$, $_{-F, T}$ einen KRImi t$_k$, $_{-F}$]
          He reads   a-ACC detective.novel
          'He is reading a detective novel'

The complement *einen Krimi*, which is the element to be elicited by the question, carries the new information focus. It remains within the focus domain VP. Both the subject and the verb leave the VP for grammatical reasons. As they carry information that is known to the participants (because both the constituents are given in the question), their traces are marked for [−F], indi-

cating that subject and verb are not part of the focus domain. The subject *He* is additionally marked for the topic feature [T]. Now look at the example in (16), also taken from Steube (1997).

(16)   Der Junge$_{i, -F, T}$ hat$_{m, +F}$ an dem Dezembertag$_{j, -F}$ in der
     The boy   has   on that December.day   in the
     Schonung$_{k, -F}$ vielleicht $_{VP}$[t$_{j, -F}$ t$_{i, -F,T}$ t$_{k, -F}$ Weihnachtsbäume
     plantation   perhaps   Christmas.trees
     gestohlen t$_{m, +F}$]$_F$
     stolen
     'Perhaps the boy has stolen Xmas trees from the plantation on that day in December'

The sentence could be an answer to the question *What did the boy do in the forest plantation on that day in December?*, so that the focus is on *hat Weihnachtsbäume gestohlen* ('*has stolen Christmas-trees*'). *Weihnachtsbäume gestohlen* remains in the focus domain. The finite auxiliary *hat* ('*has*') moves for syntactic reasons, due to the fact that German is a V2 language. Its trace is marked [+F] to indicate that it is a member of the focus domain. The subject *Der Junge* moves into the position preceding *hat*. All other constituents have to leave the VP because they are – in Steube's terminology – anaphoric constituents. They adjoin to VP. Their traces are therefore marked for [–F].

    Steube's suggestion differs from Rosengren's in that the focus domain is always VP. Traces of constituents that are part of the focus but move out of the VP for syntactic reasons are marked for [+F] in order to indicate that they belong to the focus of the sentence. A different analysis for German has been suggested by Haftka (1994, 1995). Following Chomsky (1993), she assumes that syntactic movement is triggered by the morphological requirement of feature checking. Contrary to Steube (1997, 2000), she further assumes that in German, too, NP's move out of the VP to the specifier position of the relevant functional category to check their case against the head. Infl is split into the agreement projections AgrS, AgrO and AgrIO, and Tense. Haftka agrees with Steube (and others) for the assumption that scrambling in German is triggered by properties of information structure. She establishes syntactic features that correspond to these properties. Phrases incorporate the feature [+Anaph(oric)] when they refer to given entities. This feature is related to Steube's [–F]-feature in that it marks given information and triggers (if only indirectly) movement of the constituents thus marked. In Haftka's framework, the DP's marked for [+Anaph] have strong case features. These case features are responsible for overt movement of the corresponding constituent. On the other hand, case features of

[-ANAPH] DP's are weak and do therefore not involve overt movement. This difference between [+ANAPH] and [-ANAPH] constituents appears stipulative to me.[7] However, it serves to explain why presupposed constituents are scrambled in German. The feature [±ANAPH] does not project a functional phrase, but movement of the phrases marked for [+ANAPH] is to Agr-Spec-positions and to Spec-TP where the features are checked. [+ANAPH] normally corresponds to the phonological feature [-STRESS] at PF. In addition to the [±ANAPH] feature, Haftka (1994:153ff., 1995:7f.) assumes a topic feature [+Top] which is assigned to the topic constituent. Contrary to [±ANAPH], [+Top] projects a topic phrase TopP which is complement of C^0 in the syntactic structure. [TOP] is a strong feature that induces overt movement of the relevant constituent to Spec-TopP. The fact that contrastive focus is not bound to a certain position and can therefore be realised at every structural position is accounted for by the contrastive focus feature [+FOC$_C$]. This feature can be assigned freely to any phrase. It projects the functional phrase Foc$_C$P which is complement to T^0. The [+FOC$_C$] feature on the corresponding phrase is strong, which means that movement to Spec-Foc$_C$P for the purpose of feature checking is overt. [+ANAPH] constituents, too, can be contrastively focused. The example in (17), taken from Haftka (1995:9), serves to illustrate the relevant movement operations (ignoring the Foc$_C$P). All arguments of the verb are base generated within VP. The direct object and the indirect object, both marked for [+ANAPH], move overtly to the relevant Spec-Agr positions to have their strong case feature checked. The subject, which is the topic constituent, moves overtly to Spec-TopP via Spec-AgrSP. In Spec-TopP, the strong topic feature is checked.[8]

(17)   daß [$_{TopP}$ der Alte$_i$ $_{+ANAPH,+TOP}$[$_{AgrSP}$ t$_i$ [$_{AGRIOP}$ dem Kerl$_j$ $_{+ANAPH}$
        that   the old-NOM   the-DAT bloke
        [$_{AGRDOP}$ das Foto$_k$ $_{+ANAPH}$[$_{TP}$ t$_i$ [leider   [$_{VP}$ t$_i$ t$_j$ t$_k$ gab]]]]]]]
                   the-ACC photo   unfortunately   gave
        'that the boss unfortunately gave the picture to the man'

For Russian, Junghanns & Zybatow (1995) assume that overt movement is due to the requirements of information structure. The base word order in Russian is SVO. Overt movement of the subject, the verb and the direct object is allowed, but none is obligatory. Overt movement of the subject from its VP-internal thematic position to the Spec-position of a dominating functional category is allowed in cases where the subject is topicalised or appears in *thetic statements*, i.e sentences of the type *something happened*, where the whole sentence is focused (maximal focus) and contains no topic. Overt object movement is allowed with topicalised object constituents or when the object appears as a Neg-

XP. Because of the overt morphology in Russian there is no need to move constituents overtly for syntactic reasons. Since movement operations are therefore syntactically optional, it appears implausible to assume that the relevant features are strong in some cases and weak in others. Junghanns & Zybatow (1995) therefore assume that grammatical features in Russian are weak, that they are covertly checked at LF, and that syntactic constituents are moved for other reasons. They further assume that overt argument movement out of the VP is necessary only for discourse reasons: certain syntactic positions are associated with certain corresponding discourse functions. Thus, overt movement in Russian is due to IS. Such movement operations are regular processes in the overt syntax. Junghanns & Zybatow (1995:302ff.) propose two features based on information structure: [F] as a focus feature and [TOP] as a topic feature. These are purely syntactic features that are assigned to the appropriate constituents. (In defining the exact nature of the [F] feature, Junghanns & Zybatow follow Rosengren 1995 among others.) The features depend on the speaker's intention and therefore have a pragmatic function, namely emphasising the important information in a given context. [F] can be associated with different syntactic domains, such as the complement of the verb (minimal focus), the VP as a whole (intermediate focus), or the CP (maximal focus in categorial and thetic statements). The constituent that carries the topic feature moves to the syntactic topic-position. The topic position is the AgrSP-adjunction position, since it is assumed that Spec-AgrSP is the target position for subject movement in the case of thetic sentences with the subject in preverbal position. Since in this latter case the subject is not a topic, the Spec-AgrSP-position cannot serve as a topic position. Also, the subject position and the topic position cannot be identical, as non-subjects can also be topics (cf. Junghanns & Zybatow 1995:303 for an illustrating example). In principle, contrastive focus is not confined to a unique syntactic position, but contrastively focused constituents are made visible by means of intonation. The corresponding feature is $[F_C]$.

As briefly mentioned above, Prince (1986) argues for English and Yiddish that in terms of linguistic form, focus-presupposition constructions are marked by stress or by syntactic form in conjunction with stress, namely by constructions such as it-clefts, wh-clefts, focus-movement, and so forth. Olsen (1996:278ff.) mentions that English has a movement rule that preposes thematic objects (= objects that are background constituents). This idea is supported by transitive PV constructions with a pronominal complement as in (18).[9] However, the corresponding rule is not further specified, so that we do not learn from her analysis what exactly the nature of the movement operation

is, e.g. whether there is a feature involved that triggers the process. I will briefly return to her idea in Chapter 5 of this study.

(18)   a.   She sewed it on.
      b.   *She sewed on it.

Rizzi (1997) in his split-CP-analysis mainly deals with *Topic* and *Focus* in sentence initial positions, such as the ones given in (19) and (20) (taken from Rizzi 1997:285).

(19)   *Topic in sentence initial position*
      Your book, you should give t to Paul (not to Bill).

(20)   *Focus in sentence initial position*
      Your book, you should give t to Paul (not mine).

Based on data from Italian, French and English, Rizzi assumes that the complementizer layer of the structural representation of the clause includes a category *Topic* and a category *Focus* in addition to a category *Force* (which expresses the fact that a sentence is a question, a declarative, an adverbial etc) and a category *FIN(iteness)* (which selects a specification of finiteness which in turn selects an IP system with the familiar characteristics of finiteness). A *topic* in Rizzi's (1997:285) terms is a preposed element which is "characteristically set off from the rest of the clause by 'comma intonation'" and which is somehow "available and salient in the previous discourse". The *comment*, as a kind of complex predicate, introduces new information about the topic. A *focus*, on the other hand, is an element bearing focal stress and expressing new information, whereas the *presupposition*, the open sentence, expresses contextually given information. The two concepts are expressed, so Rizzi argues, by the X-bar schema. A topic head (Top^0), belonging to the complementizer system as a functional head, projects a TopP, selecting the comment as a complement (YP). The topic element moves from its base position to the Spec-TopP position, thereby forming a Spec-head configuration between Top^0 and topic phrase. Analogously, a functional focus head (Foc^0) selects the presupposition as its complement and takes the focus as its specifier. Since every constituent incorporating either a topic or a focus feature obligatorily ends up in its left-peripheral position by requirements of certain criteria (or feature checking), Rizzi argues that there is no optional adjunction to IP. The topic-focus system is present in the structure only if there is a constituent that bears the corresponding features that need to be sanctioned in the Spec-head configuration.

    Unfortunately from our point of view, it seems that Rizzi's analysis is restricted to sentence initial topic/focus, but it does not include for example fo-

cused elements placed according to the *Focus Last* generalisation. His analysis can therefore not account for IS-driven word order alternation within the VP, such as the alternation displayed by PV constructions in English.

For Romance (Spanish and Italian in particular), Zubizaretta (1998) assumes *prosodically motivated movement* (p-movement) that dislocates constituents that are not part of the focus of the sentence in order to leave the focused phrase in the rightmost position where it receives the nuclear stress. Consider the Spanish examples in (21) and (22), taken from Zubizaretta (1998: 22).

(21)   (Who ate an apple?)

      Comio una manzana JUAN
      ate   an apple   Juan
      'Juan ate an apple'

(22)   (What did Maria put on the table?)

      Maria puso sobre la mesa el LIBRO.
      Maria put   on the table   the book
      'Maria put the book on the table'

With regard to (21), note that in Spanish, the VOS order with main stress on the subject does not allow a focus-neutral interpretation, but only narrow focus on the subject (Zubizaretta 1998: 125ff.). The VOS word order is derived from the underlying VSO order via leftward adjunction of VP_2 to VP_1, i.e. non-focused constituents are moved leftwards of the focused subject, in order for the subject to be in a position where it can receive the main stress (ibid.). In (22), p-movement is not triggered by a focused subject, but by a focused object (*el libro*). P-movement is strictly local, i.e. its target position is immediately above the focused constituent. Zubizaretta (1998: 22, 141ff.) suggests that p-movement must apply prior to Spell-Out given that it feeds the accent assignment rules. P-movement is not motivated by feature-checking considerations, but it applies to resolve a prosodically contradictory situation: the fact that a non-focused constituent is generated in a position where it would receive accent, whereas a focused constituent that must receive the accent is not in an appropriate position.[10]

In this section, I have introduced some of the syntactic analyses suggested in the literature that integrate IS-triggered movement operations. We will see in the remainder of the study that the alternating word orders with regard to PV constructions can also be accounted for in terms of an operation involving the focus feature. The kind of operation that will be involved allows the derivation of a syntactic structure for PV's that mirrors the focus background structure. It seems necessary to note, though, that I will be concerned only with the VP

containing the PV and its nominal complement, but not with topics and only marginally with the syntactic subject (cf. Chapter 5.2.3.6 for the latter).

4.2 Particle verbs and information structure

The idea that the choice of the word order with regard to the PV construction in English is influenced by the context, that is by IS, is not new. Most of the factors that have been listed as responsible for the position of the particle in the literature on PV's, such as the category of the complement, i.e. pronoun vs. full DP, the complexity of the postverbal DP, stress of the direct object, modifications of the involved constituents, idiomaticity, the news value of the DP, intonation patterns, and other discourse factors, are closely related to the context situation or can be regarded as different aspects of the same phenomenon. I will come back to this claim later in this chapter. In the following section, I will introduce some of the studies that have pointed out that the information structure of the context is among the factors that have influence on the construction of PV's in English. I will then summarise the main assumptions made within these studies and underline their importance by providing additional data.

4.2.1 Particle verbs and information structure in the literature

Erades (1961:57) makes "the news value which the idea denoted by the object has in the sentence", i.e. the information status of the nominal object responsible for its position within the sentence. In PV constructions, nominal objects that carry new information are realised sentence finally, objects that do not carry new information but information that is known to the participants of the communication situation are placed between the verb and the particle. According to Erades (1961:58), the neutral object position is the final one, since nouns typically introduce a new idea in the sentence. Erades supports his hypothesis by several examples, among them the following, taken from Erades (1961:58):

(23)   We'll make up a parcel for them ... On the morning of Christmas Eve together we made the parcel up.

In the first part of the sentence the object *the parcel* brings in new information and therefore follows the verb-particle complex. In its second appearance *the parcel* is a background constituent and therefore it precedes the particle.

Erades (ibid.) further argues that among the objects that are placed between the verb and the particle are semi-pronominal nouns, such as *matter*, *idea*, *thing*, which in a given context refer to an idea or an entity that has already been mentioned in the communication situation or can be derived from the context. The same point is made by van Dongen (1919: 333), who argues that semi-pronominal nouns have a vague and indefinite meaning and function almost as a pronoun, and that they therefore appear between the verb and the particle. Pronouns are always realised in the position between verb and particle because they always refer to a noun that is familiar from the context, non-referring pronouns being the sole exception. (But note that contrastively focused pronouns can also follow the complex PV construction. Cf. example (29) below.)

If a verb implies the content of its object, i.e. if the object does not introduce any new information independent of the verb, the object appears in the mid-position. Erades (1961: 58) gives the example in (24) below, where the verb *cries* implies the object *eyes* which hence appears in the position between the verb and the particle.

(24)   She cried her eyes out.

This point has also been made by Bolinger (1971: 56), who gives the following example in support of the assumption that the object precedes the particle if its content has already been implied by the verb:

(25)   a.   Where's Joe?   He's sailing his *boat* in.
        b.   Where's Joe?   He's hauling in his *boat*.

In (25a), the object is most probably placed between verb and object because the verb *sail* is intuitively connected with a boat, which reduces the newsworthiness of the object. In (25b) on the other hand, the verb *haul* is less specified and less probable to occur with the noun *boat*, which is why the object follows the verb-particle complex.

Moreover, Bolinger notes that a certain *familiarity* of the object leads to its placement in the intermediate position, as shown by the following examples which are taken from Bolinger (1971: 57):

(26)   It's almost ten o'clock. Put *your nighty* on, now, and run up to bed.

(27)   I shouldn't think it would take you half an hour to do this small job. – Huh. It takes that long to put *the tools* away.

According to Bolinger, *the nighty* in (26) is familiar to a certain degree due to the *ten o'clock* context and therefore the object precedes the particle. Sim-

ilarly, the object *the tools* in (27) is inferred by the reference to *this small job* and therefore familiar in Bolinger's sense. Consequently, it is placed between the verb and the particle. So here it is the discourse situation from which the content of the nominal object can be inferred.

Chen (1986) shows that the order of particle and complement in the particle verb constructions depends to a high extent on the news value of the object with regard to the situational context. According to Chen, this is true both with regard to the discourse preceding the PV and with regard to the subsequent contextual situation. Chen's analysis is based on 239 occurrences of transitive PV.[11] According to the four variables in his study, Chen's results consist of four basic claims. First, he argues that there is a relation between the length of the object and the position of the particle: increased length of the direct object-DP increases the probability that the object will occur sentence finally. Chen puts this down to the fact that the length of the object is increased, for example, by modifications, which indicate that it has high news value. Secondly, Chen investigates the relation between the position of the particle and the encoding types of the direct object. The figures show that unstressed pronouns always precede the particle, whereas the final position of the object becomes more probable with definite and indefinite full DP's and is most likely with objects carrying contrastive focus. Thirdly, the closer the distance of the direct object to its last mention in the discourse, and that is: the more present the entity is in the hearer's/reader's mind, the more likely the discontinuous construction. And finally, the more relevant the direct object is for the following discourse, the more probable is the continuous construction.

Very recently, Olsen (1996, 1997, 1998b) has brought up the proposal that aspects of IS, i.e. focus-background structure, play a role for the order of particle and complement in PV constructions in English. Olsen (1996: 278f., 1998b: 315f. in particular) attributes the placement of the object-DP in the position between the verb and the particle to its thematicity, where 'thematicity' corresponds to background status. Since a pronominal DP is generally thematic in this sense, it precedes the particle.

(28) a. She sewed it on.
      b. *She sewed on it.   (Olsen 1996: 279)

As opposed to this, focused pronouns can follow the particle:

(29) The lights won't pick up THIS.   (Olsen 1996: 279)

Non-pronominal object DP's are found in the pre-particle position if they are thematic, but appear in the sentence final position, in cases where they are

focused. Modification of the DP leads to an increase of its news value and to focus placement on the DP (cf. Olsen 1996: 279, the examples in (30) are taken from ibid.):

(30) a. ??She sewed the sleeve with lace around the cuff on.
      b. She sewed on the sleeve with lace around the cuff.

Because of the syntactic behaviour of transitive PV's in English, Olsen (1996: 278 and elsewhere) assumes the continuous construction to be the primary one. She analyses PV's as lexical units. The idea is that the discontinuous construction must be derived from the neutral one by a syntactic movement operation which preposes thematic objects. Movement of the object DP takes place VP-internally. This idea will be picked up in later sections.

4.2.2 More data

The ideas about the relation between IS and the choice of the word order with PV constructions in English that can be found in the literature and have been outlined in the previous section can be summarised under three main assumptions which are formulated in (31) below. In the following sections, I will provide more data supporting these assumptions.

(31) *Main assumptions about the relation between IS and the choice of the word order with PV constructions in English*
      a. The neutral object position is the final one, which results in the continuous order.
      b. Nominal objects that introduce new information into the context appear in the final position, again inducing the continuous order.
      c. Nominal objects that do not introduce new information into the context but refer back to somehow familiar entities occur between the verb and the particle which results in the discontinuous construction.

4.2.2.1 *The neutral object position is the final one*
This assumption has been discussed in detail in Chapter 3 above. If the neutral order of PV constructions in English is the continuous one, and I have shown that this is the case, then it follows straightforwardly that the neutral object position is the one that follows the verb-particle complex.

4.2.2.2 *Nominal objects that introduce new information into the context occur in the final position*

The assumption that nominal objects that introduce new information into the context occur in the continuous order corresponds to the Focus Last concept. If the object-DP introduces new information into the discourse this DP is focused and is therefore realised in the sentence final position, i.e. it is preceded by the complex PV.

Most simply, simple DP's, both definite and indefinite, that introduce new information and are thus part of the focused constituent occur in this final position. In (32) and (33) the indefinite DP's *a local paper* and *a rendezvous* serve this function and therefore follow the complex verb. Both examples are taken from the National Geographic Magazine 01/2000: 62, 64. (I have set the corresponding parts of the sentences in italics for convenience.)

(32)   [...] by the end of the day [we] had reached the small town of Indianola. I *picked up a local paper* and read the [...] news of the region.

(33)   The combination of a heavy pack and the hard streets of Chicago aggravated an old knee injury. I could barely walk, let alone hitchhike. Next morning I limped to the Greyhound station and bought a ticket for Iowa City, then phoned Tomasz to *set up a rendezvous.*

The following three examples contain definite DP's which belong to the focused part of the sentence. In (35), the DP in question contains a possessive pronoun that refers to a preceding proper noun, but still, the head of the DP belongs to the focused constituent, which is why the DP follows the PV.

(34)   They agreed to have dinner the following night, enough time for her to prepare the kids and *fix up the house* and [...]

<div align="right">(John Grisham, The Testament: 482f.)</div>

(35)   – Poirot, Hastings –
"Our landlady stuck her head in at the door. There's is a gentleman downstairs. Says he must see Monsieur Poirot, or you, Captain. Seeing as he was in a great to-do – and with all that quite the gentleman – I *brought up his card.*"

<div align="right">(Agatha Christie, Poirot Investigates: The Mystery of Hunter's Lodge: 65)</div>

(36)   [Poirot] shot a quick glance at us. "It is not so that the good detective should act, eh? I perceive your thought. He must be full of energy. He must rush to and fro. He should prostrate himself on the dusty road and seek the marks of tyres through a little glass. He must *gather up the cigarette-*

end, the fallen match? That is your idea, is it not?"
(Agatha Christie, *Poirot Investigates: The Kidnapped Prime Minister*: 143)

In most of these sentences non-minimal focus is involved. The object-DP is part of the focused constituent together with the complex verb. The continuous order is chosen because it is the neutral order. Derivation of the discontinuous order is not necessary.

Most obviously, modified DP's occur in the final position, since modification of the DP leads to an increase of its news value and to focus placement on the DP. This is illustrated by the examples in (37) through (41). In (37), the DP *the villa* follows the particle because of its modification by the relative clause introduced by *that*. In (38), the DP *the means* is modified by the *by which* phrase and therefore occurs in the continuous order. The DP *guns* in (39) is modified by the following relative clause and therefore follows the complex verb. In (40) *the official version* is further modified by the following PP, as is *the value* in (41).

(37) After a few years he could not endure to be long out of England, and *gave up the villa that he had shared at Trauville with Lord Henry*, . . .
(Oscar Wilde, *The Picture of Dorian Gray*)

(38) Even if euro-efficiency brings a new era of growth and job creation . . . there will be a time lag of several years that could prove to be more than Europeans are willing to tolerate. But they will turn in vain to their politicians for relief, because the politicians are *giving up the means by which they traditionally reduce unemployment and absorb economic shocks*.
(TIME Magazine, May 11, 1998: 26)

(39) – beginning of article –
President Clinton outmanoevred Congress yesterday as he inaugurated a government scheme to *buy up guns held in private hands*.
(The Times: 10 Sept 1999)

(40) I *typed up the official version of my encounter with Guy Malek*, tucking one copy in my office files, another in my handbag.
(Sue Grafton, *M is for Malice*: 102)

(41) "Come now, monsieur, you're not going to *run down the value of details* as clues?"
(Agatha Christie, *Poirot Investigates: The Disappearance of Mr. Davenheim*: 154)

Also, semi-pronominal and pronominal objects, if modified and thereby focused, can appear in the final position, as is illustrated by the examples in (42) and (43):

(42)   We returned reluctantly, and Lord Yardly *sent off* one *of the footmen post-haste* to fetch the police.
(Agatha Christie, *Poirot Investigates: The Adventure of the Western Star*: 23)

(43)   "Well, if you ain't the beat'em for asking' questions!" sighed the boy impatiently.
"I have to be", retorted Pollyanna calmly, "else I couldn't *find out* a thing *about you.*"   (E. H. Porter, *Pollyanna*: 78)

In (42) it is the numeral *one* that is the element in question, in (43) the semi-pronominal object *a thing*, both elements are modified by an additional PP.

4.2.2.3 *Nominal objects that do not introduce new information into the context but refer to familiar entities occur between the verb and the particle*

Most typically, pronouns refer to a well-known entity, to a nominal constituent that has been mentioned before in the context. Therefore pronouns are placed between the verb and the particle. Examples are given in (44) through (55).

(44)   If Marilyn Monroe walked into Weight Watchers today, no one would bat an eye. They'd *sign her up*.
(National Geographic Magazine 01/2000: 116)

(45)   Pollyanna, you may bring out your clothes now, and I will *look them over*.
(E. H. Porter, *Pollyanna*: 40)

(46)   [...] how can he keep such a dreadful thing? I should think he'd *throw it away*.   (E. H. Porter, *Pollyanna*: 64)

(47)   Deacon took two cans from the fridge and *tossed one across*.
(Minette Walters, *The Echo*: 185)

(48)   The answer was yes, but Rex couldn't just *blurt it out*.
(John Grisham, *The Testament*: 454)

(49)   Nate had vowed to remain on the boat. [...] He would stay upon deck [...] The coldest beer in the world couldn't *pull him away*.
(John Grisham, *The Testament*: 207)

(50)   Imagine sitting in jail for eleven days while your brother, also broke and divorced, tried to convince your mother to *bail you out*.
(John Grisham, *The Testament*: 508)

(51)   The day we were to meet the Léfina gorillas, she left camp with two trackers an hour before us, to locate the gorillas and *settle them down*.
(National Geographic Magazine 02/2000: 94)

(52)   Trasatti picked up a pencil and then *put it down*.

(Sue Grafton, *M is for Malice*: 290)

(53)   "[...] Guy never did anything to you or to your family. He's the only one who ever treated Patty well." – "Liar. You're lying. You *made that up*."

(Sue Grafton, *M is for Malice*: 332)

(54)   She was *dressing herself up* and looking her most dazzling, [...]

(D. H. Lawrence, *The Virgin and the Gypsy*: 45)

(55)   [...] Come on, let's *dress ourselves up* and sail down to dinner like duchesses.   (D. H. Lawrence, *The Virgin and the Gypsy*: 44)

In (44), *her* refers back to *Marilyn Monroe*, and therefore appears between the verb and the particle. The same is true for *them* in (45), which refers to *the clothes*, and for *it* in (46), referring to an item referred to as *such a dreadful thing*. In (47), the numeral *one* refers back to the *cans*. The other examples behave accordingly. Particularly obvious are examples (45) and (52), as they contain both a particle verb construction in the continuous (*bring out* and *pick up* respectively) and one in the discontinuous order (*look over* and *put down* respectively), the discontinuous construction containing a pronoun which refers back to the DP that has been introduced as part of the preceding continuous particle verb phrase. In (47), we find a numeral, in (53) a demonstrative pronoun. In (54) and (55) we find reflexive pronouns in the position between the verb and the particle. In (54), *herself* refers back to *she*, which in turns refers back to a proper noun which is familiar in the discourse. In (55), *ourselves* refers to *us*, the persons taking part in the conservation. In the other examples we find personal pronouns. In (50), the pronoun *you* refers to the reader who has been directly addressed by the imperative form *imagine* and twice by the possessive pronoun *your*.

Moreover, we find simple DP's in the position between the verb and the particle, if they refer back to an aforementioned entity or are inferable from the context. Consider the examples in (56) through (61).

(56)   Doubtless many fragments had been whittled away from the pillars of the Philistine, before Samson *pulled the temple down*.

(D. H. Lawrence, *The Virgin and the Gipsy*: 75)

(57)   Stafford placed [the document] on the table and blinked his eyes at the camera. He needed a walk around the building, perhaps a blast of frigid air, but he pressed on. He picked up the third sheet, and said, "This is a one-paragraph note addressed to me again. I will read it: 'Josh: Rachel Lane is a World Tribes missionary on the Brazil-Bolivia border. She works

with a remote Indian tribe in a region known as the Pantanal. The nearest town is Corumbá. I couldn't find her. I've had no contact with her in the last twenty years. Signed, Troy Phelan."' Durban *turned the camera off*, and paced around the table twice as Stafford read the document again and again. [. . .]   (John Grisham, *The Testament*)

(58)   [. . . Eckart] fell out with Gloder over what he now saw as his leader's soft-pedalling tactics against the Jews and the two never spoke again before Eckart's death in 1923. At the time of Eckart's funeral Gloder complained to Göbbels that Eckart never understood that to *frighten the Jews away* early would be a tactical error. [. . .]   (Stephen Fry, *Making History*: 350)

(59)   Michael laboriously *puts down the bags*, pushes wide the door, *picks the bags up again* and enters, [. . .]   (Stephen Fry, *Making History*: 139)

(60)   Nate carefully opened the SatFone [. . . – conversation on the phone; N.D. – . . .] When Nate hung up and *put the phone away*, Jevy asked [. . .]
                                                          (John Grisham, *The Testament*: 530f)

(61)   In 1948, Soviet troops in eastern Germany cut Berlin's road and rail links to the west. For 11 months U.S., British and French airforces, . . ., flew food, fuel, and medicine into the blockaded city and kept the economy alive by *carrying manufactured goods out*.
                                                          (TIME Magazine May 11, 1998: 4)

In (56), the *temple* context has been establishes by the DP *the pillars of the Philistine*, which is why the DP *the temple* precedes the particle. In (57), *the camera* is being introduced in the first sentence of the paragraph, than picked up again so that it appears between the verb and the particle in its second occurrence. The same is true for *the Jews* in (58). The example in (59) unites the continuous and discontinuous order, where *the bags* in the first part of the sentence introduces new information, therefore follows the complex PV *puts down*, then is referred to again in the second part of the sentence where it appears between the verb *picks* and the particle *up*. In (60), the *phone* dominates the situational context, as it is being introduced, then it is being used by the character *Nate*, and then referred to, again. In addition, the verb *hung up* increases the degree of familiarity that *the phone* has, since *hang up* is intuitively connected with a phone. Due to this familiarity, the object *the phone* precedes the particle in its final occurrence.

In (61), an indefinite (plural) DP appears in the position between the verb and the particle. The object *manufactured goods* is part of the background of the sentence. Since the goods *food*, *fuel and medicine* have already been mentioned and since an *economy* context has already been established, the DP *manufac-

tured goods must be assumed to be familiar and inferable in Bolinger's (1971) sense. The discontinuous structure is therefore due to the background status of the DP. In addition to this the particle's weight is increased by the parallel structure of the clauses: *flew* […] *into* and *carry* […] *out*.

Also typically in the position between the verb and the particle appear semi-pronominal DP's such as *matter* or *thing*. Consider the examples in (62) through (64). In (62), *the whole thing* refers to an entity / a plan that has been specified in the preceding context, namely the "Ulster deal". In (63), *things* refers to what has happened in the past between the two people taking part in the conversation. In (64), taken from a detective novel, *the whole thing* refers to the fact that one of the characters has invented and spread the story of her own death in order to create herself an alibi for a murder.

(62)   Do you think it will *blow the whole thing up*?
                        (The Weekly Telegraph, 21 April 1998: 1 on the "Ulster deal")

(63)   "What are we doing?" I asked. "Good question. Why don't we talk about that? You go first." I laughed, but the issue wasn't really funny and we both knew it. "Why'd you have to come back and *stir things up*? I was doing fine."   (Sue Grafton, *M is for Malice*: 86)

(64)   "What was the cause of the death?" – "There wasn't one," he said. […] "No one ever asked for proof. […]" – "She *made the whole thing up*?" – "I'm sure she did," he said.   (Sue Grafton, *M is for Malice*: 328)

I will give a short intermediate summary in the next section.

4.2.3 Intermediate summary

Summarising the points made above, we can conclude that with regard to English PV constructions, the continuous order is the neutral one, and, secondly, the choice of the word order is context-dependent, in that nominal objects that belong to the focused part of the sentence in general follow the particle, whereas objects that do not belong to the focus but to the background part of the utterance precede the particle. In Dehé (2000b) I argued that the movement of the object involved in (68) is triggered by the mismatch between a DP that does not bear the [+F] feature and its base position within the focus domain (cf. also the introduction to Chapter 5 below for more details of my former analysis). I will be concerned with the exact syntactic structure in Chapter 5 below. I will modify the syntactic analysis I suggested in Dehé (2000b), but the

mismatch between the [+F] focus feature that is assigned to the VP and the [−F] focus feature within the focus domain will still play a role.

Using the [+F] focus feature and the brackets to indicate the focus domains, the resulting structures – which are preliminary with regard to their syntactic accuracy – can be summarised as in (65) through (68) below. I give question-answer pairs for the purpose of illustration. The examples used here correspond to the one in (57) above. (Note that the projections XP and YP in (68) are to be identified in the subsequent discussion; cf. Chapter 5).

(65) *Maximal focus*
      What happened?
      $_{CP\ [+F]}$[Durban turned off the camera].

(66) *Non-minimal focus*
      What did Durban do?
      He$_i$ $_{VP\ [+F]}$[t$_i$ turned off the camera.]

(67) *Minimal focus*
      What did Durban turn off?
      He turned off $_{DP\ [+F]}$ [the camera].

(68) *DP-complement as a background constituent*
      What did Durban do with the camera?
      Durban $_{YP}$[[[turned$_{i\ [+F]}$] $_{XP}$[[the camera$_{k\ [−F]}$] $_{VP[+F]}$[[t$_{i[+F]}$] OFF t$_k$]]]]

Contrary to Steube (1997) but in line with Jackendoff (1972) and Rosengren (1993, 1994, 1995) among others I do not assume that the focus domain is always the VP, but that the focus feature can be assigned to any node in the syntactic structure according to the thematic division of the sentence. In the case of maximal focus in (65) the focus domain is thus CP, in the case of non-minimal focus in (66) the VP, and in the case of minimal focus in (67) the object-DP. In the case where the DP-object is part of the background domain and the focus is on the complex verb, represented in (68), the focus feature is assigned to the lower VP (within a VP-shell-analysis) as the relevant constituent. The object leaves the focus domain. To indicate that the verb moves out of the focus domain for independent syntactic reasons I have added a focus feature to the verbal trace and its index in (68). The verb is of course part of the focused constituent. The particle remains within the focus domain as the focus exponent. (Cf. Dehé 2000b for details of a preliminary analysis. I will further elaborate the corresponding syntactic structure in Chapter 5 below.)

With regard to verb movement and indexation, Krifka (1998: 97f.) interestingly takes a comparable case of particle verbs in German as evidence for his

claim that focus assignment can precede syntactic movement. The corresponding example is given in (69) below, taken from Krifka (1998: 98). Suppose that the sentence in (69) is the answer to the question '*What did Maria do immediately*?' In this case, the focus is on the complex verb *anfangen* ('to start'), the particle *an* carries the main accent, it is the focus exponent. This is indicated by the capital letters. *Anfangen* is a non-compositional particle verb consisting of the verb *fangen* (literally: 'to catch') and the particle *an* (literally 'at').

(69)   Maria fing sofort AN.
       'Maria started immediately'

       D-Structure $[_{CP}$ e $[_{C'}$ e $[_{IP}$ Maria [sofort [an [fing]]]]]]
       Focus assignment $[_{CP}$ e $[_{C'}$ e $[_{IP}$ Maria [sofort [an [fing]]$_F$]]]]
       Movement to C^0 $[_{CP}$ e $[_{C'}$ fing$_1$ $[_{IP}$ Maria [sofort [an [t$_1$]]$_F$]]]]
       Movement to Spec-CP $[_{CP}$Maria$_2$ $[_{C'}$ fing$_1$ $[_{IP}$ t$_2$ [sofort [an [t$_1$]]$_F$]]]]

Since German is a V2 language, *fangen* moves to its upper position obligatorily, leaving the particle stranded. Krifka argues that we cannot assume focus on the particle (which he calls *prefix*, which it is not) alone, because it carries no meaning independent of the verb. The complex verb originates as a continuous expression in the underlying D-structure. As focus is on the verb as a whole, focus has to be assigned prior to the obligatory verb movement to C^0. The stranded particle obviously functions as the focus exponent.

We would have to assume then that in the case of English PV's also, focus assignment is prior to movement of the verb, as focus assignment to traces is "presumably impossible", as Krifka (1998: 98) notes, because they are phonologically empty. I will return to the assumption that focus assignment precedes overt syntax in Section 4.3.1.3 below.

4.3 Evidence from intonation patterns

It is a well known fact that there is a relation between IS and intonation. The purpose of this section is therefore to give additional evidence from intonation patterns for the assumption that the choice of the word order of PV constructions depends on the focus background distinction. Let me begin with an introduction to the theoretic background.

4.3.1 The theoretic background

4.3.1.1 *Intonation, prosodic parameters, phonological phrasing, and performance structures*

The term intonation refers to the occurrence of recurring pitch patterns, to the prominence (and non-prominence) of syllables, to how and to what extent the syllables are made prominent, and to phonological phrasing. Intonation conveys sentence-level pragmatic meanings in a linguistically structured way. Pitch concerns the varying height of the pitch of the voice, i.e. it refers to what the listener hears as high or low tonal properties, to rising and falling voice patterns. It is the prosodic feature most centrally involved in intonation. Pitch is primarily dependent on the rate of vibration of the vocal cords. The rate of vibration of the vocal cords is reflected in the acoustic measurement of fundamental frequency (F0). The typical F0 range for females is 150–350 Hertz (Hz), for males 80–200 Hz.

In languages such as English, F0 is the strongest correlate of how the listener perceives the speaker's intonation, i.e. of accent placement and phrasing. Ladd (1996:45f.) defines a *pitch accent* as "a local feature of a pitch contour [...] which signals that the syllable with which it is associated is *prominent* in the utterance". According to Ladd (1987:639), Bolinger (1958) was the first to use the term *pitch accent* to refer to a prosodic element which is simultaneously a marker of prominence and a "building block for intonation contours". Bolinger (1958:111, 129) argues that "pitch is the main cue to stress" and that "the item that is given pitch prominence [...] is heard as accented". Intonation is an expressive device of language. Pitch accent expresses the prominence of a concept.

In English, the tonal pattern is not an intrinsic part of the lexical representation, but the melody, or the intonation of words and sentences functions to convey pragmatic information.

Other prosodic features besides pitch or the pitch accent are loudness, i.e. the relative loudness of a number of successive units, i.e. syllables, or changes of loudness within one unit, and length, i.e. the duration of the same syllable in one environment relative to the duration of the same syllable in another environment or the relative duration of a number of successive syllables. Bolinger (1958:138) among others observes that accented syllables are normally longer than unaccented ones in comparable positions within the utterance.

F0, intensity (= the physical term for amplitude of sound waves), and duration are physical properties, whereas pitch, loudness, and quantity respectively, are their psychophysical correlates.

Phonological Phrasing. Phonological phrasing and the syntax-phonology mapping will play a role in the discussion of the experimental studies on the intonation of PV constructions, which I report on in Sections 4.3.3 and 4.3.4 below. I therefore want to introduce the main concepts first.

In the relevant literature on prosodic phonology, researchers have isolated a number of phonological domains at sentence level and below (Selkirk 1984, 1986; Nespor & Vogel 1986 to name but a few; cf. Truckenbrodt 1995 for a survey). Of these, the existence of the following is uncontroversially assumed:

–   the prosodic utterance
–   the intonational phrase (I-phrase)
–   the phonological phrase (φ-phrase) (also termed *intermediate phrase*, cf. Beckmann & Pierrehumbert 1986; Pierrehumbert & Hirschberg 1990)
–   the phonological word.

Additional levels, which I will neglect here, have also been proposed, such as the *clitic group* between word level and φ-phrase (Nespor & Vogel 1986: 145ff.). Due to our topic, we will be mainly interested in the I-phrase and the φ-phrase. Prosodic constituents show systematic relations to syntactic constituents, but have been argued not to be isomorphic to syntactic constituents. Instead, there are rules or constraints that relate syntactic-semantic structure to prosodic structure. These mapping constraints relate sentences to prosodic utterances, clauses to I-phrases, XP's to φ-phrases and X^0's to phonological words.

In isolating prosodic constituents, a relation between syntactic structure and phonological phrasing has been noted such that the non-application of a phonological rule between two syntactic elements suggests the presence of an abstract phonological boundary between phonological domains. It is then the phonological boundary that prevents the phonological rule from applying. The distribution of phonological boundaries and its relation to the syntax has been formulated by Truckenbrodt (1995: 13) as in (70):

(70)   Insert a \$-boundary in the phonological representation to the right of each XP [where \$ is an arbitrary boundary symbol, N.D.].

One such phonological rule, applied in the domain of φ-phrase, is *Raddopiamento Sintattico* (RS) in central and southern varieties of Italian (Nespor & Vogel 1986: 38ff., 165ff.). The rule lengthens the initial consonant of a word w_2 in a sequence [word w_1 word w_2] under certain phonological conditions. The condition on w_1 is that it must end in a stressed vowel. RS applies in (71a), but not in (71b). The condition on w_2 is that the onset of the first syllable be either a single consonant or a cluster other than *s* followed by another consonant.

Therefore, RS applies in (72a), but not in (72b) (examples in (71) through (73) taken from Nespor & Vogel 1986: 38, my glossary).

(71) a. La   scimmia aveva appena mangiato metá [b:]anana.
          the monkey   had   just   eaten   half banana
          'The monkey had just eaten half a banana.'
      b. Il   gorilla aveva appena mangiato quáttro [b]anane.
          the gorilla had   just   eaten   four   bananas
          'The gorilla had just eaten four bananas.'

(72) a. Il   ragno aveva mangiato metá [f:]arfalla.
          the spider had   eaten   half butterfly
          'The spider had eaten half a butterfly.'
      b. Il   ragno aveva mangiato metá [s]corpione.
          the spider had   eaten   half scorpion
          'The spider had eaten half a scorpion.'

In addition to these phonological requirements on the words that are involved, there is a condition on the relation in which the words are to each other. RS does not apply in (73), although the phonological requirements are fulfilled.

(73) La   volpe ne   aveva mangiato metá [p]rima di addormentarsi.
      the fox   of.it had   eaten   half first   of falling.asleep
      'The fox had eaten half of it before falling asleep.'

According to Nespor & Vogel (1986: 165ff), the rule RS cannot apply if w_1 belongs to a syntactic XP that excludes w_2.[12]

An example for a rule applied in the domain of I-phrases is that of *Gorgia Toscana* (GT) in Italian (Nespor & Vogel 1986: 42ff., 205ff.), which basically changes the voiceless stops /p/, /t/ and k/ into the corresponding fricatives [Ø, θ, h] when occurring between two non-consonantal segments within and across words. An example (taken from Nespor & Vogel 1986: 42) is given in (74).

(74) Lo   zoo ha   appena comprato una nuova [Ø]antera.
      the zoo has just   bought   a   new   panther
      'The zoo has just bought a new panther.'

That this rule is applied within a domain larger than that of RS can be seen from the fact that GT applies in contexts where RS does not apply, e.g. between a subject and a following verb (cf. Truckenbrodt 1995: 13, 15). However, neither of the rules applies across two words if one of them but not the other is in an appositive relative clause, vocative, or similar syntactic constituent. RS then provides evidence for the presence of a φ-phrase and a corresponding boundary, GT for the presence of an I-phrase and a corresponding boundary. RS can

apply within a φ-phrase but not across a φ-phrase boundary, GT can apply within an I-phrase, but not across an I-phrase boundary. GT application is illustrated by the examples in (75) (taken from Nespor & Vogel 1986: 206, my glossary; c indicates application of GT, c̲ indicates non-application).

(75) a.   [I Hanno   catturato sette canguri   appena nati]I
          have-3.Pl captured seven kangoroos just   born
          'They have captured seven newly born kangoroos.'

      b.   [I Certe tartarughe]I [I c̲ome si sa]I [I vivono fino a duecento anni]I
          'Certain turtles, as you know, live up to two hundred years.'

In English, prosodic boundaries are represented by boundary tones (cf. the following section). The presence of an I-phrase boundary necessarily means the presence of a φ-phrase boundary. The fact that boundaries at each level of phonological structure are also boundaries at the next lower level follows from the hierarchical organisation of prosodic constituents. One expression of the hierarchy in prosodic structures is the *Strict Layer Hypothesis* (SLH), formulated by Selkirk & Shen (1990: 320) as the universal well-formedness constraint defined in (76).

(76) *Prosodic Structure Well-Formedness Constraint* (Selkirk & Shen 1990: 320)
      The prosodic structure of a sentence must conform to the rule schema
      $C^n \rightarrow C^{(n-1)}$ *.

According to this universal constraint that defines the general nature of prosodic structure, an utterance is exhaustively parsed into a hierarchy of constituent types C^n, C^{n-1}, etc. These constituent types are strictly layered in that a constituent of type C^n dominates only constituents of lower types, i.e. C^{n-m}, i.e. no node may dominate another node of the same category. The constituents are organised into a well-formed, non-recursive tree or bracketing. Thus, assuming the four domains given above, I-phrases exclusively consist of φ-phrases, but not of further I-phrases, φ-phrases consist of phonological words.

Although the theory of prosodic phonology is primarily concerned with prosodic constituents, it is also concerned with prominence. For example, Nespor & Vogel (1986: 168), in defining the formation of their concept of a φ-phrase, include the notion of prominence:

(77) *φ relative prominence*   (Nespor & Vogel 1986: 168)
      In languages whose syntactic trees are right branching, the rightmost node of φ is labelled *s*; in languages whose syntactic trees are left branching, the leftmost node of φ is labelled *s*. All sister nodes of *s* are labelled *w*. [*s* = strong, *w* = weak, N.D.]

In English then, prominence must be on the rightmost constituent within a φ-phrase.

Now let us turn to the question of how exactly φ-phrases and I-phrases are defined. We have seen above from the brief description of RS and GT that there are phonological boundaries of different strength. With the transition from different types of boundaries to different constituents, these constituents must be of different sizes. Each phonological rule applies within a selected prosodic domain. The rules for the formation of the φ-phrase make reference to the syntactic notions of lexical head, phrase and projection. Phonological rules operate over syntactically defined domains.

Nespor & Vogel (1986: 165ff.) for example argue that from the application of RS it can be seen that a φ-phrase is made up by a lexical head and the material that is to the left of this head within its maximal projection, but not to its right. Thus, the lexical head marks the right boundary of a φ-phrase.

(78) *φ domain*   (Nespor & Vogel 1986: 168)
The domain of φ consists of a C [clitic group, N.D.] which contains a lexical head (X) and all Cs on its non-recursive side [the left side in right branching languages, N.D.] up to the C that contains another head outside of the maximal projection of X.

φ construction
Join into an n-ary branching φ all Cs included in a string delimited by the definition of the domain of φ.

Gee & Grosjean (1983: 433) put this simply in saying that in any syntactic phrase, "all the material up to and including the head is a φ-phrase".

Prepositions, as most of them are stressless, are not considered heads for the purposes of phonology (Gee & Grosjean 1983: 434; Nespor & Vogel 1986: 168f.), so that they cannot terminate a φ-phrase, but make up φ-phrases with the material up to and including the next head, in English the head of their complement-NP.

Nespor & Vogel (1986: 172ff.) further propose an optional restructuring rule for the domain of the φ-phrase that kind of eliminates non-branching φ-phrases. The rule is given in (79). (It will play a crucial role in Section 4.3.4 below, i.e. it will be of some importance in the discussion of the second intonation experiment that I report on below.)

(79) *φ restructuring* (optional)   (Nespor & Vogel 1986: 173)
A non-branching φ which is the first complement of X on its recursive

side [right side in right-branching languages, N.D.] is joined into the φ
that contains X.

(Note that the "first complement of X" in this rule actually has to be under-
stood as the first constituent following in the linear order, as will become clear
in the discussions of the examples in (84) below.) Nespor & Vogel (1986: 177ff.)
show that their definition of the φ-domain as given here in (78) and (79) above
is valid for the φ-phrase in English, as well. The phonological rules that are
discussed as evidence are *Iambic Reversal* (IR) and the *Monosyllable Rule*. IR is
concerned with examples such as the ones given in (80) and (81) (examples in
(80) through (82) taken from Spencer 1996: 257f.).

(80)   TennesSEE, unKNOWN

(81)   a.   TENnessee WILLiams
        b.   UNknown SOLdier

(82)   a.   TennesSEE legiSLAtion
        b.   unKNOWN adDRESS

In (80), the main stress falls on the last syllable in each case. However, in the
phrases in (81), the principal accent falls on the second word, and the stress of
the words given in (80) has been shifted to the preceding syllable. The reason
seems to be to avoid a clash between two adjacent stressed syllables, since the
shifting does not occur if the word in question is followed by a word that is not
stressed on the first syllable, as in the examples in (82). Nespor & Vogel argue
that IR is a φ-phrase internal rule and support this with the examples in (83)
and (84) (which are taken from Nespor & Vogel 1986: 178).

(83)   More than FIFteen CARpenters are working in the house. (as opposed to
        fifTEEN)

(84)   a.   Given the chance, rabbits REproduce QUIckly.
        b.   Given the chance, rabbits reproDUCe VERy quickly.

In (83) IR is applied. The stress on *fifteen* is shifted from the second to the first
syllable as it is followed within the same φ-phrase by the noun *carpenters* that
is equally stressed on the first syllable. In (84b), there is a φ-phrase boundary
after the verbal head *reproduce* so that the stress on the verb is not shifted to the
first syllable, although the following word *very* is stressed on the first syllable.
As opposed to this, the stress on the verb is shifted in (84a), since the adverb
quickly, stressed on the first syllable, is part of the same φ-phrase as the verb
after φ-restructuring. Restructuring is impossible in (84b) since the adverbial
phrase is a branching constituent.

The second phonological rule given as evidence for the validity of the definition of the φ-phrase domain in English, the *Monosyllable Rule*, reduces monosyllabic words that do not belong to any of the lexical categories N, V, or A. For illustration, I repeat here an example already given in Chapter 2 above and taken from Nespor & Vogel (1986: 179):

(85) a. [The sluggers]$_\varphi$[boxed]$_\varphi$[in the crowd]$_\varphi$.   (reduced *in*)
    b. [The cops]$_\varphi$[boxed in]$_\varphi$[the crowd]$_\varphi$.   (unreduced *in*)

Since the preposition *in* in (85a) is not a phonological head, it forms a φ-phrase with the following NP of which it is the leftmost element and is thus weak. Consequently, it may undergo phonological reduction. As opposed to that, *in* in (85b) is a verbal particle. As such it is analysed as part of the verbal head, thus the rightmost element in the φ-phrase made up by the verbal head, and it can therefore not be phonologically reduced. (Notice that this might be evidence for the claim that the particle is part of the verbal head in the syntax. If the particle was a full preposition it should be phonologically reducible in a similar way.)

Before proceeding, let us briefly look at another prominent approach to the φ-phrase. In her work, Selkirk (e.g. Selkirk 1986; Selkirk & Shen 1990) proposes an end-based theory. Her approach requires that the edges of each syntactic XP coincide with edges of phonological phrases, i.e. phonological structure is created by aligning the edges of syntactic constituents with the edges of phonological constituents. In particular, φ-boundaries are found after the subject-NP, after the first of two co-ordinated NP's and after the first of two objects in double object constructions. The constraints that are involved have been formulated by Selkirk & Shen (1990: 319) as given in (86).

(86) *The Syntax Phonology Mapping*   (Selkirk & Shen 1990: 319)
    For each category C^n of the prosodic structure of a language there is a two-part parameter of the form C^n : {Right/Left; X^m} where X^m is a category type in the X-bar hierarchy.
    A syntactic structure – prosodic structure pair satisfies the set of syntax-phonology parameters for a language iff the Right (or Left) end of each constituent of type X^m in syntactic structure coincides with the edge of constituent(s) of type C^n in prosodic structure.

These are constraints on prosodic structure rather than a full characterisation of it, as there are other well-formedness principles that apply to prosodic structure, independent of the syntax.

As far as the right edges of syntactic constituents in English are concerned, Selkirk's theory makes the same predictions as Nespor & Vogel's, in that in each theory the right edge of a syntactic phrase will coincide with a φ-boundary. As this is a sufficient property for our investigation of the PV constructions, I will not go into problems and differences between the theories (but cf. Truckenbrodt 1995: 27ff.).

The next larger unit in the prosodic hierarchy, the I-phrase, groups together φ-phrases on the basis of syntactic information, but also semantic factors related to prominence and performance factors such as rate of speech and style. An I-phrase does not necessarily correspond to a syntactic constituent, but it corresponds to a span of a sentence associated with a characteristic intonational melody. It is the unit of prosodic constituent structure with respect to which the characteristic intonational contours of a language are defined (cf. below). The idea that what constitutes an I-phrase is more semantic than syntactic in nature has earlier roots e.g. in Halliday (1967b) who argues that each informational unit corresponds to a tone group. He characterises the tone group as a phonological unit which functions as realisation of information structure (cf. Halliday 1967b: 203). On the other hand, Halliday argues that a tone group does not correspond to a unit of sentence structure.

There is no general rule determining the size of an I-phrase. Instead, the same sentence may be differently divided into I-phrases, depending on speech rate, emphasis or semantic or even syntactic structure. A famous example for a one-to-many mapping of syntactic structure and intonational structure is given in (87) and (88), borrowed from Spencer (1996: 187f.). Here, the difference in intonational phrasing corresponds to different syntactic structures (due to different positions of the relative clause), but also to the corresponding difference in meaning.

(87)   Phonologists who know dozens of fascinating languages are universally admired.

(88)   a.   [Phonologists who know dozens of fascinating languages]$_I$ are universally admired.
       b.   [Phonologists]$_I$ [who know dozens of fascinating languages]$_I$ [are universally admired]$_I$.

The sentence in (87) can be pronounced in the different ways given in (88). In (88a), the relative clause is restrictive in nature, forming one I-phrase with the subject. Only a certain class of phonologists is admired, namely those that know dozens of languages. In (88b), the relative clause, non-restrictive

in nature, does not delimit the reference of the subject noun, but adds further information. The relative clause forms its own separate I-phrase.

Thus, appositive relative clauses, like parenthetical phrases (expressions like *in fact*, *of course*, *as you know* etc. when separated from the rest of the utterance by comma), vocatives, tag questions, and similar elements always form their own I-phrase, hence are separated from the matrix clause by an I-phrase boundary (cf. Selkirk 1984: 295; Nespor & Vogel 1986: 188; Truckenbrodt 1995: 15). Also, due to the hierarchical organisation of prosodic constituents, the right edge of an I-phrase will always coincide with a φ-phrase boundary.

Is there a way to further specify the formation of I-phrases? Selkirk's (1984: 284ff.) hypothesis is that the surface structure of a sentence can be freely partitioned into I-phrases and that then this phrasing is subject to two general, non-syntactic well-formedness conditions. The *Syntactic-Prosodic Correspondence Rule for Intonational Phrase* simply states that a "matrix sentence must be exhaustively parsed into a sequence of (one or more) intonational phrases". The second rule, the *Sense Unit Condition on Intonational Phrasing* demands that the "immediate constituents of an intonational phrase must together form a sense unit" (Selkirk 1984: 286). The edge of an I-phrase is always controlled by a boundary tone, which is either high (H) or low (L) (cf. below). In elaboration of the *Sense Unit Condition*, an *immediate constituent* of an I-phrase IP_i is defined as "a syntactic constituent contained entirely within ("dominated" exclusively by) IP_i and not dominated by any other syntactic constituent within IP_i" (Selkirk 1984: 290). A *sense unit* is defined as in (89).

(89) *Sense Unit*   (Selkirk 1984: 291)
      Two constituents C_i, C_j form a sense unit if (a) or (b) is true of the semantic interpretation of the sentence:
      a. C_i modifies C_j (a head)
      b. C_i is an argument of C_j (a head)

Thus, according to Selkirk, an intonational phrase must bear either a head-argument relation or a head-modifier relation. If more than two constituents participate in a sense unit, the relations defined in (89a) and (b) exist among them. For illustration, consider the following examples, taken from Selkirk (1984: 292ff.).

(90) Jane gave the book to Mary.

(91) a. (Jane gave the book)$_I$ (to Mary)$_I$.
      b. (Jane gave)$_I$ (the book)$_I$ (to Mary)$_I$.
      c. *(Jane gave)$_I$ (the book to Mary)$_I$.

The sentence in (90) can be divided into I-phrases in several ways, among them the ones given in (91) of which only (a) and (b) are grammatical. In (a), the head constituent *gave* is phrased together with its external argument *Jane* and its internal argument *the book*, so that it is well formed according to the Sense Unit Condition. Similarly, (b) is grammatical. In (c), however, *the book* and *to Mary* bear neither a head-argument, nor a head-modifier relation to each other, so that the sentence is ungrammatical if these constituents are dominated by one I-phrase.

(92)   (This is the cat)$_I$ (that ate the rat)$_I$ (that ate the cheese)$_I$.

The famous example in (92) is grammatical, it is argued, because the constituents dominated by an I-phrase, are in a head-argument relation to each other (verbal head and its arguments), although the complete internal arguments are not contained in one I-phrase, the modifying relative clauses being contained in the next I-phrase. This is obviously a problem for all branching complements. To solve this problem for the Sense Unit Condition, it is assumed (Selkirk 1984:294) that for the purpose of this condition, the head-argument-relation obtains between the argument-taking head and the head of the argument constituent. For example, since *rat* is the head of *the rat that ate the cheese*, which is argument to *ate* in the superordinate clause, it is considered to qualify as the argument of *ate* and *ate the rat* forms a sense unit.

The above mentioned fact that vocatives, certain types of parentheticals and the like form their own I-phrase follows from their status as non-arguments and non-modifiers to a head.

Nespor & Vogel (1986:187ff.) follow a different line in the formulation of a basic I-phrase formation rule. The rule is based on the notions that the I-phrase is the domain of an intonation contour and that the ends of I-phrases coincide with the positions of pauses the speaker introduces into the sentence. Their definition is as follows:

(93)   *Intonational Phrase Formation*   (Nespor & Vogel 1986:189)

    I.   *I domain*

        An I domain may consist of

        a.   all the φs in a string that is not structurally attached to the sentence tree at the level of s-structure, or

        b.   any remaining sequence of adjacent φs in a root sentence.

    II.   *I construction*

        Join into an n-ary branching *I* all φs included in a string delimited by the definition of the domain of *I*.

An *I* domain thus defined often corresponds to a syntactic constituent, but does not necessarily so. Consider the example in (94), taken from Nespor & Vogel (1986: 190).

(94)   [They have]$_I$ [as you know]$_I$ [been living together for years]$_I$.

The parenthetical *as you know* forms a separate I-phrase and corresponds to a syntactic constituent. The string *They have*, however, does not form a syntactic constituent according to traditional constituent tests, but forms a separate I-phrase.[13]

With regard to relative prominence, no specific position for the strongest syllable can be made out in general, rather prominence depends on semantic factors such as focus and the division of the sentence into new vs. given information. Compare the sentence pair in (95). Both sentences form one single I-phrase but differ with respect to their prominence pattern.

(95)   a.   [Leonard found a PACKage on the doorstep]$_I$.
        b.   [Leonard found the package on the DOORstep]$_I$.

According to Nespor & Vogel (1986: 190f.), *package* is prominent in (95a) since the indefinite article indicates new information, but *doorstep* is prominent in (95b) where the definite article with *package* indicates that this noun refers to given information, and is thus not highlighted, but where the *doorstep* as the location of the event is highlighted instead.

I will not go into further detail here about the different approaches suggested with regard to I-phrase formation. It seems that for our purposes, which will become even more obvious in Sections 4.3.3 and 4.3.4 below, the same predictions can be made with either Selkirk's or Nespor & Vogel's approach.

Both φ- and I-phrase boundaries will play a role in the discussion of the experiments reported below. There is a difference between φ- and I-phrases with regard to prominence in that the former but not the latter shows a regular pattern. Moreover there is a difference between φ- and I-phrase boundaries with regard to their strength in that the latter is stronger than the former. It will turn out in the next section that the φ-phrase is the domain mainly involved in the syntax-prosody mapping.

The Syntax-Phonology Mapping. The Syntax-Phonology Mapping coincides in large parts with what has been said with respect to the formation of prosodic phrases. Nespor & Vogel (1986: 5, 11) note that it is "precisely the set of mapping rules that provides the interface between the phonology and the other components of the grammar". This is due to the fact that the rules that define

the various prosodic constituents make use of different types of grammatical notions for each level of the hierarchy. Furthermore, "each level of the phonological hierarchy is defined in terms of mapping rules representing the interface between phonology and other components of grammar".

The most prominent proposals for the mapping between syntactic structure and phonological structure have been termed the *relation-based mapping theory* (Nespor & Vogel 1986) and the *end-based mapping theory* (Selkirk 1986; Selkirk & Shen 1990) (cf. Inkelas & Zec 1995:539ff.; Truckenbrodt 1995 for an overview).[14]

According to the relation-based mapping theory, following the rules given in (78) and (79) above, a syntactic head and its complement map into two separate φ-phrases, i.e. the syntactic head terminates the φ-phrase, except if restructuring applies. Under restructuring, the head and its complement form a single φ-phrase. As opposed to this, according to the end-based mapping theory, the syntax-phonology mapping is basically determined by the constraints that align edges, right or left respectively, of a syntactic XP with the corresponding edge of a φ-phrase, as given in (86) above. The constraints are given again in (96), as formulated by Truckenbrodt (1995:25).

(96)   *Align*(*XP*, *R*, φ, *R*)
'Align the right edge of every XP with the right edge of a phonological phrase.'

Align(*XP*, *L*, φ, *L*)
'Align the left edge of every XP with the left edge of a phonological phrase.'

As mentioned above, the two theories make the same predictions as far as the right edges of syntactic phrases are concerned. In each theory the right edge of a syntactic XP will coincide with a φ-boundary. I will therefore use *Align-XP,R* below in predicting the phonological phrasing of the experimental materials.

Before proceeding with the next sections, I would like to add to these most prominent and influential approaches to phonological phrasing some points made by Truckenbrodt (1995, 1999) with regard to phonological phrases and their relation to syntax.[15] Truckenbrodt (1995:48) defines the phonological phrase as "that entity of the prosodic representation that is derived in a systematic way from syntactic phrases". Thus, with regard to the syntax-phonology mapping, the central prosodic unit is the φ-phrase (= p-phrase in Truckenbrodt's terms). Any constraint that relates syntactic XP's to prosodic structure relates XP's to φ-phrases, a claim that is formulated in Truckenbrodt (1999:221), here given as (97).

(97)   *XP-to-P Mapping Condition*
        Mapping constraints relate XP's to phonological phrases, but do not relate
        XP's to other prosodic entities.

Based on Selkirk (1995), who argues that the constraints relating syntactic
and prosodic structure apply to lexical elements and their projections, but
not to functional elements and their projections, and also on Nespor & Vo-
gel (1986: 48ff.), who show that syntactic constituents not represented phono-
logically – be they traces or PRO – are not capable under any circumstances
of blocking the application of phonological rules, Truckenbrodt (1999: 223ff.)
formulates the *Lexical Category Condition* (LCC), which is given in (98) below.

(98)   *Lexical Category Condition (LCC)*   (Truckenbrodt 1999: 226)
        Constraints relating syntactic and prosodic categories apply to lexical syn-
        tactic elements and their projections, but not to functional elements and
        their projections, or to empty syntactic elements and their projections.

(The latter point about the projections of functional elements captures empty-
headed projections as appearing at the syntactic surface structure after head
movement.) Besides Selkirk's constraints on edge alignment (cf. (86) and
Truckenbrodt's version in (96) above), Truckenbrodt argues that another con-
straint, termed *Wrap-XP*, determines the syntax-prosody relation at the level of
the phrase. The constraint is given in (99) in its informal version and in (100)
as a formal definition.

(99)   *Wrap-XP*   (Truckenbrodt 1999: 228)
        Each XP is contained in a phonological phrase.

(100)   *Wrap-XP*   (Truckenbrodt 1995: 50)
        $\Leftrightarrow$
        for every XP, XP a projection of a lexical category, there is a phonological
        phrase φ, such that all terminal elements that are dominated by XP are
        also dominated by φ.

Truckenbrodt (1995: 50) notes that (99) and thus (100) is violated if e.g. a VP
dominating V and NP is split up by a φ-boundary in a non-recursive struc-
ture such as $(V)_\varphi(NP)_\varphi$, for in that case there is no φ that dominates (con-
tains) all the terminals of VP. If V and NP are both in the same φ, such as in
$(V\ NP)_\varphi$ or $(\ldots V\ NP\ldots)_\varphi$ then the constraint is met. Furthermore, Truck-
enbrodt (1999: 229) notes that right-branching syntactic structures will lead
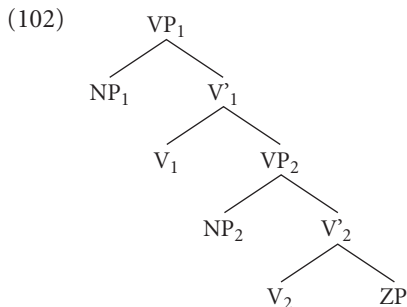to a conflict between *Align-XP,R* and *Wrap-XP* in case of a head with multi-

ple complements. This second point will become obvious in the discussion of (102) below.

What is crucial for our purposes is Truckenbrodt's (1995: 84ff., 1999: 235) treatment of adjunction structures as opposed to complements. In discussing which of the VP nodes in adjunction structures is relevant for the mapping constraints, Truckenbrodt relies on a structure and argumentation given by Chomsky (1995). Assume a structure as in (101), taken from Chomsky (1995: 177) and slightly revised, with XP = VP, UP = Adjunct, ZP = Specifier of VP, YP = Complement of VP.

(101)
```
          XP₁
         /   \
       UP     XP₂
             /   \
           ZP      X'
                  /  \
                 X    YP
```
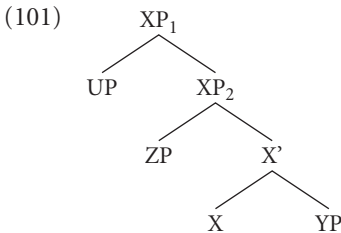
The adjunct UP is contained in the higher VP (XP_1). Truckenbrodt suggests that the mapping constraints see the lower VP node (XP_2), i.e. a boundary is inserted between the adjunct and the following (or preceding, if the adjunct is adjoined to the right of VP_2) phrase. In Truckenbrodt's (1995) work this suggestion is based on Chomsky's notions of a *category* (VP) and syntactic *segments* (of VP), where mapping constraints refer to categories.[16] The category VP is an abstract entity, each VP node is called a syntactic segment of VP. In a structure such as (101), with XP = VP, the VP consists of two segments VP_1 and VP_2. Mapping constraints, Truckenbrodt argues, apply to the material that is dominated by the category. The relevant definition given by Chomsky (1995: 177) is such that "the category α dominates β if every segment of α dominates β". (But note that this definition has already been given in Chomsky 1986a: 7, where Chomsky mentions that it goes back to May 1985.) Thus, the category VP abstractly dominates all and only the material that is dominated by both its VP segments, hence not the adjunct, but only the material under the lower VP. The higher VP, Truckenbrodt argues, is thus irrelevant to the syntax-prosody mapping. Both under *Align-XP,R* and under *Wrap-XP* there would be a boundary between the adjunct phrase and the rest of the VP.

Now consider the structure of the complex VP with two complements in (102), taken from Chomsky (1995: 180).

(102)

```
              VP₁
           ╱      ╲
        NP₁        V'₁
                 ╱    ╲
               V₁      VP₂
                     ╱    ╲
                  NP₂      V'₂
                         ╱    ╲
                       V₂      ZP
```

NP_1 is the subject, which moves overtly to the specifier of an upper functional projection. Suppose that NP_2 and ZP are complements. Examples for which the structure in (102) would be appropriate, are given in (103) below. (103a) is the example given by Chomsky, (103b) a possible example of a transitive PV in the continuous order with an additional PP complement, (103c) represents the same PV construction, but this time in the discontinuous order. For the purpose of the discussion I assume here an extended VP analysis of some kind with the PV as a complex head for PV constructions in English. (Remember that I have rejected the small clause analysis in Chapter 2 above.)

(103)   a.   John put the book on the shelf.
        b.   Andrew handed out the papers to the students.
        c.   Andrew handed the papers out to the students.

The lexical verb raises overtly to V_1 (at this stage of Chomsky's discussion, object movement to Spec-AgrOP is assumed to be covert). In the case of (103a), this process leaves the V_2 head phonologically empty. According to the LCC, the projection of this empty head, VP_2, will thus be irrelevant for the mapping constraints. Both under a complex head analysis for PV's in English, and under an approach involving incorporation, the same would be true for the PV in the continuous construction in (103b), since the complex verb would raise to the upper V head. Under *Wrap-XP*, there need not be a boundary between the two complements. The larger projection VP_1 would be wrapped in a single φ-phrase. However, there would be a conflict with *Align-XP,R*, which predicts a boundary after the first complement (NP_2).

(103c) is somewhat more tricky. Under the complex head approach as suggested by Olsen (2000), the particle remains in the lower V head position, thus this head is not phonologically empty, its projection would therefore not be irrelevant to the mapping constraints, and a prosodic boundary would be predicted before the PP-complement. Under a different approach, such as sug-

gested by Radford (1997), and Harley & Noyer (1998), the lower V head would be empty after verb movement and the structure would then behave similar to that in (103a) and (b) with regard to the mapping constraints.

Let me add some speculative remarks. It seems at this stage of the discussion, that evidence for or against the complex head approach might be possibly drawn from phonological phrasing. Suppose that a difference in strength could be found for the boundary between the particle in the discontinuous order and a following PP-complement on the one hand, and the boundary between the noun in the continuous order and a following PP-complement on the other hand. If there were a stronger boundary in the discontinuous than in the continuous order, then this difference might be due to the particle remaining in situ in the lower V head position as opposed to the empty lower V head in the continuous order. If there is no such difference in boundary strength, then this might be due to the fact that the lower V head is empty in both constructions (continuous vs. discontinuous), i.e. the particle could not be part of the verbal head. However, due to the phonological properties of the materials used in the two experiments reported on below (final consonants of noun in continuous order vs. particle in discontinuous order before supposed pauses do not match etc), these materials are not suitable for testing this question. I have to leave this to future research. Notice also that if we were not to find differences in boundary strength, this would not necessarily speak against a complex head analysis, but only against the particle's surface structure position under the lower V head. Assume, for example, that object movement to an intervening Spec-AgrOP (or any functional projection FP) is overt, and movement of the (complex) verb to the functional head position is also overt (as suggested by Koizumi 1993 among others, cf. Chapter 5 below). Then this movement could leave the lower head empty at surface structure despite the fact that the complex PV is base generated under the lower V head. As I said – I have to leave this question to future work.

Returning to the central discussion, it is important to note that the difference between adjunction structures and complement structures in English is that both constraints *Align-XP,R* and *Wrap-XP* predict a boundary between the (rest of the) VP and an adjunct, whereas only *Align-XP,R*, but not *Wrap-XP*, predicts a boundary between the (rest of the) VP and a PP-complement.

However, with regard to PV constructions in English I will predict the following pattern in Section 4.3.4.1 below: Following *Align-XP,R*, I will predict a φ-phrase boundary before the PP-complement. To account for the differences between complements and adjuncts that have become obvious in Truckenbrodt's analysis and have also been suggested by Gee & Grosjean (1983) (cf.

the next section), I will predict an even stronger boundary before adjuncts, supposedly an I-phrase boundary. In Section 4.3.4.2, we will see that these predictions are born out, as suggested by the results of experiment 2 on the intonation of PV constructions in English. There is indeed a difference between the strength of the boundary before a PP-complement and that of the boundary before a phrasal adjunct.

Performance structures. *Performance Structures* (cf. Gee & Grosjean 1983 and related work) are a reflection of prosodic structures at sentence level. The term corresponds to the temporal organisation of sentences, with variables such as pause duration. The data are obtained from experimental paradigms such as reading at different rates, parsing, and making relatedness judgements.[17] A general finding is that the longer the constituent is, the longer is the pause (or the segmental lengthening) at the end, and, correspondingly, the shorter the constituent the less important these temporal variables. The theory developed in Gee & Grosjean (1983) is based on the theory of phonological phrasing as suggested in Selkirk (1984). Gee & Grosjean suggest an algorithm which is designed in order to make it possible to predict performance structures. Within this PHI algorithm (which is termed PHI because it is based on φ-phrases as phonological units), Gee & Grosjean (1983: 440ff.) suggest an operation that bundles φ-phrases into I-phrases. This operation consists of three steps. The first step is the *Syntactic Constituent Rule* which states that all φ-phrases, but excluding the VP, must end up bundled together as one large unit. The second step, the *Verb Rule*, states that (in the typical case) the φ-phrase headed (terminated) by the verb is combined with the following prosodic unit (φ- or I-phrase) in the VP to make up an I-phrase. It is important to note that according to Gee & Grosjean only subcategorised complements of the verb make up a VP with the verb, but that adverbs and (as must be concluded) also phrasal adjuncts are outside modifiers of the basic VP. As compared to the distinction between adjuncts and complements that follows from Truckenbrodt's (1995, 1999) analysis, this is a simpler idea, but nevertheless, Gee & Grosjean come to a comparable conclusion about adjuncts. Adjuncts do not form an I-phrase with the verb and complement they modify, but are grouped in a different I-phrase. In a third step, the *General Bundling Principle* (Gee & Grosjean 1983: 442), all phonological units that have not already been combined by the first two steps, are bundled together to form I-phrases.

  The theory of phonological phrasing and also of performance structures will play a role below in the discussion of the results of the experimental studies.

4.3.1.2 *Intonation contours and labelling*

According to Selkirk (1984), the theory of the intonational contours is the major element of a theory of intonational structure for a language. As has been mentioned above, the fundamental frequency (F0) is the strongest correlate to how the listener perceives the speaker's intonation. In the corresponding contour, the fundamental frequency in Hertz (Hz) is plotted against time.

Intonational contours represent I-phrases. Intonational contours of English are characterised by Selkirk (1984: 197) as a "sequence of pitch accents, flanked at the beginning by an (optional) boundary tone and at the end by a phrase accent and a final (obligatory) boundary tone ..." (cf. also Beckman & Pierrehumbert 1986). The phrase accent appears after the rightmost pitch accent within an intonational contour and is realised within a certain time period after the final nuclear pitch accent. Boundary tones mark the right-hand boundary of the prosodic phrase. Over the last years, ToBI (Tone and Break Indices) has been developed as a standardised system for transcribing English intonation patterns, including tonal accents, and is now commonly used especially in the US. It is based on Pierrehumbert's (1980) analysis of English and on subsequent studies.[18] A complete ToBI transcription contains several *tiers*, where tiers are strings of symbols anchored in time to specific points in the waveform of an utterance. The two most important tiers are the ones indicating the *tones* and the *break indices*. Break indices label the strength of each word boundary. The transcription is done by listening to and by looking at a representation of the acoustic signal, usually the energy-by-time waveform and the F0 contour. The contour is represented as a string of pitch accents and edge tones. Pitch variation is between two abstract levels, where H is a high level and L a low level of pitch.[19] What interests us are the pitch accents, since they are related to the presence of the focus in the sentence. Pitch accents consist of a single H or L tone or a combination of the two, i.e. they can be mono-tonal or bi-tonal. Possible pitch accents are H*; L*; H+L*; L*+H; L+H* (cf. Beckmann & Pierrehumbert 1986; Pierrehumbert & Hirschberg 1990). H* stands for a high, peaked or flat tone, L* for a low, valleyed or flat tone. The asterisk (*) marks the tone that is realised on the stressed syllable. Bi-tonal pitch accents consist of two targets. As with single tone accents, * represents the central tone of the accent. This starred accent tone is related to the preceding or following tone by a +. For example: L+H* means that there is a maximum preceded by a distinct low level (i.e. a rise to a high, accented syllable from a low level); L*+H indicates a rise from a low, accented syllable; H+L* means that there is a high target before the accented syllable and a fall on the accented syllable, the accented syllable is low. Both L+H* and H* are local peaks of the intona-

tion contour, differing in that the former rises from a much lower level. (But note that other accounts such as Halliday 1967a; Ladd 1980 do not explicitly distinguish L+H* and H* pitch accents.)

Pierrehumbert & Hirschberg (1990) interpret the different types of pitch accents with regard to intonational meaning. Crucially (for our purpose), they suggest that the items made salient by the H* type of accent are to be treated as 'new' in the discourse. This type of accent is used to mark focused information which is to be added to the mutual beliefs. The L* type of accent on the other hand marks information which is intended to be salient but which is for some reason not proposed as an addition, i.e. according to Pierrehumbert & Hirschberg (1990) the L* accent is not associated with new or added information. With respect to bi-tonal accents, it seems important for our purpose to note that the L+H* marks an 'add' and the L*+H marks a 'non-add'. Pierrehumbert & Hirschberg further argue that the most common use of the L+H* type of accent is to mark a contrast or a correction. For the experimental studies reported on below we should therefore expect H* and L+H* types of pitch accents with new information focus and with contrastive focus, a prediction that is born out.

Interestingly, Bolinger (1958: 145ff.), too, took accents as meaningful units and made a distinction between three kinds of accents for different meanings. His *accent A* is used with items that are "separately important, contrastive, and/or new to the discourse" (Bolinger 1958: 145). It can be concluded from his examples, two of which are given here as (104) and (105) below (cf. Bolinger 1958: 147, 149), that accents of type A include a rise from a low to a high level on the accented syllable with a subsequent fall.

(104)   A (type of accent):

A bomb had wrecked it.
(Sentence uttered in a time and context where bombing is "inherently unlikely")

(105)   A (type of accent):

I   thought   he   gave   it   to   you.
(Sentence uttered in answer to *George asked for his shovel back*)

To sum up, we can say that accents in English can be high or low tones, but, according to Pierrehumbert & Hirschberg (1990), focused information is marked by high tones (H*) or by a rise from a low level of the intonation contour to a high point (L+H*).

At the edges of prosodic units two types of tonal events are distinguished. *Boundary tones* are mono-tonal. They are associated with the end of an I-phrase, at the end of the last word. Boundary tones can be high or low. In ToBI, H% stands for a high boundary tone, L% for a low boundary tone. In the area between the final pitch accent and the boundary tone, the F0 contour is controlled by the *phrase accent*. H⁻ indicates a high phrase accent, where !H stands for a down-stepped high phrase accent; L⁻ indicates a low phrase accent. (Cf. Pierrehumbert & Hirschberg 1990, Sections 6 and 7, for the interpretation of phrasal and boundary tones.)

4.3.1.3 *Intonation and focus, focus projection, focus assignment*

A classical observation about accent patterns in English is the concept of normal or rightmost stress. Within this conception, which goes back at least to Newman (1946), there is a single structurally determined accent pattern that can be specified by rule for every sentence. It includes a single primary stress or sentence stress, which is in general placed on the rightmost element of the sentence. Normal stress is the mere result of the operation of phonological rules on syntactic surface structures. It has no function or meaning. The context of the utterance is by definition irrelevant. Cruttenden (1997: 87) describes normal stress as "some sort of a de-contextualised norm", i.e. if an utterance is regarded as 'all-new' or as a possible response to the question 'What happened?' the main pitch accent will be placed on the last lexical item except in all exceptional cases. The concept of normal stress has found its definite expression in the Nuclear Stress Rule (NSR; Chomsky & Halle 1968). Similarly, under Cinque's (1993) Null Theory, the main stress of a phrase is located on the most deeply embedded element, which under normal conditions is the rightmost in English. For German, Abraham (1995) describes a grammatical (default) focus accent (GA) ('grammatikalischer (default) Fokusakzent', Abraham 1995: 615ff.), which is placed on the position that is left adjacent to the base structure position of the verb. Identification of the GA in Abraham's sense is independent of the textual/situational coherence.

On the other hand, it is a widely agreed-on assumption that there is a relation between focus and accent placement, i.e. that accent placement reflects in some way the intended focus of the utterance that is involved. The studies I have in mind here follow some version of what Ladd (1996: 160), following

Gussenhoven (1984b), calls the *Focus-to-Accent* (FTA) approach.[20] FTA basically means that elements in utterances, i.e. words and constituents, can be focused for various reasons and that focused elements are in general marked by pitch accents. It does not work, as Gussenhoven (1984b:15) emphasises, the other way round: Focus is not defined on the basis of the position of the nucleus, rather, discourse status, informativeness and the like serve as cues to accent placement. Ladd's (1996: Chapter 5.2) cross-language study provides evidence that at least for English a radical FTA view can be maintained.

Gussenhoven (1984b) argues that it is one of the two chief functions of the location of the nucleus to signal the focus distribution of the sentence. On the level of the sentence, he states, "the nucleus, more generally accent, is seen as the major realisation of the universal concepts of focus and mode in languages like Dutch and English" (Gussenhoven 1984b: 56). In later work (Gussenhoven 1999:43) he again notes that "[like] many languages, English expresses the focus of the sentence in the phonological structure" and that "[m]ost strikingly, pitch accents appear on focused constituents." In his (1984b) model, Gussenhoven suggests that all sentences are obligatorily marked for focus. Constituents that are marked [+focus] constitute focus domains. Accent assignment rules such as the *Sentence Accent Assignment Rule* (SAAR) operate over focus domains, i.e. take the [+focus] material as their input and assign accents in a purely mechanical way. More precisely, the SAAR consists of two parts: *Domain assignment* defines a focus domain as a sequence of one or more constituents with [+focus] status, whereas the second rule *accent assignment* assigns a single accent to every focus domain. If predicate and argument of a clause are within one focus domain, the accent goes on the argument. It follows from the assignment of domains that a focus can have a domain much smaller than the clause/sentence.

As mentioned above, Jackendoff (1972) and Rosengren (1993, 1994, 1995) assume that the syntactic focus feature corresponds to a prominence feature in phonology. This assumption is in line with Gussenhoven's model in that there is a single accent per focus domain. Jackendoff (1972:237) formulates the following condition as a dependence of stress position on choice of focus:

> If a phrase P is chosen as the focus of a sentence S, the highest stress in S will be on the syllable of P that is assigned highest stress by the regular stress rules.

This observation made by Jackendoff puts together – as noted by Truckenbrodt (1995) – the default-case as expressed by the concept of normal stress and the NSR and the special case, i.e. the case of smaller focus domains.

The FTA models suggested in the literature differ with regard to the extent of the focus projection. There is a common feature found in the different approaches, namely that prominence in terms of pitch accent assignment is within a constituent that constitutes the focal domain. However, as Gussenhoven (1999:44) notes, there is no general agreement with regard to the extent of focus projection in English. The *radical FTA theory*, so termed by Ladd (1996:165) and argued for e.g. by Bolinger (1985), rejects the distinction between focus distribution and accent distribution and holds that there is no focus projection beyond the word that bears the pitch accent. A word that is accented is focused, a focused word is accented. In other words, there is a bi-directional relation between focus and accent. One argument against this approach is given by Ladd (1996:165f.) along the lines of the example in (106).

(106)   A: How much did they pay you for participating in the experiment?
        B: Five francs.

Ladd (1996:166) argues that the accent in the answer sentence is on *francs*, rather than on *five*, although *five* is the information that is of interest, whereas *francs* is "almost entirely predictable if the conversation takes place in a country where the unit of currency is the franc" (cf. Ladd 1996:165ff. for more discussion of the radical FTA approach).

Selkirk (1984, 1995) suggests a different FTA approach, namely the *extended focus projection*. This theory allows for focus to be projected upwards to larger constituents than an argument-predicate relation and ultimately to the whole sentence. According to Selkirk's (1984:207, 1995:555) *Basic Focus Rule*, a constituent to which a pitch accent is assigned is focused (F-marked). Selkirk's *Phrasal Focus Rule* (1984:207) (*Focus Projection* in Selkirk 1995:555) states that (1) F-marking of a head licenses F-marking of the corresponding phrase/constituent and that (2) F-marking of an internal argument of a head licenses F-marking of the head and consequently of the corresponding phrase.[21] Gussenhoven (1999:47) argues against these assumptions along the lines of (107) (F indicating F-marked constituents, FOC the focus).

(107)   [She [[sent]$_F$ a book [to [MARY]$_F$]$_F$]$_F$]$_{FOC}$

The example in (107) is intended to serve as a possible answer to the question *What did she do with the book?*. (Although as an answer to this question I would rather expect the use of the definite article with *book*, not the indefinite one, but for the sake of argumentation, let us assume that the sentence in (107) is an answer to the given question.) According to Selkirk's rules, the situation must be as follows: The noun *Mary* receives the accent and is thus F-marked,

following the Basic Focus Rule. According to the Phrasal Focus Rule, the focus projects from the NP [Mary] to the preposition *to* (of which the NP is the complement) and then to the full PP, then on to *sent* (as the head of which the PP is the internal argument), subsequently to the full VP, and finally to the full sentence. This, Gussenhoven argues, is a problem, since *a book* as old information is within the focused projection, since it is within the F-marked VP *sent a book to Mary*. Since within Selkirk's approach the focus always projects to a full constituent, this is a more general problem which appears whenever the focus of a sentence does not coincide with a syntactic constituent. A second problem formulated by Gussenhoven (1999: 48) with regard to Selkirk's analysis results from sentences as given in (108). Since the focus can, according to Selkirk's Phrasal Focus Rule, be passed on from the verbal head to the full VP (and even the sentence), the sentence in (108) should be a possible answer to the question *What did she do?*. However, this is not the case.

(108)   [She [[SENT]$_F$ a book to Mary]$_F$]$_{FOC}$

Gussenhoven (1999: 48) points out another problem which I would like to mention here. Consider the examples in (109) and (110).

(109)   What happened?
         JOHNson died.

(110)   MARY bought a book about bats.

The answer sentence in (109) represents a case of maximal focus, which cannot be explained in terms of the Basic Focus Rule, since this rule does not allow for a focus to be projected from a subject to its predicate. In Selkirk's (1995) analysis, this is accounted for by the assumption that F-marking of a constituent licenses the F-marking of its trace, with the trace of the subject in *Johnson died* being positioned within the VP (Selkirk 1995: 559). This suggestion works for the example in (109), but not for (110). As Gussenhoven (1999: 49) observes, the sentence in (110) is not a possible answer to the question *What happened?*, but should be under the assumption that (110) behaves parallel to (109) with respect to the projection of the focus from the subject to its predicate.

     A third option besides the radical FTA approach and the extended focus projection is the *restricted view of focus projection*, suggested by Gussenhoven (1984b). I have already mentioned Gussenhoven's SAAR above. According to SAAR, focus assignment precedes accent assignment. Accent assignment is to "every focused argument (A), modifier (M), and predicate (P) [...], with the exception of a predicate that is adjacent to one of its arguments" (Gussenhoven 1999: 45). According to the *focus projection rule* (ibid.), every A, P, and M out-

side the focus constituent is de-accented. Also according to this rule, a focused P that is adjacent to an accented A is de-accented, disregarding any intervening non-focused A or M. (Cf. (112) below for an example where a focused P is adjacent to an accented A in Gussenhoven's sense, with a non-focused A intervening between the two elements.) The term *focus domain* defines the domain of focus projection: it refers to any constituent whose focus can be marked with a single pitch accent. One argument that Gussenhoven (1999:46) points out against the extended focus projection as suggested by Selkirk concerns the widespread view that a sentence with maximal focus is equivalent to versions of the same sentence that exhibit non-minimal or minimal focus (cf. e.g. Cinque 1993). Consider the example in (111), taken from Gussenhoven (1999:46).

(111) a. (What's going on?)
           JOHN's tickling MARY with a FEATHER.
       b. (What's John tickling Mary with?)
           John's tickling Mary with a FEATHER.

Gussenhoven argues that the version in (111b), where only *feather* is accented, does not have the maximal focus reading, but only the minimal focus reading as an answer to the given question. Only the sentence in (111a) is appropriate in a maximal focus context, but here we find prenuclear pitch accents besides the pitch accent on *feather*. A pitch accent on *feather* is thus not sufficient to allow the maximal focus reading. The restricted focus projection theory can further account for the fact that the focus of the sentence does not always coincide with a syntactic constituent, even if it is always related to a maximal projection. Remember that this point provided one of Gussenhoven's arguments against Selkirk's analysis, outlined in connection with example (107) above, repeated here as (112) for convenience.

(112) (What did she do with the book?)
       [She [[sent]$_F$ a book [to [MARY]$_F$]$_F$]$_F$]$_{FOC}$

Within Gussenhoven's approach, the correct interpretation of (112) follows directly from the application of the focus projection rule. The pitch accent placed on Mary can either express minimal focus on *to Mary* or focus on *sent to Mary*, since according to the rule, a predicate adjacent to its accented argument is de-accented, regardless of any intervening argument, here *a book*.

Let me add a remark about de-accented information. Besides the assumption that there is this relation between focus and accent placement as it has been outlined above, it is generally assumed that in West Germanic Languages, particularly in English, given or predictable information is *de-accented*, i.e. a word that might be expected to be accented, fails to be accented in a context where

the information that it conveys has already been mentioned before (cf. Halliday 1967a: 23; Ladd 1980: 52ff., 92ff., 1996; Cruttenden 1993; Steedman 2000). De-accenting, Ladd (1980: 93) argues, "is a signal that the deaccented word has become a shifter", where a *shifter* is understood as an item which can be fully interpreted only by reference to the context. The most obvious examples are pronouns. If the full nominal expression is used instead of a referring pronoun, the shifter-like quality, i.e. the interpretability of the NP only with reference to an item or an idea in the (situational) context, is signalled by the lack of accent. Cruttenden (1993: 16) notes that de-accenting might easily be understood as some sort of cognitive universal: "we do not wish to re-accent repeated information because [...] it is already in the consciousness of the speaker". He further notes that de-accenting is obligatory in English (Cruttenden 1993: 19). (But note that both Ladd 1996: 175ff. and Cruttenden 1993 show that in other languages, such as Romanian and Italian, prominence patterns do not necessarily reflect the givenness or, more generally, informativeness of the normally accented word. These languages seem to resist de-accenting.) The fact that referring items are de-accented in English again provides evidence for the FTA approach, or, as Ladd (1980: 98) formulates it:

> The deaccenting 'rule' in the more usual sense of the word *rule* is simply the focus rule – accent goes on the most accentable syllable of the focus constituent – together with our knowledge of the relative accentability of different items in different contexts.

In the remainder of this study, I will follow Gussenhoven (1999) in his assumption of the restricted view on focus projection as well as some version of SAAR, where focus assignment precedes accent assignment and a single accent is assigned to every focus domain. I will neglect the (various versions of) the normal stress concept, since I will be concerned with utterances within contexts and it is the aim of this study to look at the behaviour of PV constructions, in particular the choice of the word order in relation to the context in which the corresponding utterance occurs. I will, however, return to the conception of normal stress at the end of Section 4.3.3 and argue in some more detail, why this concept is not relevant for the present purpose.

At this point of the discussion, I would like to turn to the question as to where focus assignment takes place in more detail, thereby giving evidence for the assumption that focus assignment precedes both overt syntax and accent assignment. It is commonly assumed that focus features (or the mismatch between a constituent marked for [−F] and its position within the [+F] focus domain) trigger movement operations such as for example scrambling/VP-

adjunction in the overt syntax. In particular, overt movement operations have been assumed for German, Russian, and Romance, as was outlined in Section 4.1.2 above. If focus can be responsible for overt movement, then consequently it must be assigned at a level preceding overt syntax. Note that this is equally true for English. Even if we assume that there is no equivalent to the operations involved in German, Russian, or Romance, we still know of stylistic devices such as topicalisations and cleft-constructions that are used in order to highlight focused material in English as well as in other languages. Moreover, the assertive *do* in VERUM focus constructions as well as focus-sensitive particles such as *even*, *only*, and *too* have to be selected from the lexicon and enter the computational process. Recall also from Chapter 4.2.3 above that Krifka (1998) argues for V2 constructions in German that focus assignment must be before syntax, since otherwise the verb that moves to the V2 position cannot be part of the focus in the example given by Krifka.

In addition to these ideas based on syntactic theory, evidence for the assumption that focus assignment is before overt syntax comes from a speech production model such as that of Levelt (1989). I do not want to give a summary here of the model as a whole, but address the components that are important in our context. In a production oriented model, IS is a part of the construction of a preverbal message (PM) as a first step in the generation of speech (cf. Levelt 1989:9, 107ff.). This process of generating PM's is analysed as a two-step process, as is illustrated in Figure 4.1.

The first step is *macroplanning* (MacPl). The speaker elaborates the communicative intention in a sequence of goals and subgoals.[22] For each of these subgoals, the speaker plans a speech act (SA). Planning a SA means selecting information that is to be expressed in order to realise the goal. In the second step, *microplanning* (MicPl), the informational units that are to be expressed are shaped into preverbal messages. This is precisely the point where information structure comes into play. Shaping of the informational units into PM's means giving them an information structure, a "perspective that will guide the addressee's attention in the intended way" (Levelt 1989:110). The information units are assigned information status such as topic, focus, and new informa-
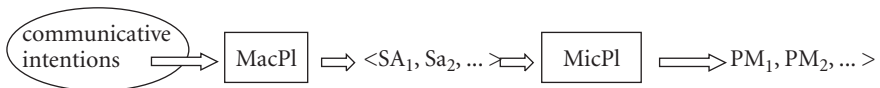

Figure 4.1 From intention to preverbal message (taken from Levelt 1989:110; slightly simplified)

tion. Both macro- and microplanning are highly context-dependent and take the discourse situation into account. The PM's are then the input of the next step in the speech production model, the formulator. Here, the messages are grammatically encoded, mapped onto surface structure, and phonologically encoded. The *grammatical encoder* consists of procedures for accessing lemmas, where lemma information is stored in the mental lexicon, and syntactic building procedures. The output of the grammatical encoder is the surface structure which is a string of lemmas grouped in constituents/phrases according to syntactic rules. The *phonological encoder* then builds a phonetic or articulatory plan for each element in the string and for the utterance as a whole. According to Levelt (1989: 170), the surface structure must contain specifications of focus since these specifications are required for the generation of prosodic patterns that correspond to the speaker's intention. It follows then from this model that, from a production oriented view of the grammar, focus assignment must precede overt syntax and that the generation of prosodic patterns, thus accent assignment, takes structures as input that are marked for focus. This view is in line with Gussenhoven's SAAR, where accent assignment rules take [+focus] material as their input.

4.3.2 Particle verbs, intonation and focus

Let me now return to the case of PV's in English and establish the relation between focus and accent placement for constructions involving PV's. I will first give a short survey of the literature that has dealt with this topic, then formulate my predictions with regard to word order and accent placement. In the next section, I will then report on two experimental studies that test these predictions.

4.3.2.1 *Particle verbs, intonation and focus in the literature*

There are some vague assumptions about the relation between stress/intonation and word order in PV constructions in the literature. Van Dongen (1919: 331) notes that if the object is a pronoun, the stress of the adverb, i.e. the particle, predominates over that of the pronoun, with the result that the particle is realised sentence-finally. Van Dongen (1919: 332, 336) further argues that the object is located in the final position in cases where it receives stress. Van Dongen's study thus implies that the placement of the accent determines the position of the particle or the object, respectively. Also, if the stress placed on the adverb predominates over that placed on the (non-pronominal) object the discontinuous order is chosen (van Dongen 1919: 338). These assumptions made by van

Dongen (1919) imply that it is the word order that follows from intonation, not vice versa.

From a study by Taha (1960) it can be inferred that a correlation between word order and accent placement holds for the PV constructions in English. Taha (1960:115) notes that he investigated "a large body of utterances with two-word verbs [which] was obtained directly from native speakers of English" with regard to the placement of the accent on the verb, prepositional element (= particle) and the object. In his study, Taha assumes four different phonemic levels of stress, in descending order primary /´/, secondary /ˆ/, tertiary /`/ and weak /˘/.[23] His results can be summarised as follows:

In the continuous construction the particle carries secondary accent, the object primary accent, as shown in (113).

(113)   He cûtt dôwn his smóking.   (Taha 1960:116)

The discontinuous construction shows secondary accent on the object, primary accent on the particle (114a). Furthermore, a pronominal object gets tertiary accent (114b).

(114)   a.   He cûtt his smôking dówn.
        b.   He tried to yêll hèr dówn.   (Taha 1960:119)

However, Taha's (1960) study is a pure investigation of the stress pattern of PV constructions in English, regardless of the information structuring of the sentence. Nor does he take the relation between focus and accent into account.

Bolinger (1971:49f.) notes that the "freedom to put the transitive verb, or at least some significant part of it, at some other point than before its complement" is an important characteristic of PV's in English as opposed to their simplex counterparts. The particle, and thereby "important semantic feature[s] [...] can be put in the normal position for the nuclear accent", which is the final position. A simplex verb will always have to appear before its complement, unless the passive voice is used, and must receive accent in this position, if adequate with regard to the information structure of the given context. With PV's, it is possible to make use of prosody in a most effective way by combining accent and rightmost position.[24]

Fraser (1976:20) notes that in the discontinuous construction the particle "usually receives a heavier stress" than the noun. Moreover, although a pronominal object in general occurs between the verb and the particle, the particle may appear next to the verb in case the pronominal object is contrastively stressed. In such cases, Fraser (1976:17) argues, the rule that accounts

for positioning the particle depends "on the phonetic form of the resulting verb phrase".

In a more recent approach Svenonius (1996b) argues that with regard to the economy of derivations the two word orders possible with PV constructions in English are grammatically equal and that phonology (intonation) as a non-grammatical criteria determines the speaker's preference for one or the other order. A DP that bears focus stress will be placed at the right edge of the sentence, regardless of whether it is definite or indefinite, whereas a de-stressed DP will occur in the discontinuous construction. Similarly, a de-stressed particle will be found in the continuous order, whereas a stressed particle will follow the noun. It is important to note that in this approach, it is intonation that determines the choice of the word order, i.e. that determines the syntactic construction to be derived. But note that in a model where focus assignment precedes both overt syntax and accent assignment, this view – intonation first, then syntax determined by intonation – is excluded, and that it is rather the status of the relevant element as a focused or non-focused constituent that leads to accent placement. It is thus not intonation that determines the word order, but the focus status of the categories involved. Accent assignment is then to the relevant element within the focused string. This point rules out both van Dongen's and Svenonius' approaches.

4.3.2.2 *Predictions*
Following the theoretical assumptions given in the preceding sections, my predictions with regard to the PV construction in English are as follows:

a. In the continuous order, where the object-DP is part of the focus domain, an H* type of pitch accent is assigned to the focus domain and is realised on the noun. Thus, I expect the H* accent on the noun in the cases of maximal, non-minimal, and minimal focus in (65) through (67), repeated as (115) through (117) below. The particle is supposed to be unaccented.
b. In the discontinuous order illustrated in (68) and repeated in (118) I expect a H* type of pitch accent on the particle as the sole constituent remaining in the focus domain after the syntactic movement operations. The noun as a background constituent should be de-accented in this construction.

In (115) through (118) the placement of the pitch accent is indicated by capital letters and by the expected type of accent H* (neglecting possible prenuclear pitch accents as in the case of maximal focus; compare the discussion of Gussenhoven's example in (111) above).

(115)   *Maximal focus*
          What happened?
          $_{CP\ [+F]}$[Durban turned off the CAmera].
          $\qquad\qquad\qquad\qquad$ H*

(116)   *Non-minimal focus*
          What did Durban to?
          He$_i$ $_{VP\ [+F]}$ [t$_i$ turned off the CAmera.]
          $\qquad\qquad\qquad\qquad$ H*

(117)   *Minimal focus*
          What did Durban turn off?
          He turned off $_{DP\ [+F]}$ [the CAmera].
          $\qquad\qquad\qquad\qquad$ H*

(118)   *DP-complement as a background constituent*
          What did Durban do with the camera?
          Durban $_{YP}$[[[turned$_{i\ [+F]}$] $_{XP}$[[the camera$_{k\ [-F]}$] $_{VP[+F]}$[[t$_{i[+F]}$] OFF t$_k$]]]]
          $\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ H*

These predictions about accent placement were tested in an experimental reading paradigm. I carried out two experimental studies on the intonation of PV constructions in English, that I report on in the next section (cf. also Dehé 2001b).

4.3.3   Experiment1: A pilot study

In this experiment, pre-prepared utterances were read from a list of sentences by the participants and were recorded.

4.3.3.1 *Method*
Participants and apparatus. Ten non-professional native speakers of English, one male, nine female, were recorded. The study was carried out in Colchester/Essex and in Ashtead/Surrey in England.[25] For the recordings, I used a Sennheiser microphone e845 and a Sony MiniDisc Recorder MZ-R50. The software used for the analysis of the speech signals was *SEKD Samplitude Studio (Version V5.10), Cool Edit^{TM}96* and *WinPitch^{TM} (Version V.1.88)*.

Materials. The target sentences containing the PV's were embedded in short contexts. It was important to make sure that the contexts induced a controllable IS.[26] Thirty experimental items with transitive PV's were chosen. The experimental materials consisted of three sets: 5 pairs containing compositional

PV's, 5 pairs containing idiomatic PV's, and 5 pairs containing aspectual PV's. Each pair consisted of one item containing the continuous construction, and one item containing the discontinuous construction of the same verb. The order was chosen in accordance with the given context, following the IS theory outlined in Sections 4.1 and 4.2 above. Examples are given in (119) through (121) below.

(119)   *Compositional PV*

    a.   Condition 1: Continuous order
        It's late and I want to go to bed. I would like you to $_{+F}$[*turn down the radio*]. The music is too loud, I won't be able to sleep.

    b.   Condition 2: Discontinuous order
        – "Do you know where that noise is coming from?"
        – "Yes, I do. It's the radio of our next door neighbour, a student. She likes her music loud." –
        "Fine, but I can't stand it. I'll go and ask her to $_{+F}$[*turn$_i$*] *the radio*$_k$ $_{+F}$[t$_i$ *down* t$_k$]."

In Condition 2 in (119b), *the radio* within the PV construction is familiar information. Therefore it appears between the verb and the particle. Accent placement is expected on the particle. In Condition 1 in (119a), *the radio* conveys new information, i.e. it is within the focus domain, hence appears in the continuous construction. The accent is expected on the noun.

(120)   *Idiomatic PV*

    a.   Condition 1: Continuous order
        Sam sold her house and moved to another town, but she didn't *give up her job*.

    b.   Condition 2: Discontinuous order
        Sam liked her job, it was interesting, but when she moved to another town she had to *give the job up*.

(121)   *Aspectual PV*

    a.   Condition 1: Continuous order
        We had bought so much stuff in the superstore that we couldn't take it home on our bikes. So what we did was *load up mum's car*.

    b.   Condition 2: Discontinuous order
        When you move it's a good idea to hire a van. And of course it's better not to have too much space in it but to *load the van up*.

The patterns in (120) and (121) with respect to focus and object position are parallel to that in (119) above. The accents are expected on the particle in the

(b) examples where the DP occurs as a background constituent, but on the noun in (a) where the object introduces new information into the context.

The list also contained 6 pairs of items containing double object particle verb constructions that were not further analysed. Furthermore, 28 filler items were chosen. They were similar to the experimental items with regard to their length.

Design. The order of the items on the list was pseudo-randomised under the following restrictions: (1) three experimental items were not allowed in a successive order; (2) three experimental items from the same set, i.e. verb group, were not allowed in a successive order; (3) the same PV construction (continuous vs. discontinuous order) was not allowed to occur in a successive order more than three times.

Procedure. The list of all items was presented to the participants. The experimental list was preceded by two practise items. The participants were asked to familiarise themselves with the sentences. They were instructed to read the sentences in a natural way, but did not know what the aim of the study was. They were seated in front of the microphone. The sessions were started when the participants were ready. The participants first read the practise items, then after a short break when they had the opportunity to ask questions, they read the sentences from the experimental list. The individual sessions did not take longer than 20 minutes. All utterances were recorded.

Data Treatment. The speech signal was digitised with a frequency of 44.1 kHz and a 16 bit sampling rate. The target items containing the particle verb and the nominal object were cut out their contexts. Only these fragments of the complete utterances were analysed. Erroneous utterances were excluded from further analysis. Utterances were classified as errors (1) if an important element was missing in the utterance, e.g. the particle; (2) if the produced word order did not correspond to the word order given on the list, i.e. if the participant had changed the given word order; (3) if the utterance contained any errors like long breaks, stuttering, and the like; (4) if there were problems/errors of some technical kind. This treatment led to the exclusion of only 4 of all 300 experimental items that were recorded.

As outlined above, the strongest correlate to how the listener perceives the speaker's intonation, i.e. accent placement, is the fundamental frequency (pitch, F0). Therefore, the corresponding intonation contour was used to

analyse the experimental items in order to identify the location and type of pitch accents.

No other prosodic features were considered. Since the elements that we are interested in (particle, noun within DP) occurred at the end of the sentences, i.e. were the final elements within their utterances, we would not be able to tell whether differences in lengthening are due to focus or to phrase-final lengthening. As Cruttenden (1997:33) notes, regardless of whether the final syllable in an intonation-group is stressed or unstressed, it will often be lengthened. "The most clear function for final syllable lengthening is undoubtedly as a boundary marker." This is why in this experimental study I have concentrated on the most obvious indicators of focus, namely the location and type of pitch accents that occur.

In the F0 figures across subjects an overall pattern can clearly be seen.

4.3.3.2 *Results and Discussion*

I will first consider one pair of items and the corresponding contours exemplarily. I will then show by giving the statistic analysis that the contours reflect the general results. In all sentences, we are interested in what happens on the particle and the object in the discontinuous condition as opposed to the continuous condition. What I found on these elements supports the assumptions and predictions made above on focus assignment and accent placement.

The descriptive analysis. Consider the prosodic curves for the example given in (119) above, presented as Figure 4.2 for (119a) (*. . . to turn down the radio*) and as Figure 4.3 for (119b) (*. . . to turn the radio down*) below. (The uppermost curve represents the fundamental frequency (F0), i.e. the intonation contour, which is the strongest correlate of how the listener perceives the speaker's intonation and stress, i.e. of accent placement. The second contour represents intensity or loudness. The lowermost curve is the speech signal. Values of fundamental frequency in Hertz (Hz), of intensity in decibels (dB) and of time values in seconds/milliseconds (s/msec) are displayed.) The relevant F0 contour shows a rise from a low point to a local peak on the first syllable of the noun *radio* in the continuous order in Figure 4.2 (199 Hz to 243 Hz), and on the particle *down* in the discontinuous alternate in Figure 4.3. I will interpret the local peaks as accent placement of type H* on the corresponding element.

This is a result that is quite reasonable for compositional particle verbs. One could argue that the particle has its own semantic content and can therefore be stressed. However, the contours represent the overall pattern, as will become clear in the statistic analysis below.
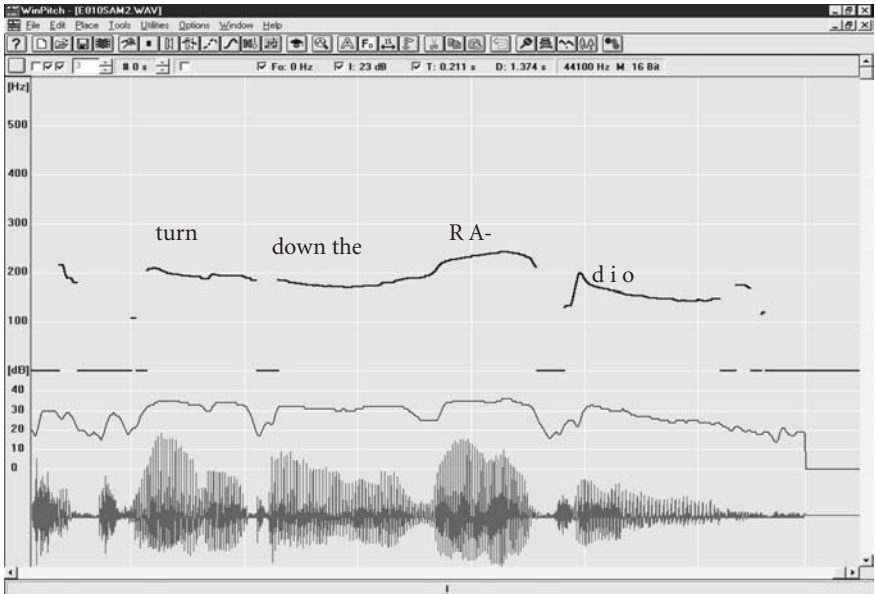
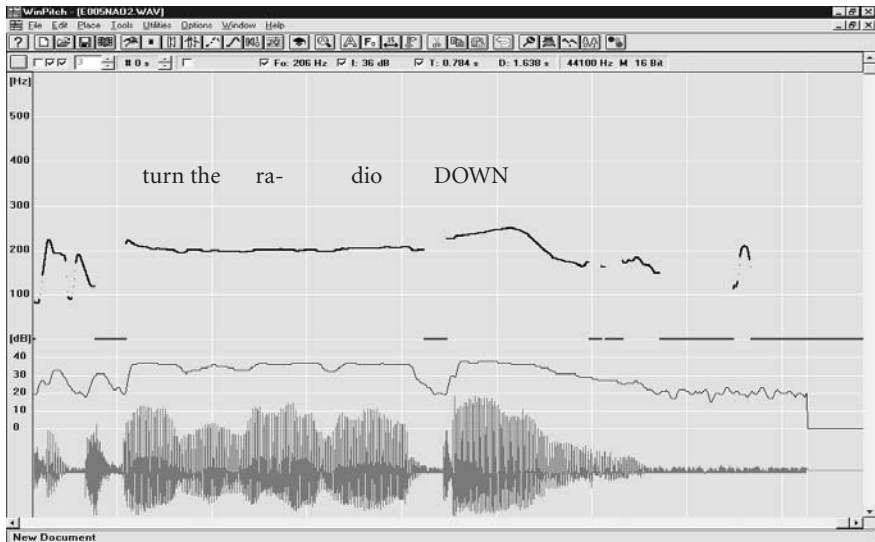**Figure 4.2** ... *to turn down the radio*. Speaker SAM

Figure 4.3 ... *to turn the radio down*. Speaker NAO

The statistic analysis. In the section above I have described one pair from the whole set of materials, a compositional PV examplarily. In what follows I want to report the results of the statistic analysis for the items containing neutral focus which show that the sentences given above are representative.

Of the 300 experimental items that were recorded altogether (30 exp. items à ten speakers) only 160 were included in the statistic analysis. Due to the nature of this experiment as a pilot study I could not include all items in the statistics. One hundred and forty experimental items were excluded for the following reasons: (1) the nominal complements were not the same within the pairs (e.g. *load up mother's car* vs. *load the van up*; 6 item pairs were excluded for this reason; (2) in addition, one utterance was interpreted as contrastive focus, which is not the type of focus that is under investigation here (one item pair excluded; compare (122) and Figure 4.6 below). The 160 experimental items that were included in the statistic analysis consisted of 3 pairs of compositional PV, 3 pairs of idiomatic PV, and 2 pairs of aspectual PV for each of the ten speakers.

Since focus is related to a rise of the F0 contour to a local peak, the measure points were onset and peak on the particle and the noun. What is of main interest here is the range value, i.e. the difference between the mean value peak and the mean value onset for each particle and noun.

First of all, it is important to exclude the idea that the type of PV (compositional vs. idiomatic vs. aspectual) plays a role in accent placement. For both particle and noun, the results were therefore analysed in a two-way analysis of variance with the factors of VERB TYPE (three levels) and CONDITION (two levels: continuous vs. discontinuous order). The mean values are given in Table 4.1.

For the particle, a main effect was obtained for CONDITION ($F[1,9] = 97.168$, $p < 0.001$), but not for VERB TYPE ($F[2,18] = 1.695$, $p > 0.1$). In addition, no significant interaction effect between the two factors was obtained ($F[2,18] = 1.296$, $p > 0.1$).

The same is true for the noun: there was a main effect for CONDITION ($F[1,9] = 14.893$, $p < 0.005$), but not for VERB TYPE ($F[2,18] = 0.322$, $p > 0.5$), and there was no significant interaction effect between the two factors ($F[2,18] = 1.402$, $p > 0.1$).

I take these results as evidence for the fact that the type of the verb group does not play a role for the placement of the accent within PV constructions. Therefore, I did not distinguish between verb types in the further analysis of the data in this pilot study, nor in the analysis of the following experiment. For the further analysis of experiment1, the mean values are given in Table 4.2.

Table 4.1 Mean values in Hertz (Hz) as a function of Verb Type and Condition for particle and noun; condition 1 = continuous, condition 2 = discontinuous order

	Particle								
	Compositional PV			Idiomatic PV			Aspectual PV		
	Onset	Peak	Range	Onset	Peak	Range	Onset	Peak	Range
Condition 1	214	216	2	188	189	1	203	204	1
Condition 2	157	184	27	161	174	13	181	195	14

	Noun								
	Compositional PV			Idiomatic PV			Aspectual PV		
	Onset	Peak	Range	Onset	Peak	Range	Onset	Peak	Range
Condition 1	184	206	22	186	219	33	198	216	18
Condition 2	187	189	2	185	197	12	199	211	12

Table 4.2 Mean values in Hertz (Hz) for all verb types

	Particle	Onset	Peak	Range	Noun	Onset	Peak	Range
Condition 1		201	203	2		189	213	25
Condition 2		165	184	19		190	198	9

The main effect for the factor Condition for both the particle and noun is confirmed and supported by individual t-test results which show the following pattern.

For the particle, the rise of F0 in condition 2 (discontinuous order) is significantly stronger than that in condition1 (continuous order) (t(9) = –6.9, p < 0.001). The F0 for the noun rises significantly stronger in the continuous than in the discontinuous condition (t(9) = 3.962, p < 0.01). These results for particle and noun are illustrated in Figure 4.4 and Figure 4.5.

I conclude from these results that accent placement is on the noun in the continuous construction, whereas it is on the particle in the discontinuous order. The predictions made in Section 4.3.2.2 above are born out.

The case of contrastive focus. The results reported above represent the case of neutral focus (new information focus). However, some of the experimental items were interpreted as contrastive focus. I would like to take a brief look at examples involving contrastive focus in this section. I have already mentioned above that one item pair had to be excluded from the statistic analysis because one item of the pair was interpreted as containing a contrastively focused noun phrase. The relevant item is given in (122).
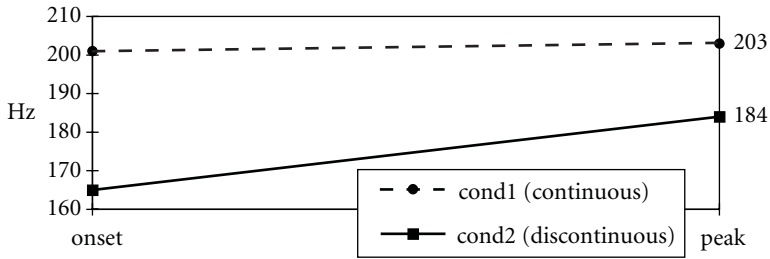
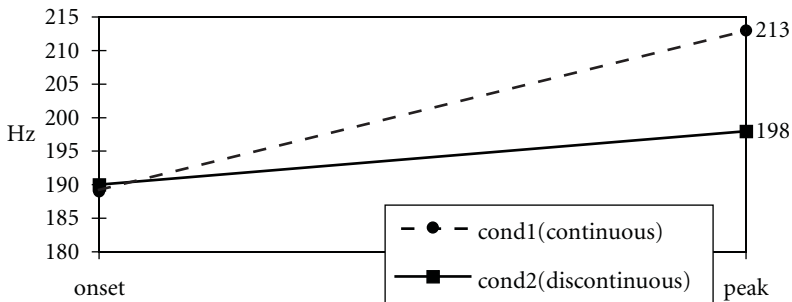**Figure 4.4** Rise of F0 for particle: Condition 1 vs. condition 2

Figure 4.5 Rise of F0 for noun: Condition 1 vs. condition 2

(122)   *Contrastive focus*
   – "How do you have your coffee?"
   – "White, please, with more milk than coffee."
   – "Oh, I am very sorry, you can't. Someone has *used the MILK up*."

Obviously, the object noun phrase *the milk* in this utterance was contrasted with *coffee*: it was the milk that was used up, not the coffee. Therefore, most speakers placed the accent on the noun *milk* instead of on the particle, despite the fact that *the milk* has to be considered as given in the discourse.

Note that this example may not be considered as an exceptional case in natural language. We can easily imagine sentences containing contrastive focus, i.e. the accent on the object, although they occur in the discontinuous construction. Consider for example the sentence in (123), involving a pronominal object.

(123)   Lisa is doing the washing-up. She asks her brother:
   "Can you bring me the glasses, please, I want to wash THEM up, not the cups."
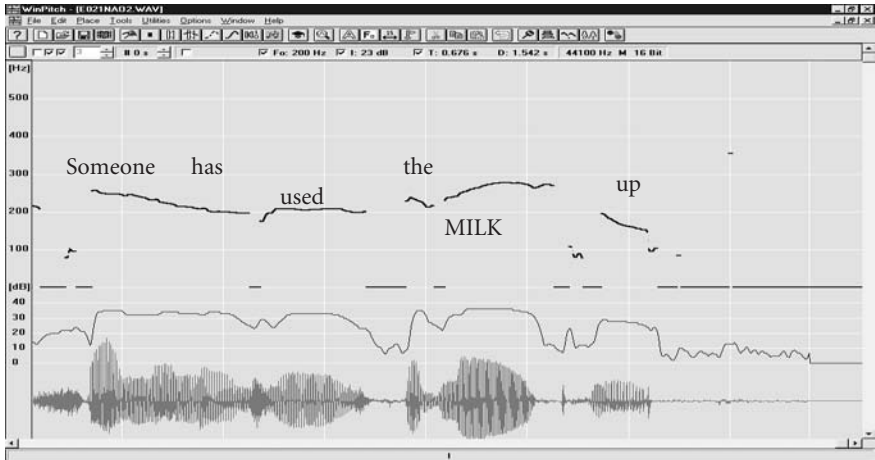
Figure 4.6 *Someone has used the milk up*. Speaker NAO

Here the pronoun *them* is clearly a background constituent in that it refers back to the DP *the glasses*. But it is also focused, namely contrastively focused. *Them* is contrasted with *the cups*, indicating that Lisa does not want to clean the cups, but the glasses, referred to by the pronoun.

　　To further illustrate the placement of the accent, let us look again at the experimental item in (122), of which the contour is given in Figure 4.6. The word that we might have expected to be accented (*up*) fails to be accented in this context where the preceding noun is contrastively focused.

　　For F0, we can see a rise from a low level to a high peak on the syllable *MILK*. Following the peak, the contour falls again on the particle towards a low boundary tone. These findings are in line with what Pierrehumbert & Hirschberg (1990: 296) describe, namely that "[t]he most common use of L+H* in the data we have collected is to mark a correction or contrast." This is exactly what we have here. Speaker A corrects his offer in that he apologises for not having any milk. The contrast is of the kind *Someone has used the MILK up, not the COFFEE*. Remember that contrastive focus is not confined to a unique syntactic position, but that it can be assigned to every constituent in the sentence and is made visible by means of intonation, as was mentioned in the introductory Section 4.1 above. Recall also from Section 4.1.2 above that Haftka (1994, 1995) assumes that a [+ANAPH] constituent, i.e. a phrase that refers to a given entity in the discourse, can be contrastively focused. This seems to be the case in the example in (122). Here the requirement of rightmost stress within the focus domain is overridden by the contrastive focus accent. Nevertheless,

the DP involved is preposed. This does not necessarily pose a problem for the analysis, since we know that with regard to the syntactic structure and linear order of the utterance, contrastive focus and the corresponding accent placement is not bound to a certain position. It can be assigned to every constituent in the sentence, and can therefore be realised at every structural position.

Further remarks. Let me add some remarks concerning the position of the accented elements in the cases of neutral focus. As the accent is placed at the end of the sentence in both conditions it could be argued that this cannot be attributed to the focus structure, but to the final (rightmost) position of the relevant element. Especially within the conception of *normal stress* and in terms of the NSR (cf. Section 4.3.1.3 above) this would not be an unexpected objection. Remember that within this conception, there is a single primary stress or sentence stress, which is in general placed on the rightmost element of the sentence.

However, the conception of *normal stress* was criticised as early as in Bolinger (1958). He rejects the assumption that pitch and stress are phonemically independent. Gussenhoven (1984b: 23) points out that the concept of normal stress "cannot reasonably be part of a linguistic theory of accent assignment, as it necessarily involves a prior interpretation of semantic material as either Background or Variable". A reader, he argues (1984b: 22), when presented with a written sentence and asked to pronounce it, will first divide it into focused and non-focused material, and then place the accent accordingly. Gussenhoven therefore rejects the notion of normal stress as a meaningful concept.

I follow Bolinger (1958) and Gussenhoven (1984) in their rejection of the concept of normal stress. As was made explicit above, it is a general assumption that stress or the placement of the accent and meaning are not independent concepts. The intonation of a non-isolated utterance is certainly not independent of the context of the utterance, but there is a relation between focus and accent placement. Moreover, as noted above, normal stress is related to sentences that display broad focus. However, the materials used in experiment1 (as well as most sentences uttered within a discourse) are not of this type, but show a more distinct focus-background division in that they include non-minimal or minimal focus on parts of the sentences, such as, in my experimental items, the nominal object or the verbal action.

Additional evidence for assuming the relation between IS and accent placement comes from the fact that the same sentence can be uttered with different intonation patterns depending on the speaker's intention. A pop-

ular example has been given by Selkirk (1984: 255ff.), repeated in Selkirk (1995: 551f.), also given in Pierrehumbert and Hirschberg (1990: 272ff.), given here in (124) below.

(124)   *Legumes are a good source of vitamins.*

     a.   Legumes   are a good source of vitamins.
         H*   L   H%

     b.   Legumes are a good source of vitamins.
                             H* L H%

In (124a) the F0 contour of the sentence has a high peak on the stressed syllable of *legumes*, followed by a fall to a low pitch, which is maintained until the final syllable where we find a rise to a high boundary tone. The utterance would be appropriate only in a discourse context where the focus is on *legumes*, but the predicate noun *vitamins* is given. According to Selkirk (1995: 552), the high boundary tone indicates that the sentence is not a simple declarative sentence, which in English would end in a L% boundary tone. Rather, she argues, the fall-rise contour makes it appropriate as a contradiction of the assertion *Nothing in this cupboard is a good source of vitamins*. In contrast to that, the F0 contour in (124b) indicates the focusing of the noun *vitamins*, e.g. as a contradiction of the assertion *Legumes aren't good for anything* (Selkirk 1995: 552).

    That the same sentence can be uttered with different intonation patterns depending on the speaker's intention is of course also true for PV constructions and these constructions can therefore be taken as evidence for the claim that there is a relation between focus/speaker intention and accent placement. Consider the pattern in (125) and in the corresponding question-answer pairs in (126) below, which are taken from experiment 2 which I report on in Section 4.3.4 below. As will be explained in Section 4.3.4 below, the participants read the sentence as given in (125). Then they were asked the wh-questions as given in brackets in (126). They answered the questions, avoiding the use of pronouns and of it-clefts and giving full sentences. All the sentences shown below were produced by the same speaker (Sb03). The corresponding contours are given in Figures 4.7 through 4.10.

(125)   Speaker A: "Dora, what happened to your red dress? I haven't seen it on you for a long time."
         Dora: "*I gave the dress away*. I didn't like it anymore."
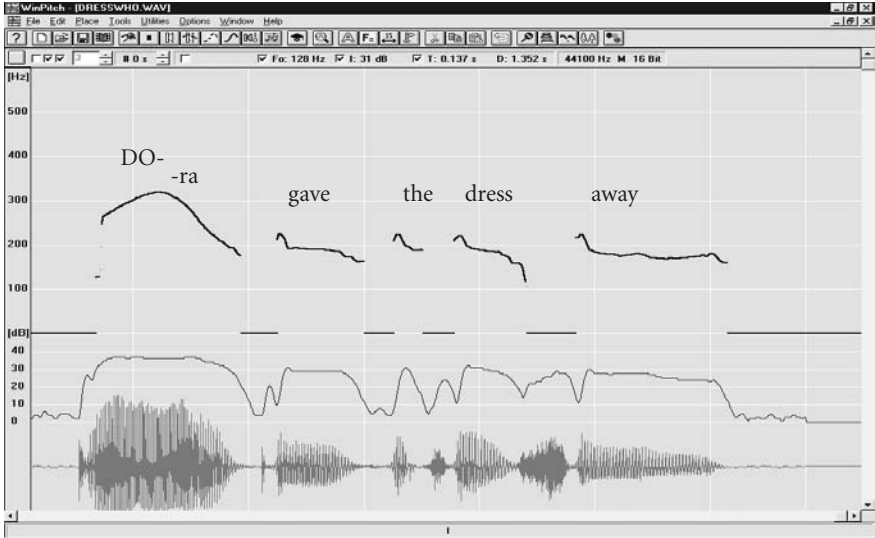
(126)   a.   (Who gave the dress away?)
            Dora gave the dress away.
            H*

b. (What did Dora give away?)
    Dora gave away the dress.
                          H*
c. (What did Dora do with the dress?)
    Dora gave the dress away.
                          H*

In (125), *the dress* within the PV construction is familiar information, the focus is on the verbal action *give away*. The accent is therefore placed on the particle as the focus exponent. We see a rise of F0 on the stressed syllable of the particle (cf. Figure 4.7). In the three utterances in (126) the speaker's intention is to highlight different parts of the sentence, respectively, according to the wh-questions that were asked. In (126a), the question focuses the subject. Correspondingly, the H* accent is placed on the stressed syllable of the proper noun *Dora*. The high peak of F0 is on the first syllable of the proper noun, as can be seen in Figure 4.8. In (126b), the wh-question focuses the object of the sentence. Accordingly, the F0 of the answer sentence shows a local maximum on *dress* (cf. Figure 4.9). The question in (126c) focuses on the verbal action. The high peak of the contour of the answer utterance is therefore on the stressed syllable of the particle *away* (cf. Figure 4.10). Note also the word order that the speaker has chosen for (126b) and (c). The focused element is placed at the final sentence position. The *dress* is given information in (126c), where it occurs between the verb and the particle, but is focused in (126b), where it follows the complex PV.
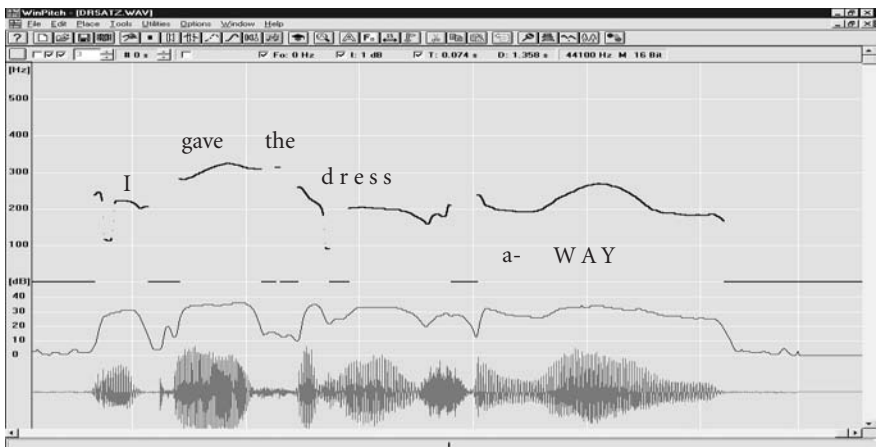
Figure 4.7 *I gave the dress away*. (I didn't like it any more)

Figure 4.8 (Who gave the dress away?) *Dora gave the dress away*.
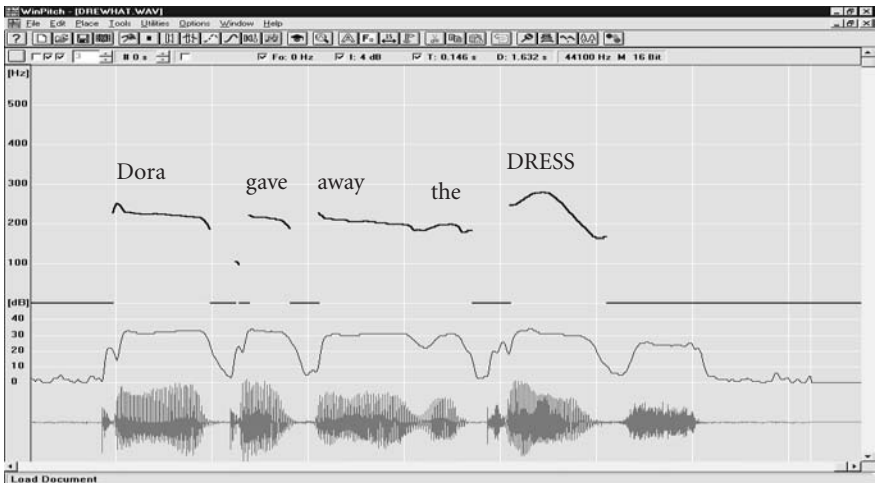
Figure 4.9 (What did Dora give away?) *Dora gave away the dress*.

What we see from these examples is that the placement of the accent depends on the speaker's intention and on the focus structure of the sentence. This relation between focus and accent placement cannot be explained by the concept of *normal stress*.
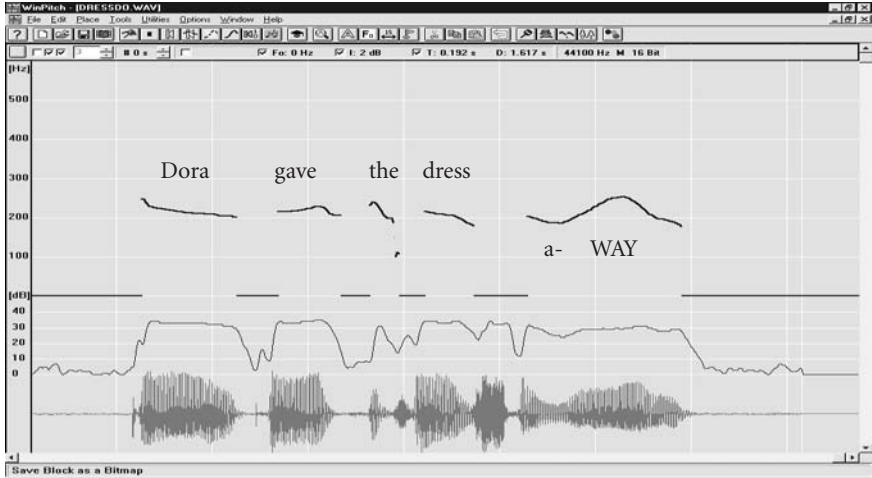
Figure 4.10 (What did Dora do with the dress?) *Dora gave the dress away*.

Moreover, remember that, following Pierrehumbert & Hirschberg (1990), we argued that accents can be high or low tones, but that new information focus is related to a high tone, or a rise to a high tone. This is exactly the accent type that I found within the experimental items on the elements in question. Other accent types are possible in the sentence final position, too, for example L*. Remember that Pierrehumbert & Hirschberg (1990) argue that the L* accent marks information which is salient but not new. Now consider the example in (127), taken from Pierrehumbert & Hirschberg (1990:293).

(127)   Speaker A: Let's order the Chateaubriand for two.
         Speaker B: I don't eat beef.
                    L*   L* L H%

In (127) we find a L* accent, i.e. a low pitch on the element in question, *beef*, followed by a low phrase accent and a high boundary tone. Pierrehumbert & Hirschberg (1990:292) argue that this accent type in the given sentences conveys something like an indignant reaction, "suggesting that [speaker A] should have had in mind something that she clearly did not", namely that speaker B does not eat beef and does therefore not want to drink the Chateaubriand. We would suppose that *beef* does not convey new information, but that a dialogue between the participants about what they were having to eat had preceded the utterance about the wine.

In addition, the question-answer pair in (128) illustrates that a DP representing given information in the sentence final position would certainly not be assigned a H* type of accent.

(128)   What did Peter do to the dog?
          Peter KILLed the dog.
                 H*

In this example, we expect the H* type of accent on the verb, but not on the object noun. Here, it becomes clear that contrary to PV's, simplex verbs do not have the option to displace an object-DP conveying given information, as was noted by Bolinger (1971: 49f.) (cf. above). In order to shift the focused information to the end it would be possible (and necessary) to choose the passive voice (*The dog was killed*). (But note that the passive voice would rather be used in a *What happened to the dog?* context than in the given context.) It is therefore not the final position of the element alone, that accounts for accent placement, but it is the discourse situation, i.e. IS of the context.

I have shown in this section that the objection against my results, namely that accent placement in the final sentence position in all my experimental items is due to a general rule that states that this is the normal sentence accent position, does not hold. Firstly, accent placement does not follow one single rule but depends on the focus structure of the sentence and the speaker's intention. Secondly, the accent type that I found, namely H*, is related to new information focus, and it is moreover not the only possible accent type in the sentence final position, but we can also find different accent types such as L*. Thirdly, an otherwise accented element in the rightmost position can be de-accented if it is background information.

However, in order to thoroughly dispel any doubts with respect to the results of experiment1 and to avoid the problems resulting from the sentence final position of the critical elements, I carried out another experimental study on the intonation of PV constructions in English, which again supports the claim made above concerning the relation between focus and accent placement. It was necessary to compare the items used in the first experimental study with sentences where the elements in question (the particle in the continuous construction and the noun in the discontinuous alternate) were not placed at the end of the sentences in which they are embedded, but were followed by some other constituent. This position of the critical elements within the utterances will enable us to also consider a second prosodic parameter in addition to position and type of pitch accent, namely syllable length/duration. I report on the corresponding experimental study in the following section.

4.3.4 Experiment 2: A second production study on the intonation of PV constructions

The main idea that led to this study was to place the critical elements not at the end of utterances/sentences, but to have them followed by additional constituents, for reasons that have been outlined in the previous section. Such a treatment not only enables me to check whether the accent patterns found in the first study are truly due to focus structure as opposed to the mere position of the critical items within their contexts. It also means that we can take into account another prosodic parameter other than the pitch accent, too, namely syllable length, i.e. the duration of the particle and noun in one condition (=word order) relative to the duration of the same syllable in the alternate order.

The hypothesis is that the rightmost position of the element in question (noun or particle), as opposed to sentences where the critical element is followed by an additional constituent, may play a role not with respect to accent type and accent position, but only with respect to the degree of the effect that is found. This prediction is born out. Moreover, there are differences between the sentence types involved with regard to the syntactic status of the added constituent and its relation to phonological phrasing. The apparent differences in phrasing and the resulting different predictions with regard to the degree of the expected effects are formulated in the next section in connection with the experimental materials.

4.3.4.1 *Method*
Participants and apparatus. The study was carried out at the University of Oxford in England.[27] Ten female non-professional native speakers of English were recorded, 9 students and PhD students of the University of Oxford, one solicitor. All participants were aged between 20 and 31. For the recordings, I used a Sony DAT Walkman TCD-D8 and a Sennheiser microphone e845. The software used for the analysis of the speech signals was *SEKD Samplitude Studio (Versions V5.10 and V5.30)* and *WinPitch^{TM} (Version V.1.88)*.

Materials. As in the pilot study, the sentences containing the particle verbs were embedded in short contexts, so that the IS of the target sentence was controllable. Eighty experimental items with transitive particle verbs were chosen. Ten particle verbs were chosen as experimental PV's. (I chose 5 compositional and 5 non-compositional PV's. However, as the pilot study has shown that the verb type does not play a role with regard to intonation, verb type was not a factor in the statistic analysis.) As in the first study, the PV's were presented in

the continuous and in the discontinuous order, the word order was chosen according to the IS of the context. In addition, this time the PV's appeared in four different syntactic surroundings for each order: Type A: the critical element – N in the continuous order, Part in the discontinuous order – was placed at the right edge of the sentence, as in the pilot study above (PV plus Ø); Type B: a complement-PP or complement-like PP was added; Type C: an adjunct-PP was added; Type D: an adverb was added. The same additional phrases that were used in the continuous condition were also used in the discontinuous condition, so that the conditions were comparable. Also for the sake of comparability, the same verbs as in the pilot study were chosen where possible. Examples of the experimental items are given in (129) through (132) below.

(129) *turn down*

   a. CONDITION 1: Continuous order

   Type A: PV plus Ø
   It's late and I want to go to bed. Peter, I would like you to *turn down the radio*. The music is too loud, I won't be able to sleep.

   Type B: PV plus complement
   It's late and I want to go to bed. Peter, I would like you to *turn down the radio to a lower level*. The music is too loud, I won't be able to sleep.

   Type C: PV plus adjunct
   It's late and I want to go to bed. Peter, I would like you to *turn down the radio in a few minutes*. The music is too loud, I won't be able to sleep.

   Type D: PV plus adverb
   It's late and I want to go to bed. Peter, I would like you to *turn down the radio a bit*. The music is too loud, I won't be able to sleep.

   b. CONDITION 2: Discontinuous order

   Type A: PV plus Ø
   "Peter, do you know where that noise is coming from?"
   "Yes, Ann, I do. It's the radio of our next door neighbour, a student. She likes her music loud."
   "Fine, but I can't stand it. I'll go and ask her to *turn the radio down*."

   Type B: PV plus complement
   "Peter, do you know where that noise is coming from?"
   "Yes, Ann, I do. It's the radio of our next door neighbour, a student.

She likes her music loud."

"Fine, but it's too loud. I'll ask her to *turn the radio down to a lower level*."

Type C: PV plus adjunct
"Peter, do you know where that noise is coming from?"
"Yes, Ann, I do. It's the radio of our next door neighbour, a student. She likes her music loud."
"Fine, but it's too loud. I'll ask her to *turn the radio down in a few minutes*."

Type D: PV plus adverb
"Peter, do you know where that noise is coming from?"
"Yes, Ann, I do. It's the radio of our next door neighbour, a student. She likes her music loud."
"Fine, but it's too loud. I'll ask her to *turn the radio down a bit*."

(130) *hand out*

a. CONDITION 1: Continuous order

Type A: PV plus Ø
"Andrew, one of my students said you handed something out during your lecture today. What was it?"
"I *handed out the papers*. I want the students to read them."

Type B: PV plus complement
"Andrew, what did you do in your lecture today?"
"I *handed out the papers to the students*. I want them to read them for next week."

Type C: PV plus adjunct
"Andrew, what did you do to the students today?"
"I *handed out the papers during the lecture*. I don't know why the students were so excited about that".

Type D: PV plus adverb
"Andrew, what happened during your lecture?"
"I *handed out the papers today*. I don't know why the students were so excited about that".

b. CONDITION 2: Discontinuous order

Type A: PV plus Ø
"Sue, what happened to the pile of papers I saw in your office yesterday?"

"I *handed the papers out.* I want the students to read them."

Type B: PV plus complement
"Sue, what happened to the pile of papers I saw in your office yesterday?"
"I *handed the papers out to the students.*"

Type C: PV plus adjunct
"Sue, what happened to the pile of papers I saw in your office yesterday?"
"I *handed the papers out during my lecture.* I want the students to read them."

Type D: PV plus adverb
"Sue, what happened to the pile of papers I saw in your office yesterday?"
"I *handed the papers out today.* I want the students to read them."

(131)   *give up*

  a.   CONDITION 1: Continuous order

  Type A: PV plus Ø
  Sam sold her house and moved to another town, but she *didn't give up her job.*

  Type B: PV plus complement
  After Helen had moved to London, she *gave up her job for a new one.*

  Type C: PV plus adjunct
  Some things have changed in Helen's life. Last year she moved to London. Then she *gave up her job last month.*

  Type D: PV plus adverb
  I think Katie will *give up her job soon.* She doesn't like it very much.

  b.   CONDITION 2: Discontinuous order

  Type A: PV plus Ø
  Sam liked her job, it was interesting, but when she moved to another town she had *to give the job up.*

  Type B: PV plus complement
  Helen had been working in her old job for years. It had become boring. As a consequence, she *gave her job up for a new one.*

Type C: PV plus adjunct
Helen didn't like her job. It was boring and she had to work long hours. She *gave her job up last month*.

Type D: PV plus adverb
Katie liked her job in Birmingham very much. But after she had moved to Scotland, she had *to give the job up soon*.

(132)   *load up*

a.   CONDITION 1: Continuous order

Type A: PV plus Ø
We had bought so much stuff in the superstore that we couldn't take it home on our bikes. So we *loaded up the van*.

Type B: PV plus complement
Last year, when Mary moved to London, she *loaded up the van with furniture*.

Type C: PV plus adjunct
"Mary, what did you do last night? We were waiting for you at the pub."
"Oh, I *loaded up the van until late at night*. My parents are moving to their new house today."

Type D: PV plus adverb
Sue is moving from London to Oxford tomorrow. She will have to *load up the van soon*.

b.   CONDITION 2: Discontinuous order

Type A: PV plus Ø
When we moved last year, we hired a van. In the morning, we *loaded the van up*.

Type B: PV plus complement
When Mary moved to Edinburgh, she hired a van. With the help of her friends, she *loaded the van up with furniture*.

Type C: PV plus adjunct
When Mary moved to Edinburgh, she hired a van. With the help of her friends, she *loaded the van up until late at night*.

Type D: PV plus adverb
Susan has hired a van, because she is moving to Oxford tomorrow. She will have to *load the van up soon*.

Furthermore, a number of filler items were chosen. They occurred on the list repeatedly or in slightly altered versions, so that 82 filler items were included in the list altogether. The filler items were similar to the experimental items with regard to their length. Filler items used in experiment 1 were also used in experiment 2.

Before proceeding with the experiment, I want to illustrate the phonological phrasing with regard to the four sentence types. Concerning PV's, notice that Nespor & Vogel (1986: 179) group the particle in the same φ-phrase with the verb. Note also that under *Align-XP,R* we might even predict that there is a boundary after the preposed DP-complement in the discontinuous order, i.e. between the noun and the particle. Consider the structures in (133) (Truckenbrodt 1999: 225), as compared to those in (134), including the PV (# indicates a phonological boundary).[28]

(133)   a. $[V [D NP]_{DP} \# IP]_{VP}$
        b. $[D NP]_{DP} \#$ $[V \text{ [D NP]}_{DP}$ $IP]_{VP}$
                                        ↑ no boundary at the right
                                        edge of the silent copy

(134)   a.   *PV: Continuous order*
             $[V \text{ Part DP}] \# XP]_{VP}$
        b.   *PV: Discontinuous order*
             $[V DP_i] \# [Part t_i$ $XP]_{VP}$
                                ↑ no boundary at the right edge of t_i

Remember that according to the *Lexical Category Condition* (LCC) of Truckenbrodt (1999: 226), given in (98) above, constraints relating syntactic and prosodic categories do not apply to empty syntactic elements. The empty category is ignored by the mapping constraint that leads to the insertion of a prosodic boundary after overt XP's. Thus, in (133b), there is no boundary at the right edge of the base position of the moved DP.[29] According to *Align-XP,R*, however, there is a boundary between the overt DP in the initial position and the verb. The verb and the IP are phrased together. Similarly, in (134a), we expect a boundary after the DP-complement of the PV. In (134b), however, the DP is preposed to the position between the verb and particle, thus triggering a boundary at its right edge according to *Align-XP,R*. On the other hand, according to the LCC, no such boundary is predicted between t_i and the following XP.

However, such a boundary as indicated in (134b) cannot be found in the recorded materials. On the other hand, there seems to be a boundary before XP (both before a complement-XP and an adjunct-XP). But remember that Nes-

por & Vogel (1986:168f.) and Gee & Grosjean (1983:434) argue that preposi-tions make up φ-phrases with their nominal complement phrases, but that in terms of phonology particles are not treated as prepositions. XP in (134b) is a complement-PP or an adjunct-PP, both of which form separate φ-phrases, not including the particle. Note also that Truckenbrodt (1995:97), in combining the theory of phonological phrasing and the relation between focus and accent placement, points out that the semantically relevant domain of a focus is also its phonologically relevant domain. A φ-boundary is inserted after the focused constituent. For the experimental material, the application of *Align-XP,R* and the idea of inserting a φ-boundary after the focused constituent translates into the following assumptions for the purpose of this study:

Firstly, there is a φ-phrase boundary between the critical element – noun in the continuous order, particle in the discontinuous alternate – and the follow-ing phrase, as indicated in (135) (it will become clear in Section 4.3.4.2 below that this is the right prediction).

(135)   a.   *Continuous order*
              [V Part DP]$_\varphi$[XP]
        b.   *Discontinuous order*
              [V DP Part]$_\varphi$[XP]

Secondly, in addition to (135) and following Truckenbrodt's (1995, 1999) as-sumptions concerning adjunction structures and also Gee & Grosjean's (1983) ideas in this connection, I suggest with regard to the PV constructions that there is a φ-phrase boundary before the added PP-complement, but a stronger boundary, supposedly an I-phrase boundary, before the added adjunct-PP. I therefore predict the following relevant structures and boundaries (with ## in-dicating a very strong prosodic boundary at the end of the utterance; I ne-glect the phrasing between the subject and the VP, since it is irrelevant for the present purpose).

(136)   *Sentence type A*
        a.   Condition 1: (e.g.: *I handed out the papers.*)
              [I handed out the papers]$_{\#\#}$
        b.   Condition 2: (e.g.: *I handed the papers out.*)
              [I handed the papers out] $_{\#\#}$

With sentence type A, we find the critical element at the end of the utterance, the noun in Condition 1, the particle in Condition 2.

(137) *Sentence type B*
   a. Condition 1: (e.g.: *I handed out the papers to the students.*)
       [[I handed out the papers]$_\varphi$ [to the students]$_\varphi$]$_I$
   b. Condition 2: (e.g.: *I handed the papers out to the students.*)
       [[I handed the papers out]$_\varphi$ [to the students]$_\varphi$]$_I$

The phrasing in sentence type B, illustrated in (137), is such that there is a φ-phrase boundary after the DP-complement (*the papers*), i.e. after the noun or particle as the critical elements. The following PP-complement forms its own φ-phrase. The relevant constituents, namely the PV plus its DP-complement and the added PP-complement phrase, are within one I-phrase, as can be seen in (137) above. This is exactly the case that was already discussed in connection with (103) above and need therefore not be further explored here.

(138) *Sentence type C*
   a. Condition 1: (e.g.: *I handed out the papers during the lecture.*)
       [[[I handed out the papers]$_\varphi$]$_I$[during the lecture]$_I$]
   b. Condition 2: (e.g.: *I handed the papers out during the lecture.*)
       [[[I handed the papers out]$_\varphi$]$_I$[during the lecture]$_I$]

With sentence type C, illustrated in (138) above, I assume that there is a stronger boundary between the critical element and the following adjunct, than between the critical element and the added complement in (137). Consequently, the relevant constituents, namely the PV plus its complement and the added adjunct phrase, are not within one I-phrase. Remember that both Gee & Grosjean (1983) and Truckenbrodt (1995, 1999) have argued for a difference in strength between the boundary that precedes a complement and the boundary that precedes an adjunct. The adjunct *during the lecture* in (138) is in a VP-adjunction position. Recall that Truckenbrodt (1995, 1999) suggests that the mapping constraints see the lower, not the higher VP-node. To use the more technical terms, the mapping constraints were argued to see the category, not the segment VP. The adjunct is outside this lower VP-node, i.e. it is dominated by one segment of VP, but not by the category VP. As opposed to that, the complement *to the students* in sentence type B in (137) is dominated by the category VP. In order to account for this difference between adjunct and complement, the I-phrase boundary is predicted to precede the adjunct in (138), whereas for the complement in (137) a φ-phrase boundary was predicted. We will see in Section 4.3.4.2 below that this prediction is born out.

Next, consider sentence type D in (139), where the transitive PV construction is followed by an adverb.

(139) *Sentence type D*
  a. CONDITION 1: (e.g.: *I handed out the papers today*.)
    i. I-phrase boundary ($\Rightarrow$ adjunct position)
        [[[I handed out the papers]$_\varphi$]$_I$[today]$_I$]
    ii. φ-phrase boundary (non-branching adverbs)
        [[I handed out the papers]$_\varphi$ [today]$_\varphi$]$_{\#\#}$
        or, under restructuring:
        [[I handed out the papers today]$_\varphi$]$_{\#\#}$
  b. CONDITION 2: (e.g.: *I handed the papers out today*.)
    i. I-phrase boundary ($\Rightarrow$ adjunct position)
        [[[I handed the papers out]$_\varphi$]$_I$[today]$_I$]
    ii. φ-phrase boundary (non-branching adverbs)
        [[I handed the papers out]$_\varphi$[today]$_\varphi$]$_{\#\#}$
        or, under restructuring:
        [[I handed the papers out today]$_\varphi$]$_{\#\#}$

With sentence type D, I have indicated that there might be more than one op-
tion with regard to phonological phrasing. The noun in CONDITION 1 and the
particle in CONDITION 2 terminate their φ-phrases. In addition, there might
be an I-phrase boundary as indicated in the (i)-cases. This assumption follows
straightforwardly from what has been outlined above with regard to adjuncts.
Remember that Gee & Grosjean (1993) argue that adverbial adjuncts are modi-
fiers outside the basic VP. Also, according to Truckenbrodt's (1995, 1999) anal-
ysis, adverbial adjuncts and phrasal adjuncts must be treated in an equal way,
since they are both generated in adjunction position to VP (or even higher in
the clause structure in the case of sentence adverbs). Under this assumption,
sentence types C and D would be expected to behave alike. However, I would
like to make an alternative suggestion. Remember that for non-branching com-
plements, Nespor & Vogel (1986: 173) proposed a restructuring rule, repeated
here as (140) below. I mentioned in the discussion of (79) above that within this
definition, "*the first complement of X*" might actually be understood as the first
constituent following in the linear order, even if it is an adverbial adjunct. This
is obvious from the example in (84), repeated here as (141) for convenience.

(140) *φ restructuring* (optional)   (Nespor & Vogel 1986: 173)
      A non-branching φ which is the first complement of X on its recursive
      side [right side in right-branching languages, N.D.] is joined into the φ
      that contains X.

(141) a. Given the chance, rabbits REproduce QUIckly.
      b. Given the chance, rabbits reproDUCe VERy quickly.

Recall that discussing the φ-phrase-internal rule of *Iambic Reversal* (IR) for English, Nespor & Vogel (1986: 177f.) argue that in (141b), there is a φ-phrase boundary after the verbal head *reproduce*. The stress on the verb is therefore not shifted to the first syllable, although the following word *very* is stressed on the first syllable.[30] As opposed to this, the stress on the verb is shifted in (141a), since the adverb *quickly*, stressed on the first syllable, is part of the same φ-phrase as the verb after φ-restructuring. Restructuring is impossible in (141b) since the adverbial phrase is a branching constituent. Apparently, in the example in (141) there is an φ-phrase boundary between a verb and an adverbial modifier which can be restructured if the adverb is non-branching. If this is correct, then we can also expect a φ-phrase boundary preceding the adverb *today* in sentence type D in (139) above. This type of boundary is indicated in the (ii) structures. Under restructuring, which is optional for non-branching constituents (cf. (140) above), the φ-phrase boundary between the noun in Condition 1 and the particle in Condition 2 and the following adverb is eliminated. The adverb is then joined into the φ-phrase that contains the critical element (noun/particle). I will come back to sentence type D and the adverbs involved in an excursus in Section 4.3.4.4 below.

Due to the assumption that there is a difference between the Conditions (= word orders) with regard to accent placement on the critical elements and due to the different syntactic nature of the sentence types involved and the corresponding relations to phonological phrasing illustrated in (136) through (139) I make the following predictions.

a. The noun in the continuous order and the particle in the discontinuous order as focus exponents within their focus domains are assigned the corresponding accent.
b. Accent placement as measured in pitch variation and syllable duration on the noun and the particle, respectively, differs significantly between Condition 1 (continuous order) and Condition 2 (discontinuous order), parallel to the results of experiment 1.
c. Differences between the sentence types should be of the following nature.

1. Within Condition 1, the values for pitch range and syllable length for the noun in sentence type A might differ from those in the other sentence types such that the values for type A are higher/longer, because the noun in type

A is placed at the end of the utterance, whereas in the other sentence types, there is a constituent following.

2. Within CONDITION 2, the values for pitch range and syllable length for the particle in sentence type A might differ from those in the other sentence types such that the values for type A are higher/longer for the same reason. These findings would correspond to the objections mentioned with regard to experiment 1. The same type of effect would be involved – rise of pitch and syllable lengthening for the element in question as opposed to the corresponding element in the other condition – but would be enforced by the syntactic position. Apart from the predictions involving sentence type A, the following patterns might occur:

3. For the comparisons between sentences of type B and sentences of type C, the values for the noun in CONDITION 1 and the particle in CONDITION 2 might be lower/shorter for type B than for type C due to phonological phrasing. Remember that there is a φ-phrase boundary between the constituents in question in type B, but an I-phrase boundary in type C.

4. With regard to sentence type D, the values might or might not differ from those for the other sentence types, according to whether the optional restructuring is applied or not.

Notice also that adverbs of the kind used in the experimental materials (*soon, then, today, there*) often occur unaccented (cf. e.g. Ladd 1996: 182). As opposed to sentence types B and C, which involve accent placement within the added constituent phrases complement or adjunct, there is no such accent in type D expected following the accent on the critical element noun or particle (cf. Section 4.3.4.4 for a comparison between phrasal adjuncts as involved in type C and adverbial adjuncts as involved in type D and between branching and non-branching types of adverbs).

Design. All 162 items, 80 experimental items, 82 filler items, were presented on one list. The order of the items on the list was pseudo-randomised under the following restrictions: (1) three experimental items were not allowed in a successive order; (2) three experimental items from the same verb group (compositional vs. non-compositional) were not allowed in a successive order; (3) the same verb was not allowed to occur more than once in a successive order; (4) the same PV construction (continuous vs. discontinuous) was not allowed to occur in a successive order more than three times; (5) the same sentence type (PV plus ∅, PV plus complement-like PP, PV plus adjunct-like PP, PV plus adverb) was not allowed to occur in a successive order more than three times.

Procedure.   The procedure was the same as in the pilot study. In addition, questions were asked that referred to the items after each item. The participants had to answer the questions trying not to use pronouns as subjects or objects of the answer sentence, and trying to give full sentences as answers, moreover trying to avoid cleft-sentences. All utterances were recorded. The questions served as control items and were not further considered in the analysis (but cf. Section 4.3.3 above for an example). Each session lasted about 45 minutes.

Data Treatment.   The data were treated similarly to those of the pilot study. The target items containing the particle verb, the nominal object, and – depending on the item – the added phrases (complements, adjuncts, adverbs) were cut out of their contexts. Only these fragments of the complete utterances were analysed. 28 of the 800 utterances were erroneous and had to be excluded from the analysis.

4.3.4.2 *Results and Discussion*

As in the pilot study reported above, the onset and peak of particle and noun were measured for F0 for all 772 target items (800 experimental items minus 28 erroneous utterances). In addition, syllable length was measured for particle and noun.

The first prosodic parameter that I want to consider here is fundamental frequency. The mean values for F0 are given in Table 4.3 and Table 4.4 for CONDITION 1 and CONDITION 2, respectively.

For both particle range and noun range, the results were analysed in a two-way analysis of variance with the factors of CONDITION (two levels) and

Table 4.3 Mean values (Hz) for F0, condition 1: particle and noun

CONDITION 1	Particle			Noun		
SENTENCE TYPE	Onset	Peak	Range	Onset	Peak	Range
Type A (plus ∅)	200	201	1	190	220	30
Type B (plus complement)	217	218	1	195	216	21
Type C (plus adjunct)	216	218	2	193	215	22
Type D (plus adverb)	217	218	1	201	226	25

Table 4.4 Mean values (Hz) for F0, condition 2: particle and noun

CONDITION 2	Particle			Noun		
SENTENCE TYPE	Onset	Peak	Range	Onset	Peak	Range
A	167	183	16	195	201	6
B	183	193	10	206	211	5
C	186	200	14	209	214	5
D	179	193	14	204	209	5

SENTENCE TYPE (four levels: Type A: PV plus ∅; Type B: PV plus complement; Type C: PV plus adjunct-PP; Type D: PV plus adverb).

For the particle, main effects were obtained for both CONDITION ($F[1,9]$ = 35.34, p < 0.001) and SENTENCE TYPE ($F[3,27]$ = 4.37, p < 0.02). There was no significant interaction effect (CONDITION by SENTENCE TYPE) between the two factors ($F[3,27]$ = 2.08, p > 0.1).

For the noun also, main effects were obtained for both CONDITION ($F[1,9]$ = 55.74, p < 0.001) and SENTENCE TYPE ($F[3,27]$ = 5.46, p = 0.005). In addition, the interaction effect between the two factors was significant ($F[3,27]$ = 6.07, p < 0.005).

The results indicate that both CONDITION, i.e. the word order in PV constructions, and SENTENCE TYPE play a significant role in accent placement with regard to the particle and noun. This is illustrated by Figure 4.11 and Figure 4.12. For the particle, the lines for all sentence types are monotonously rising, for the noun they are falling. For the particle, there is a rise of F0 for all sentence types in CONDITION 2, but not for CONDITION 1, whereas for the noun we find a rise in CONDITION 1, but not CONDITION 2.

For the particle, bonferoni-adjusted t-tests as individual comparisons revealed that the main effect found for SENTENCE TYPE results from the highly significant difference between sentence type A and sentence type B within CONDITION 2. The rise on the particle in sentence type A is significantly stronger than the rise on the particle in sentence type B. This is a quite natural result, bearing in mind that the particle is placed at the end of the utterance in type A, but before a complement in type B. Remember that we predicted a φ-phrase boundary after the PV in sentence type B, thus a much weaker boundary than that found at the end of an utterance. In sentence type A, we expect the particle to be the most prominent element within its intonation phrase, as it is focused material at the end of the utterance. In sentence type B, this is not necessarily so. Both the complex verb and the additional complement convey new information in these sentences, so that the most prominent element
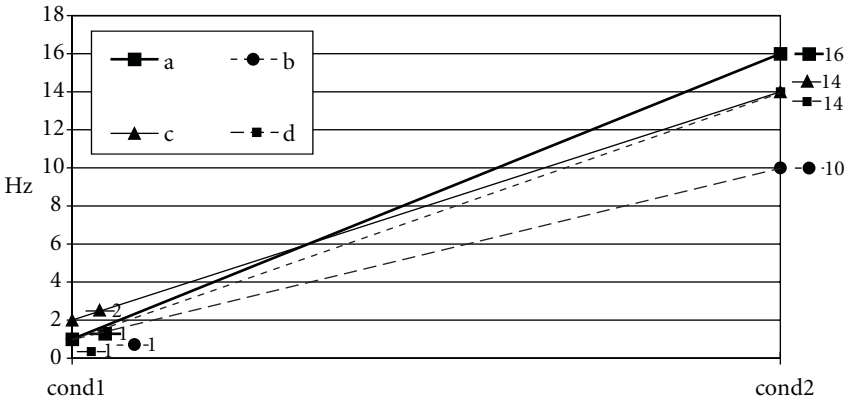
Figure 4.11 Particle: F0 (Range)
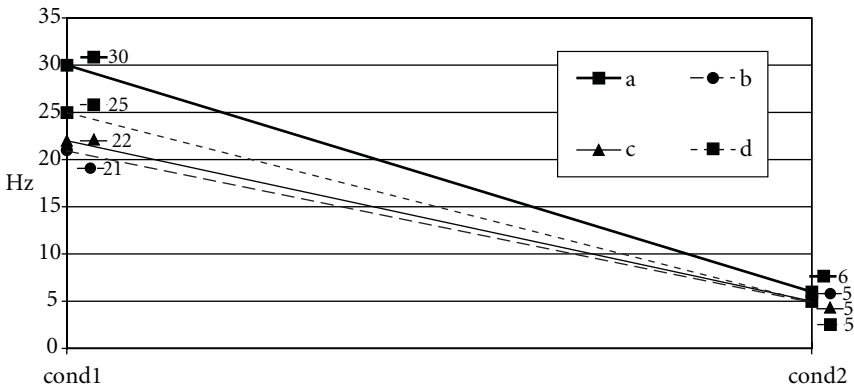
Figure 4.12 Noun: F0 (Range)

within the I-phrase can easily be the noun within the added complement-DP. Obviously, this does not challenge the fact that a focal accent is placed on the particle in CONDITION 2 in all sentence types, since the particle in sentence type B still is the most prominent element – the bearer of the relevant pitch accent – within its φ-phrase and focus domain. Moreover, there is no interaction between the two factors and the individual comparisons between the conditions are significant for all sentence types.

For the noun, the results are further supported by separate analyses of variance for 'F0 range noun' for the two word order conditions. For CONDITION 2 the effect was not significant ($F[3,27] = 0.09$, $p = 0.965$), but it was for CONDITION 1 ($F[3,27] = 6.70$, $p < 0.005$). In order to explore this pat-

Table 4.5 Duration: Mean values in msec for particle and noun

Sentence Type	Particle		Noun	
	Cond1 (cont.)	Cond2 (disc.)	Cond1 (cont.)	Cond2 (disc.)
A	138	299	301	194
B	134	185	212	183
C	132	200	228	182
D	132	183	229	188

tern further, I performed bonferoni-adjusted t-tests as individual comparisons between sentence types within CONDITION 1, which resulted in the following pattern.

The individual comparisons are significant for sentence type A vs. B and for type A vs. C. This means that the rise on the noun in the continuous condition is even more distinct if the noun is not followed by any constituent, i.e. in case it occurs at the end of the utterance, as compared to the cases where it is followed by either a complement or a phrasal adjunct. Here again, I argue that this result is due to the noun's position at the end of the utterance, as opposed to its position at the end of a φ-phrase in the case of sentence type B, or – as in the case of sentence type C – at the end of an I-phrase. Sentence type D (adverb), does not differ significantly from A. I assume that, under restructuring in terms of Nespor & Vogel, the adverb is in the same φ-phrase as the noun and, following Ladd, it is itself unaccented. But cf. also Section 4.3.4.4 on the behaviour of the adverbs involved here.

As with the particle, this result is in line with the view taken above that the utterance final position of the element in question may play a role not with respect to accent type and accent position, but with respect to the degree of the observed effect.

Similar results were obtained for the second prosodic parameter, syllable duration. The mean values for particle and noun for the two conditions are given in Table 4.5.

As for F0 range, for both the particle and noun the results were analysed in a two-way analysis of variance with the factors of CONDITION and SENTENCE TYPE.

For both particle duration and object duration the analyses revealed main effects of both factors ((1) particle: CONDITION: $F[1,9] = 366.21$, $p < 0.001$; SENTENCE TYPE: $F[3,27] = 78.88$, $p < 0.001$; (2) noun: CONDITION: $F[1,9] = 288.38$, $p < 0.001$; SENTENCE TYPE: $F[3,27] = 89.65$, $p < 0.001$). In addition, for both the particle and noun the interaction between the two factors
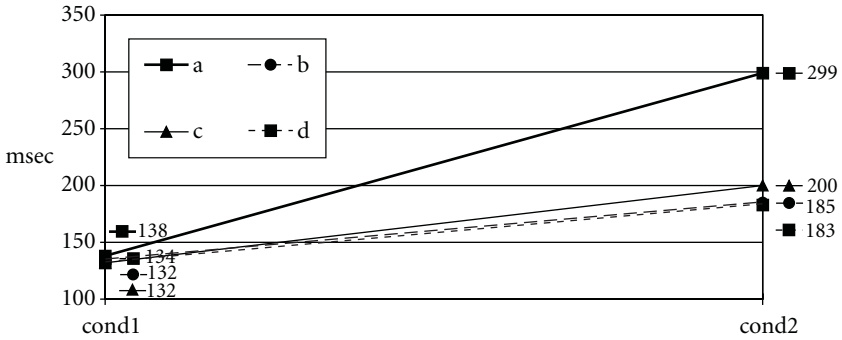
Figure 4.13 Particle: Duration
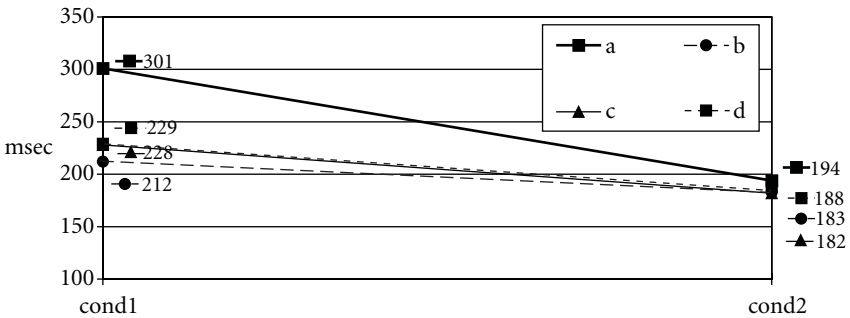
Figure 4.14 Object: Duration

was significant ((1) particle: $F[3,27] = 65.52$, $p < 0.001$; (2) noun: $F[3,27] = 66.87$, $p < 0.001$).

As with range, these results indicate that both CONDITION and SENTENCE TYPE play a significant role in syllable length with regard to the particle and noun, which is supported by Figure 4.13 and Figure 4.14. They show a pattern parallel to that in Figure 4.11 and Figure 4.12 above in that the lines for all sentence types are monotonously rising for the particle, whereas for the noun they are falling. For the particle, there is a longer syllable duration for all sentence types in CONDITION 2 as compared to CONDITION 1, whereas for the noun we find a longer syllable duration in CONDITION 1.

This pattern was further explored in separate analyses of variance. For particle duration, the effect was not significant for CONDITION 1 ($F[3,27] = 0.98$, $p = 0.417$), but it was for CONDITION 2 ($F[3,27] = 86.70$, $p < 0.001$), i.e. in the discontinuous condition with the particle following the object. Individual comparisons between the sentence types within CONDITION 2 showed that the

results are highly significant whenever sentence type A is involved, i.e. when the particle is placed at the end of the utterance without anything following it, its duration is significantly longer than in all other sentence types. This comes as no surprise, but must be put down to sentence final syllable lengthening, as has been predicted. Remember that in the pilot study syllable length was not measured for exactly this reason, namely that the found effect can be argued to be due to the rightmost position of the critical element.

Moreover, sentence type B involving the added complement differed significantly from sentence type C involving the phrasal adjunct. This, I argue, must be put down to different kinds of prosodic boundaries between the particle, which terminates its φ-phrase, and the following intonation unit. Remember that the complement in type B is grouped into one I-phrase with the φ-phrase that is terminated by the particle. The adjunct phrase, on the other hand, is not grouped into one I-phrase with the preceding φ-phrase, as predicted on the basis of the relevant approaches to phonological phrasing. Thus, we find a φ-phrase boundary between the critical phrases in sentence type B, but an I-phrase boundary in sentence type C. With regard to syllable length in the present context, this difference between the kinds of boundaries seems to translate into longer values for particle duration before the I-phrase boundary in type C, than before the φ-phrase boundary in type B.

For noun duration, the analyses of variance were significant for both CONDITION 1 (F[3,27] = 100.59, p < 0.001) and CONDITION 2 (F[3,27] = 7.34, p < 0.005). Again, individual comparisons between the sentence types within the conditions were performed for further examination. The tests showed the following pattern of significant differences.

For CONDITION 1 it is most obvious that for utterances of type A, with the noun in the sentence final position, the noun had longer values of syllable duration than for all other sentence types. As for the particle, the tests were highly significant. Remember again that this was predicted and is argued to be due to sentence final lengthening. Moreover, the noun in type B (noun followed by a complement) shows shorter duration not only than in type A, but also than in types C and D. This, I assume, must also be put down to the underlying syntactic structure and the corresponding relations to phonological phrasing. The value for noun duration is longer in sentence type C, than in type B, because in type C there is an I-phrase boundary involved between the constituents in question, whereas in type B, there is a φ-phrase boundary. As with the particle, this difference seems to translate into a significant difference in the length of the syllable before the boundary.

The value for noun duration in type D is longer than that in type B, because, I assume, the adverb is joined under restructuring into the preceding φ-phrase, so that the critical noun is grouped in the same φ-phrase with the following adverb, the noun bearing the accent, the adverb being unaccented. After the adverb we find a boundary of considerable strength, as it is the end of the utterance. An alternative view would be that the adverb behaves like the phrasal adjunct in type C (cf. Section 4.3.4.4 below).

For CONDITION 2 we get the following significant results. The noun in sentence type A has longer values of syllable duration than in types B and C. At first sight, this result is unexpected, as within the discontinuous construction we only predicted accent placement on the particle but made no predictions for the noun. The effect might be due to performance rules (cf. Gee & Grosjean 1983 and related work) such that the speaker takes his time with the shorter utterance that terminates after the noun/particle, as opposed to the construction followed by a PP-complement or adjunct. In these latter constructions, the reader might endeavour to finish the initial parts more quickly as there is more material to come. However, this explanation remains speculative, as I cannot offer a relative comparison between the values of syllable duration and pauses for the single elements within sentence type A as opposed to sentence types B and C, other than the values for the critical elements. However, this does certainly not challenge the results with regard to accent placement on the elements in questions.

4.3.4.3 *Summarising the results*
Experiment 2 replicated, confirmed, and extended the results of the pilot study on intonation, and confirms the predictions made above with regard to accent placement in PV constructions. In experiment 1, I concluded that the accent was placed on the particle in CONDITION 2, and on the noun in CONDITION 1, as was suggested by the corresponding results. I rejected the objection that the effect might be solely due to the rightmost position of the critical element on theoretical grounds, but wanted to further explore and confirm this by another experiment, adding different types of constituents to the right edge of the target sentences.

Firstly, experiment 2 confirmed that the factor CONDITION (word order) plays a role for both prosodic parameters F0 and syllable length for both particle and noun. I conclude therefore that we find accent placement on the particle in the discontinuous order and on the noun in the continuous alternate, regardless of whether the critical element is followed by another constituent, or not.

Secondly, the factor SENTENCE TYPE, i.e. the position of the critical element with regard to the following/added constituents, plays a role in that the first effect is more distinct if the critical element is not followed by any further constituent. This means that if the critical element, particle or noun for the two conditions respectively, is in the rightmost position, the effect with regard to F0 and syllable length is enforced, which is due to the strength of the boundary involved and the phenomenon of sentence final lengthening. Differences between other sentence types excluding those comparisons where sentence type A is involved, can all be put down to differences in the syntactic structure and related differences in phonological phrasing, such that different strengths of prosodic boundaries are involved.

These results are completely in line with the above stated hypothesis and predictions. With regard to accent placement the results match the predictions made in Section 4.3.2.2 above and given again in (142) through (144), using an experimental item. Remember that these predictions on accent placement were based on the division of the sentences into focus and background domains. I neglect the case of *maximal focus* here as well as other cases that were not involved in the experimental studies.

(142)   *Non-minimal focus*
What did Peter do?
Peter$_i$ $_{VP +F}$[t$_i$ turned down the RAdio.]
H*

(143)   *Minimal focus*
What did Peter turn down?
He turned down $_{DP +F}$ [the RAdio].
H*

(144)   *DP-complement as a background constituent*
What did Peter do with the radio?
Peter [turned$_{i\ [+F]}$] [the radio$_{k\ [+F]}$] [t$_i$ DOWN t$_k$]
H*

Based on the relation between focus structure and accent placement I take the results of the two experiments as evidence for the assumption that the choice of the word order in PV constructions in English in general depends on the focus-background structure of the utterance. A nominal complement occurs in the position between verb and particle, i.e. in the discontinuous order, if it is a background constituent. In this case, the noun is de-accented, whereas the particle is within the focus domain and is assigned the focal accent. In the

continuous order, the nominal object is part of the focus domain in both the case of non-minimal and of minimal focus. The focal accent falls on the noun.

I will further argue that – as there is a correspondence between the syntactic focus feature [F] and a focal pitch accent (prominence feature in phonology which is assigned to the most prominent element within its domain in Rosengren's terms) – it has to be assumed that it is a syntactic focus feature that plays a role in the derivation of the discontinuous order with PV constructions in English. To be precise, it is the mismatch between the [–F]-DP, a background constituent, and its position within the focus domain, positively specified for [F], that triggers the derivation of the discontinuous construction. Therefore, the assumption that the choice of the order – continuous vs. discontinuous construction – is syntactically optional cannot be maintained. I will develop a syntactic analysis for PV constructions in English that takes into account the assumptions made in the preceding sections.

4.3.4.4 *Excursus on adverbs*

Let me add a few additional remarks concerning sentence type D and the adverbial adjuncts involved. I have argued above (cf. the discussion of (139), Section 4.3.4.1 above) that there might have been more than one option with regard to phonological phrasing. On the one hand, an I-phrase boundary was predicted between the verb and the adverb under the assumption that phrasal adjuncts and adverbial adjuncts behave alike, but on the other hand, the fact that restructuring in the sense of Nespor & Vogel (1986, cf. (140) above) is possible for structures involving non-branching adverbs led to the suggestion that a φ-phrase boundary might be expected instead, which can then optionally be eliminated under restructuring.

From Section 4.3.4.2 above, it is obvious that adverbs do not necessarily behave like phrasal adjuncts. Recall that I have put down the following patterns to restructuring in terms of Nespor & Vogel. Within CONDITION1, the value for F0 range for noun in sentence type D did not differ significantly from that in sentence type A, whereas the values in types B and C did. This follows straightforwardly if under restructuring the adverb is part of the same φ-phrase as the noun and the right end of this φ-phrase is the end of the sentence for both type A and type D. Moreover, within CONDITION1, the value for noun duration in type D was significantly longer than that in type B, which could be due to restructuring. Since there was an equal difference between type B and type C, an alternative view was that the adverb behaves like the phrasal adjunct in these cases.

Let us take a closer look at adverbial adjuncts and at the difference between adverbs and phrasal adjuncts within the experimental materials. I have given examples of sentence types C and D in (145) and (146) below for convenience. The boundaries in question are indicated by a neutral #.

(145) a. *Sentence type C: PP-adjunct; continuous order*
           "Andrew, what did you do to the students today?"
           "I handed out the papers # *during the lecture. . . .*
       b. *Sentence type D: Adverbial adjunct; continuous order*
           "Andrew, what happened during your lecture?"
           "I handed out the papers # *today. . . .*

(146) a. *Sentence type C: PP-adjunct; discontinuous order*
           "Sue, what happened to the pile of papers I saw in your office yesterday?"
           "I handed the papers out # *during my lecture. . . .*
       b. *Sentence type D: Adverbial adjunct; discontinuous order*
           "Sue, what happened to the pile of papers I saw in your office yesterday?"
           "I handed the papers out # *today. . . .*

Remember that in Section 4.3.4.1 above I have mentioned that adverbs of the kind used in the experimental materials often occur unaccented. As opposed to sentence type C, which involves accent placement within the added adjunct phrase as a separate I-phrase, no such accent would then be expected on the adverb in type D. On the other hand, if both adverbial adjunct and phrasal adjunct formed a new I-phrase, we would expect a rise of F0 for both kinds of constituents. I have therefore measured onset and peak on the adverb in sen-

Table 4.6 PP-adjunct vs. adverbial adjunct: F0 (all items)

	Onset	Peak	Range
PP-adjunct (type C)	177	198	21
Adverbial adjunct (type D)	177	184	7

Table 4.7 PP-adjunct vs. adverbial adjunct: F0 (within conditions)

	CONDITION 1			CONDITION 2		
	Onset	Peak	Range	Onset	Peak	Range
PP-adjunct (type C)	177	199	22	177	197	20
Adverbial adjunct (type D)	172	177	5	182	190	8

tence type D (*today* in (145b) and (146b) above) and on the stressed element within the phrasal adjunct in sentence type C (*lecture* in (145a) and (146a)). The mean values for onset, peak, and range are given in Table 4.6 for all items of sentence type C and all items of sentence type D. Table 4.7 gives the mean values separately for CONDITION1 and CONDITION 2.

For the phrasal adjunct, the rise of F0 is significantly stronger than for the adverbial adjunct (t(9) = 8.679, p < 0.001). This is equally true if the two types are compared for the two conditions separately (CONDITION1 (continuous order): t(9) = 7.930, p < 0.001; CONDITION 2 (discontinuous order): t(9) = 5.360, p < 0.001). The results are illustrated in Figure 4.15 for all items.

I take these results as evidence for the fact that adverbial adjuncts and phrasal adjuncts can obviously behave differently with regard to phonological phrasing in that a (non-branching) adverb does not necessarily form its own I-phrase and can thus undergo restructuring in terms of Nespor & Vogel (1986). However, having said that sentence type D can undergo restructuring, we have to keep in mind that only non-branching constituents are subject to restructuring. Note that within my experimental material, most adverbs used in type D are indeed non-branching (*soon, then, there, today*), but some are not (*a bit, at once*). Without going into too much detail about the syntactic structure of the two types, it is obvious that the latter behave differently with regard to intonation, and, since they are branching and stressed, also with regard to intonational phrasing. In order to illustrate this, let me compare the F0 values for one adverb of the branching type (*at once*) with one adverb of the non-branching type (*then*). I have picked out these two items, since in the experimental materials, they occur with equal frequency. Both *at once* and *then* occur in two experimental items each. Once again, I have measured onset and
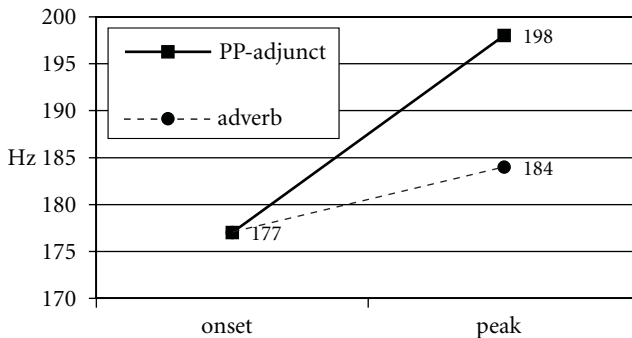
Figure 4.15 PP-adjunct vs. adverbial adjunct: F0: Range (all items)

Table 4.8 Branching (*at once*) vs. non-branching
(*then*) adverb type: F0

	Onset	Peak	Range
at once	180	194	14
then	172	174	2

peak. The corresponding mean values are given in Table 4.8, illustrated in Figure 4.16. The rise of F0 is significantly stronger for the branching than for the non-branching adverb type (t(9) = 3.722, p < 0.01).

But note that of the recorded material (few erroneous utterances not considered here), only 40 experimental items contain the branching adverb type. *A bit* and *at once* both occur in two items each, à 10 participants, whereas 160 experimental items contain the non-branching adverb type: the adverb *soon* occurs in eight experimental items, *then* occurs in two items, *today* occurs in four items, *there* in two items, again à 10 participants. This explains why on the one hand, there is a slight rise of F0 for adverb in Figure 4.15 above, but on the other hand this F0 rise is clearly less distinct than for the phrasal adjunct due to the predominance of the non-branching, unstressed adverb type. I will therefore assume that the fact that sentence type D behaves similar to sentence type A to the extent outlined above is due to the option of φ-restructuring in the sense of Nespor & Vogel (1986), which sentence type D, but not sentence types B or C, can undergo.

Having given this excursus on sentence type D, i.e. on adverbial adjuncts, I will now return to PV constructions and the factors that influence the choice of the word order.
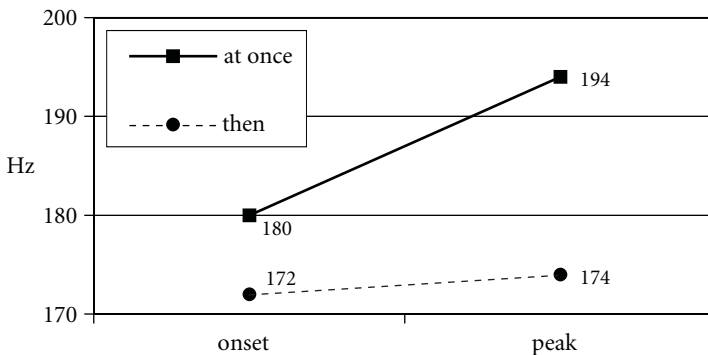
Figure 4.16 Branching (*at once*) vs. non-branching (*then*) adverb type: F0

4.4 Factors that influence the choice of the word order revisited

I have shown in the previous sections of this chapter that the choice of the word order with PV constructions in English is highly influenced if not determined by the focus background structure of the sentence in which the relevant construction is embedded. It now seems reasonable to reconsider the other factors that have been brought up in this connection and that I have summarised in Chapter 3.1 above. It seems to me to be the case that most of the factors are part of the "phenomenon information structure" and can therefore be reduced to this concept. This is most obvious, of course, for the factor *news value of the direct object* which corresponds to the assumption made above that nominal objects that belong to the focus of the sentence occur in the discontinuous order. But take for example the factor *length/complexity* of the direct object. In general, the longer and more complex a DP is, the more modifying elements it includes. Now modification, as has been argued e.g. by Olsen (1996) and in Sections 4.2.1 and 4.2.2.2 above, leads to an increase of the DP's news value and thereby to focus placement on the DP.

Similarly, the fact that unstressed *pronouns* are allowed only in the discontinuous order, can be attributed to IS. A pronominal expression always refers back to an entity that has been mentioned before and must therefore be a background constituent. It naturally occurs outside the focus domain. In this connection, it comes as no surprise that focused pronouns are allowed in the continuous order.

A further factor, suggested e.g. by van Dongen (1919:331ff.) as determining the choice of the word order, was *stress* on either the particle, resulting in the discontinuous order, or on the direct object, resulting in the continuous order. I have shown in some detail in Section 4.3 that the intonation pattern of PV constructions in English is directly related to their focus structure. A focused nominal object follows the complex PV and receives the accent. If the nominal object is a background constituent, or if the focus is on the verbal action, the complement DP occurs between the verb and the particle. The accent is placed on the particle as the focus exponent, whereas the DP remains unaccented.

The fourth factor mentioned in Chapter 3.1 above was the *presence of a directional adverbial after the construction*, favouring the discontinuous order. But notice that Olsen (2000) shows that in principle, if the PP is a complement, the particle can both follow or precede the PP (cf. (147)). Moreover, remember that Olsen (2000) makes a distinction between PV's taking an additional modifying complement (147) and simple motion verbs that take a complex PP

complement of which the adverb that is homomorph with the particle is the head (148).

(147)   His footsteps sent (up) air bubbles (up) (right) to the surface.

(148)   His footsteps sent air bubbles (right) up to the surface.

In the case of (148), we do not have a PV, but *up* functions as head of the adverbial complement. In this case, it follows straightforwardly that *up*, being a preposition and as such head of a PP rather than a particle, cannot occur in a position preceding the DP-object. In the case of (147), however, where *up* functions as a particle, both orders are equally possible. Consider the additional examples in (149) and (150) below, taken from my intonation experiment 2.

(149)   a.   He handed the papers out to the students.
        b.   He handed out the papers to the students.

(150)   a.   I brought the book back to the library.
        b.   I brought back the book to the library.

Both sentence pairs are equally possible in the continuous and the discontinuous order. The experimental results have shown that the continuous order is adequate in cases where the DP-object is part of the focus, whereas the discontinuous order is adequate where the focus is on the complex verb, but where the focus domain does not extend to the nominal object.

(151)   Northern Nigeria is an impoverished region where people in rural communities *eke out a living from subsistence farming*.

(National Geographic Magazine 11/2000)

(151) shows that we find indeed examples where a modifying PP is added to a PV construction without inducing the discontinuous order. There can be no doubt then that these are instances of true PV constructions. In (151), the PP *from subsistence farming* modifies not only the PV, but the PV plus its complement (*eke out a living*).

The only factor that in my opinion cannot be argued for in terms of information structure is the *idiomaticity* of certain constructions. Note that Di Scullio & Williams (1987: 5) describe idioms as bearing the following characteristics: (1) they are syntactic objects and (2) they are listed in the lexicon because of their failure to have a predictable property, which, they argue, is usually their meaning. If we add for the special case of PV constructions in English as one such property the word order in which they occur, the transitive idiomatic PV's perfectly fit into Di Scullio and Williams' definition: they are syntactic objects,

namely a complex verb plus a DP complement, i.e. they are VP's, and they fail
to have the predictable properties of (1) meaning (since the meaning of idioms
is not compositional), and (2) word order. The DP that functions as a com-
plement is not necessarily fixed (as it is in *stir up trouble*), but if it is not fixed,
there are certainly strong semantic restrictions on the items that occur in the
complement position (*take Friday/Monday/next week off*). However, I am con-
cerned here with the regular alternation between the two word orders possible
with PV constructions: the continuous vs. the discontinuous order. If some
items are not subject to this alternation for reasons of idiomaticity, this fact
does not challenge the analysis I want to suggest for the large majority of items
that do systematically occur in both orders. In the next chapter, I will turn to
the syntax of PV constructions, mapping onto the structure the influence that
IS has on the choice of the word order.

Notes

1. In wh-questions, the position of the focus in an answer correlates with the ques-
tioned position. Cf. e.g. Rooth (1996: 271f.); Zubizaretta (1998: 2f.) for the question-answer-
congruence. Cf. also Erteschik-Shir (1986: 119) who notes that the constituent that replaces
the wh-phrase of the question in the answer sentence is the focus of the answer sentence
(Q: *WHO gave the book to Mary?* A: *JACK gave the book to Mary. / JACK did.*). Cf. Altmann
(1993) for a critical discussion of the question-answer-test. Zubizaretta (1998: 161, fn. 5)
notes that question-answer pairs in which a negative phrase in the answer substitutes for the
wh-phrase are of a different nature. (Q: *Who did you see?* A: *I saw no one.*) In these cases,
the answer negates the presuppostion of the context question. I will use question-answer
pairs of the form given in (3) through (5) above throughout this study for the purpose of
illustration.

2. Cf. Section 4.3.1.1 below for details about the H/L (high/low tones) labelling. At this stage
it suffices to say that the H* marks the pitch accent. The end of the first prosodic phrase, here
the *theme* part of the utterance, is marked by a high boundary tone, the end of the utterance
by a low boundary tone, the boundary tone being labelled %. The capital letters in this
example have been taken from Steedman's example. Note that they do not represent the
accented syllables but mark complete words that are of interest, as becomes obvious from
the corresponding labelling (e.g. not the complete word *directed* carries the H* accent, but
the syllable *-rec-*).

3. For written data he used the *Aligned-Hansard* corpus, for spoken material he used the
Switchboard corpus, a collection of telephone conversations recorded and transcribed by
Texas Instruments.

4. With regard to focus assignment, note that I argue in Section 4.3.1.3 that focus assign-
ment precedes both syntax and accent assignment (cf. ibid. for supporting arguments). Un-
der this assumption, the assignment of the syntactic focus feature (and related features)

to the relevant constituents is a direct consequence of the assignment of the corresponding information status to units/entities at a pre-syntactic, cognitive level. These units are subsequently grammatically encoded and mapped onto surface structure. The categories in question enter the syntactic derivation with a certain specification of information status.

5. The nature of scrambling has been extensively discussed in the literature. This is not the place to give a survey over this discussion. The majority view is that scrambling is an instance of syntactic movement, i.e. it leaves an empty element in the base position of the scrambled element. However, there is no general agreement on the type of movement. It has been analysed as A- as well as A'-movement, as target positions both Specifier- and adjunction positions have been suggested. But at least it seems to be a general assumption, and this is what is essential for the point that is to be made here, that scrambling is a sort of chain formation between a constituent and its trace that happens within the projection of the verbal head in order to change the order of constituents. (Cf. Corver & v. Riemsdijk 1994; Vikner 1994; Haider & Rosengren 1998; Krifka 1998; and references given there).

6. Cases where focus is not assigned to preverbal constituents are: (1) where the verbal predicate itself is in focus, (2) where more than one constituent is focus, (3) where the focus is on the element in the C^0 position, (4) where topicalized constituents are focused (cf. Krifka 1998:95ff.). For the fourth case Krifka (1998:97ff.) argues that the relevant constituent originated in a preverbal position and that focus was assigned before movement.

7. But note that Svenonius (1996a) in his approach to PV constructions assumes that unstressed pronouns (but not other nominal elements) have strong agreement features which must be checked in the overt syntax, which is why, he argues, unstressed pronouns obligatorily occur in the discontinuous construction. This assumption seems in a way parallel to Haftka's idea that [+ANAPH], but not [–ANAPH] DP's incorporate strong case features.

8. I cannot go into further detail here about the structure and the motivation for assuming the different functional heads (cf. e.g. Haftka 1994:153ff.) for the motivation of Top^0 and TopP in German. Moreover, Haftka (1994:139ff., 1995:12ff.) suggests even another functional category dominating VP, namely the positional operator Pos^0, hosting the negation particle *nicht* ('*not*') or an affirmation operator, and projecting a PosP.

9. Olsen (1996) assumes that in both English and German PV's are lexical stems and originate under one verbal head. In the example in (18a) the verb and object move, whereas the particle remains in its base position.

10. Note that p-movement in Zubizaretta's (1998) terms is purely prosodically motivated. Zubizaretta argues that Germanic languages (German and English) differ from the Romance languages under discussion in that phonologically overt but anaphoric material can be metrically invisible in the former, but not the latter cases. Zubizaretta considers p-movement, i.e. movement of constituents marked for [–F] to a position preceding [+F] constituents, as the "syntactic counterpart of metrical invisibility" (Zubizaretta 1998:89). A further difference between Germanic and Romance is that the placement of the nuclear stress is sensitive to selectional properties of predicates in certain structural environments in the former, but not the latter languages. In Romance, but not Germanic, the nuclear stress is always assigned to the last (metrical visible) constituent. Therefore, in Romance, focused constituents have to appear at the right periphery of the sentence in order to avoid a conflict between nuclear stress and focal prominence. I refer the reader to Zubizaretta's (1998) book for details. Note

that otherwise, p-movement (also termed *scrambling* by Zubizaretta) resembles the scrambling operations suggested by Steube (1997) among others for German (cf. above) in that non-focused material is moved in order to place focused material at a certain position.

11. Chen's data are taken from Chafe (1980), ((Ed.) *The pear stories: Cognitive, cultural, and linguistic aspects of narrative production*, Norwood: Ablex Publishing Cooperation) and from the novel *Have his Carcase* by the British author Dorothy L. Sayers.

12. Cf. Truckenbrodt (1995) for a comparison between Nespor & Vogel's suggestions and the proposal by Ghini (1993).

13. Radford (1997:100) defines a constituent as follows: "A set of words forms a *constituent* of category Z if the terminal nodes carrying them are all dominated by the same Z node, and if there are no other terminal nodes dominated by the relevant Z node". According to this definition, *They have* in (94) is not a constituent.Notice that *They have* is not a sense unit in the strict sense, either, as *living*, but not *have* is the lexical, argument-taking head.

14. Zec & Inkelas (1990) propose a third theory in this connection, namely *arboreal mapping* (cf. also Inkelas & Zec 1995:539, 542f.), which I only want to mention in this short footnote. The model predicts bi-directional interaction between syntax and phonology, not only influence of syntactic structures on phonological structures. This mutual interaction is possible because Zec & Inkelas (1990:365) assume a non-derivational model, where all components of the grammar are co-present. An example from English which supports the claim that phonology influences syntax, Zec & Inkelas (1990:376f.) argue, is Heavy-NP-Shift. According to their analysis, dislocation of the NP is licensed, when it contains at least two phonological phrases. Moreover, there is an I-phrase boundary preceding the heavy NP. Zec and Inkelas' system groups syntactic sisters into phonological phrases, giving priority to immediate sisters. According to Inkelas & Zec (1995:542f.), one distinctive feature of this analysis and advantage over the other theories is its treatment of subjects. The arboreal algorithm groups together non-branching sisters regardless of syntactic bar level, which means that a non-branching subject is phrased together with a non-branching predicate VP, which is supported by English data (cf. also Gee & Grosjean 1983:413 for support of this latter claim). As opposed to the arboreal mapping, both the relation-based and the end-based theory phrase subjects and verbs separately. However, the authors note that systematic investigation and the effect of subject and predicate complexity on sentence phrasing has still to be undertaken in that respect.

15. The languages on which Truckenbrodt's discussion is mainly based are the North American Indian language Tohono O'odham (Papago), and the Bantu languages Kimatuumbi, and Chichewa.

16. Truckenbrodt refers to a proposal made by Chomsky in class lectures (fall 1994) that interface constraints generally make reference to syntactic categories, not to syntactic segments.

17. Reading/pausing data are obtained in experimental situations as the following. The participants read a story or sentences aloud at three different rates: normal reading rate, half the normal reading rate (as estimated by the participants), a quarter of the normal reading rate (as estimated by the participants). The values for pauses between elements in the sentences are averaged and expressed as a percent of the total pause duration in each sentence. Parsing

data are obtained as follows. The participants of the experimental study are asked to estimate the importance of breaks at certain positions in sentences (or stories). Furthermore, the participants are asked to find the most important break. (Cf. Gee & Grosjean 1984:75 for a detailed description of an experimental procedure in the connection of obtaining data for performance structure research; cf. also Gee & Grosjean 1983:413.) Gee & Grosjean (1984) have shown in two experiments, using the tasks of spontaneous story telling, reading and parsing the story, that performance structures exist at the level of narratives, too. Pausing between sentences reflected the narrative structure of the story tested.

18. Guidelines for ToBi labelling and references can be found on the following web-page: http://ling.ohio-state.edu/∼tobi/. The ToBI labelling system was originally developed to cover the three most widely used varieties of spoken English, namely general American, standard Australian, and southern British English. Cf. also Ladd (1996, Chapter 3) for a survey, for discussion and also for the references given there.

19. A comprehensive model of English intonation using two tones (L and H) was proposed in Pierrehumbert (1980). I ignore other systems of intonational transcription (cf. e.g. Cruttenden 1997 for a discussion).

20. However, as I understand Gussenhoven, I would rather call it "Accent-to-Focus" (ATF), as the accent is assigned to the focused constituent/focus domain, after the constituent has been interpreted as the focus, but the focus is not defined on the basis of accent placement.

21. Notice that this implies that F-marking follows accent assignment, contrary to what Gussenhoven suggested in terms of SAAR. A combination of these ideas would result in a certain circularity: focus is assigned to certain constituents, which then constitute the focus domain; subsequently, the accent is assigned to the focus domain; then the accent leads to F-marking of the corresponding constituent. I will follow Gussenhoven in his assumption that focus assignment precedes accent assignment. Moreover, I will argue below that focus assignment precedes both overt syntax and accent assignment.

22. The *communicative intention* can roughly be described as the purpose of the speech act. This involves the speaker's intention to convey a thought as well as the intention that the addressee recognises the speaker's purpose, i.e. the purpose of intention recognition by the addressee (cf. Levelt 1989:59).

23. The study is based on the assumption that stress in connected speech occurs in varying degrees of prominence, and that in English four such degrees must be distinguished. *Primary stress* involves the principal pitch prominence (the *nucleus* in such terms), *secondary stress* involves a subsidiary pitch prominence within an intonation group, *tertiary stress* refers to prominence produced principally by length and/or loudness. The fourth degree has been termed both *weak* and *unstressed*. Cf. Cruttenden (1997:17ff.).

24. It must be noted at this point that Bolinger sees no necessary connection between accent, newsworthiness of the element in question, and its position. A stressed noun can be placed in the position between the verb and the particle under certain conditions, as for example if the content of the object is familiar to the communication participants.

25. Many thanks to Katie White and her family and to Sam and Val Gage, and Val's friends for their help on the spot.

26. I have to say that during and after the recording it became obvious that some of the materials were actually ambiguous with respect to focus. One item was most obviously interpreted as containing contrastive focus. Cf. Section 4.3.3.2 below for a discussion.

27. Many thanks to Kai Alter, Holden Härtl, Andrew McIntyre, Grit Mehlhorn, Melody Nuckowsky, Susan Olsen, Annett Schirmer and Shari Speer for discussion of the materials, design and results. I am particularly grateful to Esther Grabe, who invited me to conduct the experimental study at the Phonetics Laboratory, University of Oxford. Many thanks to her and her colleagues who helped me find participants and made my time there very pleasant.

28. Truckenbrodt (1999: 225) cites the examples in (133) from Chen (1987). It is an example representing Xiamen Chinese. The IP is a following purpose clause analysed to be inside the VP.

29. Truckenbrodt follows Chomsky (1995: 202ff.) in the assumption that moved elements leave behind a silent copy of themselves at S-structure (which is the input to the syntax-phonology mapping). For the purpose of the present section it makes no difference whether we assume a silent copy or a trace, as it is the empty category that is of importance here. The two terms are therefore used in a somehow identical way.

30. Note that this assumption that the adverb is preceded by a φ-phrase boundary (but not an I-phrase boundary) is contrary to what was suggested for adverbs by Truckenbrodt and Gee & Grosjean. However, as the example in (141) shows, this assumption seems to be correct (or at least possible) for non-branching adverbs.

A syntactic analysis for PV constructions in English

I have shown in the preceding chapter that the word order in PV constructions in English is chosen according to the information structure (IS) of the context in which the relevant clause is embedded. Evidence for this claim came from earlier studies on the topic, from the data I have collected, and from two experimental studies on intonation patterns involved with PV's. In this Chapter I want to encode the role that IS plays with regard to particle and object placement in the syntactic structure of PV constructions.

Remember that Olsen (1996: 278ff.) suggests that English has a movement rule that preposes thematic objects (= objects that are background constituents), an idea that is supported by transitive PV constructions with a pronominal complement. In Dehé (2000b) I argue that the movement of the complement-DP in the corresponding cases is triggered by the focus feature, i.e. by the mismatch of feature specifications when the object-DP is a background constituent. The relevant structures I suggested are given in (1) and (2) below (slightly modified).

(1) *Continuous order* (cf. Dehé 2000b: 97)
A man opened up the shop.

```
                        TP
                    ╱        ╲
                DPᵢ            T'
                ╱╲          ╱      ╲
             a man       T⁰         vP
                                 ╱      ╲
                               tᵢ        v'
                                      ╱      ╲
                                     v         VP
                                  openedₖ    ╱    ╲
                                            V      DP
                                         ╱    ╲    ╱╲
                                        V    Part  the shop
                                        tₖ    up
```
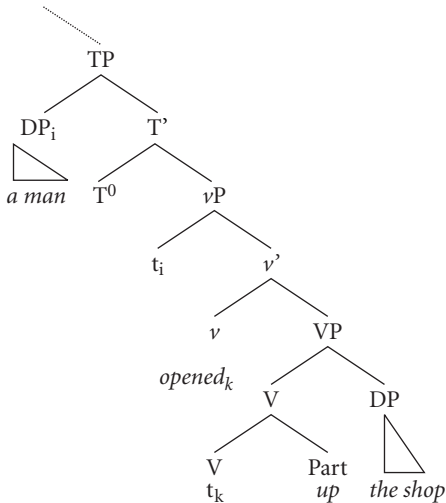
According to the focus-background structure of the sentence in (1), the focus domain can be assigned to the uppermost projection (maximal focus), the VP (intermediate focus), or the complement-DP (minimal focus). The structure will be the same for all cases, since there is no need to change the word order as long as the nominal object is part of the focus domain.

In (2) below, the derivation of the discontinuous order is illustrated. Since the complex verb is focused, the focus feature [+F] is assigned to the VP as the relevant constituent. The complement-DP as a background constituent is negatively specified for the focus feature, but is positioned within the focus domain in its base position. Triggered by this feature mismatch, the complement-DP moves out of the focus domain and adjoins to VP. The DP is then outside the focus domain, the focus feature being associated with the lower segment of the VP. The particle remains within the focus domain as the focus exponent. Note that this structure accounts for Bolinger's (1971: 49f.) observation that particle verbs, as opposed to simplex verbs, can place "some significant part of it at some other point than before its complement", as a device to highlight "important semantic feature[s]".

(2)   *Discontinuous order* (cf. Dehé 2000b:99)
A man opened the shop up.

TP
DP$_i$ T'
a man   T^0 vP
t$_i$ v'
v VP$_1$
opened$_{k\,[+F]}$
DP$_m$[−F]   VP$_2$ [+F]; focus
the shop   domain: VP$_2$
V$_{[+F]}$ DP
V   Part   t$_m$[−F]
t$_k$ *up*
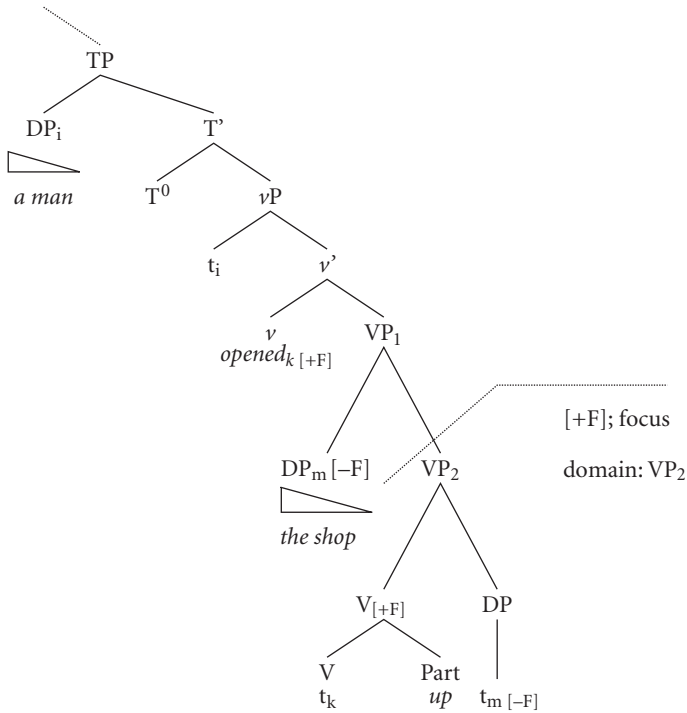
Essentially, I want to maintain the assumption that the focus feature plays a
role in the derivation of the discontinuous PV construction. However, there are
some shortcomings of my (2000b) analysis, the most serious of which is that I
did not consider the bulk of evidence that has been given in the literature for
overt object movement in English. In fact, it is obvious that if object movement
is overt for IS-independent grammatical reasons, the structures proposed in
(1) and (2) above cannot be maintained. Therefore, I will modify the syntactic
analysis I suggested in Dehé (2000b) in this chapter. I will first consider verb
and object movement within the extended VP in general, before I look at PV
constructions in particular.

5.1 The syntactic background

5.1.1 A brief introduction to movement, features, and the structure of VP

Within the minimalist framework, the operation *Move* is an invariant principle of computation that raises a category to a target position. There are two options: movement can be substitution or adjunction, where adjunction is head adjunction or adjunction to a maximal projection. Chomsky (1995: 189f.) describes the operation *Move* α as mapping a category K to K⋆. A position Ø is added to K, then α is substituted for Ø. The operation Move leaves behind a trace in the base position, forming a chain (α, t), t being the trace, α the moved category. A requirement on the substitution operation but not the adjunction operation is that it is always an extension of the target projection. A typical substitution operation is movement to the specifier position of a category. In the minimalist theory, movement in general, i.e. both substitution and adjunction, is driven by morphological considerations: by the requirement that features (where F stands for *feature*) must be checked in order for the derivation to converge at the interface levels LF and PF, i.e. to satisfy the principle *Full Interpretation* (FI), which dates back to Chomsky (1986b: 98). This principle requires that every element of PF and LF, taken to be the interface of syntax with systems of language use, must receive an appropriate interpretation. Unchecked formal features are illegitimate objects at LF in terms of FI (cf. below for *formal features*). Furthermore, movement operations are subject to the restrictions imposed by economy principles such as the *Minimal Link Condition* (MLC; cf. (3)) and *Last Resort* (4). The relevant definitions were already given in Chapter 2 above and are summarised in (3) through (5) below for convenience. With regard to the MLC, remember that the term 'close' is tentatively defined in terms of c-command and equidistance, and that a 'legitimate operation' is one satisfying *Last Resort*. According to *Procrastinate*, covert movement is 'cheaper' than overt movement, therefore movement must take place as late as possible in the derivation. Overt movement is prior to Spell-Out, the point in the computation of a grammatical representation where the derivation splits and heads toward the two interface levels, PF and LF. Covert movement takes place on the way to LF.

> (3)   *Minimal Link Condition (MLC)*   Chomsky (1995: 296)
>   α can raise to target K only if there is no legitimate operation Move β
>   targeting K, where β is closer to K.

(4) *Last Resort*   Chomsky (1995: 280)
     Move F raises F to target K only if F enters into a checking relation with a
     sublabel of K.

Chomsky (1995: 297ff.) modifies the MLC using the notion of *Attract*. Instead
of α raising to target K, K attracts the closest appropriate α:

(5) *Attract F*   Chomsky (1995: 297)
     K *attracts* F if F is the closest feature that can enter into a checking relation
     with a sublabel of K.

A 'natural economy condition' determines that F carries along "just enough
material for convergence" (Chomsky 1995: 262). This means that in general,
the operation seeks to raise just F. Additional material, i.e. overt categories,
pied-pipes only if required for convergence. Given Procrastinate, covert move-
ment, i.e. no pied-piping of overt material, is favoured over overt movement.
Overt movement must therefore be forced by some other requirement which
Chomsky (1993, 1995) codes into 'strong' features. Chomsky (1995: 233) de-
fines a strong feature as

> one that a derivation 'cannot tolerate': a derivation $D \rightarrow \Sigma$ is canceled if Σ
> contains a strong feature [...]. A strong feature thus triggers a rule that elimi-
> nates it: [strength] is associated with a pair of operations, one that introduces
> it into the derivation (actually, a combination of Select and Merge), a second
> that (quickly) eliminates it. [...] We also virtually derive the conclusion that a
> strong feature triggers an *overt* operation to eliminate it by checking.

Let us take a brief look at features in general. Chomsky (1995: 230) distin-
guishes between phonological features (such as [begins with a vowel] for a
lexical item such as *airplane*), semantic features (such as [artifact]), and for-
mal features. Within the minimalist program, attention is basically restricted
to formal features. According to Chomsky (1995: 277), the formal features of
a lexical item (FF(LI)) comprise categorial features ([±N], [±V]), φ-features
(gender, number, person), and case features. The strength property of features
is language specific. In English, categorial features are assumed to be strong,
whereas agreement features and case features are weak in standard minimalist
terms. Some features are intrinsic, whereas others are optionally added as LI
enters the numeration.[1] Categorial features are intrinsic features. Case is an in-
trinsic property not of the nominal projection that 'receives' case in a certain
position in the course of the derivation, but of V or I. φ-features are properties
of the DP. Consider the example in (6), taken from Chomsky (1995: 277).

(6) We build airplanes.

Categorial, intrinsic features are [+N] in FF(*we*) and in FF(*airplanes*), and [+V] in FF(*build*). Intrinsic φ-features are [1person] in FF(*we*), and [3person] in FF(*airplanes*). The φ-features of *build* and the φ-feature [plural] of *airplanes* are optional. The case features [assign accusative case] in FF(*build*) and [assign nominative case] in FF(T) are also intrinsic formal features.

I will now take a brief look at subject and object movement, and at the agreement (Agr) system. Subject movement is assumed to be overt. In (6), since T has a strong D-feature, the categorial feature of the subject *we* raises overtly to its checking domain, pied-piping the DP to the Spec-IP position. The corresponding move operation is substitution. The *Extended Projection Principle* (EPP) is thus reduced to a strong D-feature of Infl (cf. Chomsky 1995:232).[2] According to the *split-Infl-hypothesis*, which has its roots in Pollock's (1989) work, Infl is split into two distinct heads, a T head and an AgrS head, where, according to Chomsky (1995) and related work, AgrS dominates T. Agr in general is a collection of φ-features which are common to the systems of subject and object agreement. According to Chomsky (1993:7), both agreement and structural case are

> manifestations of the Spec-head relation (NP, Agr). But Case properties depend on characteristics of T and the V head of VP. We therefore assume that T raises to AgrS, forming [(7a)], and V raises to AgrO, forming [(7b)]; the complex includes the φ-features of Agr and the Case feature provided by T, V.

(7) a.   [_Agr_ T Agr]
     b.   [_Agr_ V Agr]

In both the subject and the object inflectional system, the relation of NP to V is mediated by Agr.

> [A]greement is determined by the φ-features of the Agr head of the Agr complex, and Case by an element that adjoins to Agr (T or V). An NP in the [Spec, head] relation to this Agr complex bears the associated Case and agreement features.   (Chomsky 1993:8)

For subject movement, the resulting structure is summarised by Koizumi (1993:112) for the sentence *John laughed* as given in (8) below. Checking of the strong categorial feature is done through Spec-head-agreement mediated by AgrS, by adjoining T to AgrS and moving the subject to Spec-AgrSP. Since all formal features of the subject phrase pied-pipe to Spec-AgrSP, they are all checked in this position under Spec-head-agreement.

(8) *John laughed.* (Koizumi 1993: 112)

```
                          AgrSP
                         /      \
                  Johnᵢ        AgrS'
                              /      \
                          AgrS          TP
                         /    \        /    \
                      Tⱼ      AgrS   T       VP
                      |              |      / \
              [strong categorial    tⱼ    tᵢ laughed
               feature]
```
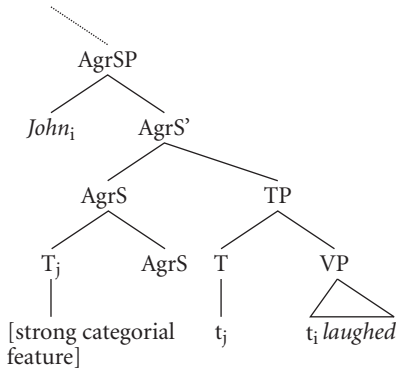
With regard to object movement, Lasnik (1999b: 203) mentions that early Minimalist Program literature (e.g. Chomsky 1993) did have raising of accusative objects to Spec-AgrOP to check the relevant features, but that this movement was assumed to be covert rather than overt. The corresponding phrase structure is given in (9) (cf. Chomsky 1993: 7, 1995: 173).

(9) $_{CP}$[Spec $_{C'}$[C $_{AgrSP}$[Spec $_{AgrS'}$[AgrS $_{TP}$[T $_{AgrOP}$[Spec $_{AgrO'}$[AgrO VP]]]]]]]

AgrOP dominates VP, being itself dominated by TP and AgrSP. Both the subject and the object-NP are base-generated within VP. NP (subject) moves overtly to Spec-AgrSP to receive nominative case, whereas NP (object) moves covertly to Spec-AgrOP to receive accusative case. To be more precise with regard to object movement, the intrinsic case feature [assign accusative case] and the optional φ-features of V raise covertly to AgrO, forming $_{AgrO}$[V Agr] (cf. (7b)). The complex AgrO head thus bears these features. Subsequently, the corresponding features of the object-DP (*airplanes* in the example in (6)) raise and are checked against the head features. Pied-piping of the whole DP is not necessary (and thus not allowed). I will be concerned with the opposite assumption, namely that object movement is overt rather than covert, in Section 5.1.3 below. But let me first take a closer look at the structure of VP and verb movement.

Chomsky (1995) suggests a structure for transitive verb constructions along the lines of (10). (The upper verbal head within the VP-shell-analysis is equally referred to as *v* or V in the literature; cf. e.g. Chomsky 1995 for the former, e.g. Lasnik 1999a, b for the latter.)

(10)   Transitive verbs (taken from Chomsky 1995: 352)

```
              vmax
             /    \
         Subj      v'
                  /  \
                 v    VP
                     /  \
                    V    Obj
```
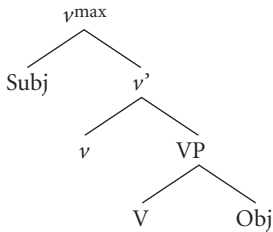
The position of the internal argument is the complement position to the lower V head. A second internal argument position would be provided by Spec-VP (cf. Chomsky 1995: 315). The subject position, i.e. the position to which the external θ-role is assigned, is the Spec–vP position. VP-shell-structures of this or related forms have their roots in Larson's (1988) work on double object constructions. However, the idea that the subject is θ-marked by the verb plus its complement rather than by the V-head alone is already present in Chomsky (1986b: 59f.). Chomsky (1986b: 59) notes that "[t]he object is paired directly with the verb, whereas the subject is related to the verb only indirectly, being paired directly with the verb phrase consisting of the verb and its object". Consider the examples in (11), taken from Chomsky (1986b: 59).

(11)   a.   John threw a fit.
        b.   John threw the ball.
        c.   John broke his arm.
        d.   John broke the window.

In (11), the verbs *threw* and *broke* form semantic units with their complements, respectively, and the semantic role of the subject varies according to the meaning of this V-complement unit. For example, the subject *John* serves as *Agent* in (11b), but as *Experiencer* in (11a). The examples in (11c) and (d) behave correspondingly. On the other hand, Chomsky (1986b: 60) notes that we rarely (if ever) find structures where a subject-verb unit is assigned a meaning that then determines the semantic role of the object. I refer the reader to his work for more evidence with regard to this asymmetry between subject and object θ-role assignment.

    In the transitive structure in (10), the *v*-VP configuration is thus taken to express the causative or agentive role of the external argument. The *v* head is assumed to be an agentive or causative light verb, the projection of which provides the configuration for external θ-role assignment.[3] What forces movement of the lexical verb from V to *v*? In Larson's original VP- structure, verb raising from the lower V head to the upper V head was first assumed to be motivated

by certain case and agreement requirements (Larson 1988: 343). The underlying structure suggested by Larson for a VP in a dative is given in (12). Under the assumption that case assignment is under government and is rightward in English, raising of the verb from the lower to the upper head position places it in a position where it can assign case to its NP-complement (*a letter* in (12)). Under the additional assumption that V must ultimately head a projection governed by Infl in order to receive tense and agreement information, the verb raises to the upper head position in order to meet this requirement.

(12)   Underlying VP-structure according to Larson (1988: 342)

    a. $_{VP}$[Spec $_{V'}$[e $_{VP}$[NP $_{V'}$[V PP]]]]

    b. $_{VP}$[Spec $_{V'}$[e $_{VP}$[*a letter* $_{V'}$[*send* $_{PP}$[*to Mary*]]]]]

Later in the discussion, Larson (1988: 384, fn. 49) suggests that V raising might be motivated "through a requirement on the mapping of categorial and thematic structure: each argument must be governed by its head at some derivational stage". V[*send*] in (12) then moves to the upper V head in order to govern its NP-argument (*a letter*).

    Chomsky (1995: 316) assumes that a transitive verb assigns an external θ-role by definition. In order to discharge this θ-role in the relevant configuration, V raises to *v*, forming the complex head $_v$[V *v*]. Koizumi (1993: 112) proposes that *v* has a strong V-feature, and that this V-feature must be checked against a feature of a lexical verb prior to Spell-Out. This idea is in general adopted by Radford (1997: 370) who suggests that the causative *v* head is affixal in nature and "so a strong head" and that the lexical verb therefore raises and adjoins to it. Lasnik (1999a: 161) proposes that the strong feature driving V-movement is a θ-feature and that it is a feature of the raising V rather than of the position it raises to. Given that the subject is base-generated in the specifier of the higher VP, the θ-feature together with the lexical V must move to the higher V head in order to make θ-assignment possible (but see footnote 7 below). In each of these cases, the external θ-role is related to the upper V (= *v*), be it intrinsically or by V-adjunction, the subject is base-generated in Spec–*v*P, and the lexical verb moves overtly to *v*. In standard minimalist terms, the complex $_v$[V *v*] head (i.e. its features) then raises covertly to AgrO, forming the complex head $_{AgrO}$[AgrO *v*[V *v*]]. In the split-VP-framework as developed by Koizumi (1993) among others and further elaborated e.g. by Lasnik (1999a, b), AgrOP is positioned between the lower and the higher verbal projection. V raises overtly to *v* via AgrO, yielding the complex head *v*[*v* $_{AgrO}$[V AgrO]].

5.1.2 Integrating the focus feature into the framework

Having briefly summarised these well known concepts of the minimalist framework and having mentioned that movement operations within this framework are triggered by the requirement for formal features to be checked, I would like to integrate the focus feature $[\pm F]$ into the framework. I refer to the focus feature in this section, because $[\pm F]$ will play a role in the structure I propose below. In general, what is said here about the focus feature and its relation to features within the minimalist framework is also true for related features such as the topic feature among others.

$[\pm F]$ differs from Chomsky's syntactic and categorial features in that it is not a morpho-syntactic, i.e. not a formal feature, but an IS feature. I follow Rosengren (1993, 1994, 1995), Junghanns & Zybatow (1995), Steube (2000) and many others in the assumption that the focus feature (as well as related features such as e.g. [TOP]) is associated with the relevant syntactic domains and is freely assigned to the appropriate constituents, but that it does not project a focus phrase. In a framework such as minimalism, I believe, there is no independent reason for assuming that a focus feature should project. Functional categories incorporate morphological features such as Agr (φ-features) which are, at least abstractly, realised on syntactic heads and enter the computational process with these heads. Focus (or Background, or Topic), on the other hand, is not an intrinsic morphological feature, but a discourse property. [F] is not a head feature, but it is assigned to a projection, to a phrasal category. Furthermore, [F] is not bound to certain categories, such as [plural] is to [+N] categories, [assign nominative case] is to T and [assign accusative case] is to [−N] categories, but it can be assigned to any projection. Remember that certain formal features are not intrinsic either, but are added optionally at the point where the corresponding lexical item enters the derivation. In (6) above, this was true e.g. for the φ-features of the verb and the [plural] feature of the object-DP. However, verbs do generally show φ-features, [+count] nouns bear a number feature. The optionality of these features lies in their specification which is according to the syntactic context in which the corresponding item occurs. On the contrary, assignment of the focus feature to a certain category is completely arbitrary and dependent on the discourse situation. Remember also that I argued in Chapter 4 above that one of the problems with an analysis such as the one suggested by Haftka (1994, 1995), who assumes that the topic feature projects a functional phrase, is that IS features are not expressed morphologically such as Agr and Tense. The crucial point then is that the focus feature does not belong to the set FF(LI) and therefore does not behave in the same

way as formal features. Therefore, it seems reasonable to assume that [±F] is not subject to the feature checking system that operates on formal features.

However, IS features obviously do trigger overt movement. In an analysis such as the one suggested by Rosengren (1993, 1994, 1995) and Steube (1997, 2000) and also in my own analysis of PV constructions as suggested in Dehé (2000b) and given in (2) above, a constituent that is marked for [-F] has to leave the [+F] focus domain, which means that it is this feature mismatch that triggers overt movement, but not the requirement for a feature to be checked. In an analysis such as the one suggested by Junghanns & Zybatow (1995) for Russian, overt movement to specifier positions within the functional domain of VP is triggered by IS-features. Prosodically motivated movement as suggested by Zubizaretta (1998) for Romance is overt, but not driven by the requirement of feature-checking. We will see below that in the case of PV's in English, things are different because the overt movement operations that are involved are not triggered by IS-features. However, the focus feature still plays a role in these constructions, despite the fact that it need not be checked in the way that formal features are checked. Furthermore, I mentioned above the well-known restriction on movement within the framework of minimalism that movement is subject to the economy principles. However, this does not necessarily seem to be true for IS triggered movement types which can obviously be overt despite the fact that they are not legitimate operations in terms of *Last Resort*. But note that Chomsky (1995:324) distinguishes movement operations formulated as *Move* α, *Attract* α or finally *Attract F*, which only marginally include VP adjunction operations, from those "such as extraposition, right-node raising, VP-adjunction, scrambling and whatever 'rearrangements' are involved in forming [certain] expressions". Only the former group of operations are subject to the rules and principles of minimalist syntax. The latter, heterogeneous category, which I assumed in Dehé (2000b) to include the movement of the complement-DP's of transitive particle verbs in English to the VP-adjoined position, is rather subject to stylistic rules:

> In early transformational grammar, a distinction was sometimes made between 'stylistic' rules and others. Increasingly, the distinction seems to be quite real: the core computational properties we have been considering differ markedly in character from many other operations of the language VP-adjoined position faculty, and it may be a mistake to try to integrate them within the same framework of principles. The problems related to XP-adjunction are perhaps a case in point [...].
>
> (Chomsky 1995:324f.)

Adjoined positions are not part of the checking domain: "α adjoined to non-minimal K is not in the checking domain of H (K)" (Chomsky 1995: 319). The "rearrangements" that Chomsky has in mind here are related to what was called "surface effects" on interpretations in the earlier Extended Standard Theory (EST) framework. These involve "topic-focus and theme-rheme structures, figure-ground properties, effects of adjacency and linearity, and many others" (Chomsky 1995: 220). Chomsky (ibid.) suggests that at first sight these effects "seem to involve some additional level or levels internal to the phonological component, postmorphology but prephonetic, accessed at the interface along with PF [...] and LF [...]". If this is correct, i.e. if there is some additional level, then this could be a solution to another problem in connection with the focus feature, which was brought up by Zubizaretta (1998: 30ff.). Zubizaretta notes that, since the focus feature is not a lexical feature, it violates the *Inclusiveness Principle* of Chomsky (1995: 225). This principle states that the interface levels consist of nothing more than arrangements of lexical features. *Inclusiveness* is clearly concerned with PF and LF, so if there were an additional interpretative level, this would be the relevant level for non-lexical features such as the focus feature. However, assuming an additional interpretative level would be against the minimalist spirit of reducing the theory to the necessary levels. What this means is that either this interpretative level should be part of the interface levels independently assumed (LF and/or PF), or we would have to inflate the system. Zubizaretta (1998: 33) accounts for the requirement of integrating the focus feature and focus related rules in terms of a revised Inclusiveness Principle such that

> [t]he interface levels consist of nothing more than arrangements of lexical features and interpretations of the arrangements of categories within the phrase marker in terms of the focus/nonfocus distinction and in terms of relative prosodic prominence.

This means, then, that Zubizaretta goes for the first of the options mentioned above, namely that the focus feature and related features are objects that are allowed at the interface levels LF and PF despite the fact that they are not lexical features, and thus an interpretative level (or filter) is included in the two interface levels that are assumed independently.

I will not go into any more detail here about additional interface levels and possible consequences for the minimalist framework. However, I will assume that operations exclusively concerned with or triggered by IS must be accounted for in any framework and that the corresponding features are interpretable at a corresponding interface level. It will become obvious in the

remainder of the study that, for the cases under consideration here, it does not seem to be necessary to assume overt movement triggered by IS features. However, the focus feature does play a role in the derivation of the discontinuous order of PV constructions in English. I will introduce an alternative proposal to that suggested in Dehé (2000b) in Section 5.2.3 below. But let me first outline additional facts that I need to have in mind to do so.

5.1.3 On overt object movement within (an extended) VP

I have mentioned in Section 5.1.1 above that the standard view of object movement to Spec-AgrOP in English is that it is covert movement. However, overt object movement to the specifier of a functional projection within the extended verbal projection has been suggested in the generative literature at least since Johnson (1991) (cf. Johnson 1991; Koizumi 1993; Radford 1997; Kayne 1998; Harley & Noyer 1998; Lasnik 1999a, b among others), and a bulk of strong and convincing evidence has been provided in support of this suggestion, part of which I want to report on here. To my knowledge, Johnson (1991) was the first to suggest overt NP-object movement within VP or its extended projection (cf. also Chapter 2.3.2 above for details of Johnson's analysis). One reason for him to assume overt object movement was to account for the contrast in (13) involving adverb placement within the VP. Adverb placement is possible between a verb and its prepositional complement (13b), but not between a verb and its nominal object (13a).

(13) a. *Mikey visited quietly his parents.
      b. Chris walked quickly down the street.

Under the assumptions that an adverb within VP adjoins to V' and that the nominal object moves to Spec-VP, the NP, but not the PP must precede the adverb in the overt syntax. (Notice that under the assumption that adverb adjunction is to VP and NP-movement is to a Spec-position in the functional domain of VP, we would end up with the same resulting structure.)

Since Johnson's discussion is based on the assumptions that (1) complements are generated as sisters to verbs, that (2) Spec-VP is reserved as a target position for object-NP movement and that (3) adverbs adjoin to V', Koizumi (1993:105ff.) argues that Johnson's analysis cannot account for the examples given in (14) and thus cannot be maintained.

(14) a. Chuck talked calmly to her about it.
      b. Chuck talked to her calmly about it.

In (14), the order of the constituents would be derived in Johnson's analysis by moving the verb to the upper μ head, by generating the adverb in the V' adjunction position and by assuming a ternary V'-structure of the form [V' → V PP$_{to}$ PP$_{about}$]. Within this type of structure, Koizumi (1993:107) argues, the command relations of the two PP's are not correct, since the PP$_{to}$ must be structurally higher than the PP$_{about}$ as suggested by the examples in (15).

(15) a. Joni talked to Marty$_i$ about himself$_i$.
     b. *Joni talked to himself$_i$ about Marty$_i$.

Koizumi (1993:108ff.) adapts the split-IP-hypothesis commonly ascribed to Pollock (1989) and an agreement-based approach to case, i.e. the checking theory as suggested in Chomsky (1993). Koizumi assumes a VP-structure with AgrOP inserted between a lower VP and an upper VP. The assumption is that the NP-feature of verbs, the accusative case feature, is strong in English and must thus be checked and erased in the overt syntax. This is parallel to the assumption that the NP-feature of Tense, the nominative case feature, is strong in English and forces overt subject movement. Just like the nominative case feature is checked in Spec-AgrSP under Spec-head-agreement by adjoining Tense to Agr and moving the subject to the relevant Spec-position, the accusative case feature is checked in a Spec-head-configuration in AgrOP in the overt syntax by overt verb movement to AgrO (and on to the upper V head) and object-NP movement to Spec-AgrOP. The structure thus derived, Koizumi argues, can account for the contrasts in grammaticality in the examples in (16) with regard to adverb placement.[4]

(16) a. Aaron gave the ring secretly to her.
     b. *Aaron gave secretly the ring to her.
     c. Chuck talked to her calmly about it.
     d. Chuck talked calmly to her about it.

Koizumi suggests the split-VP-analysis as given in (17) for (16a).

(17)   VP-structure (Koizumi 1993:109)
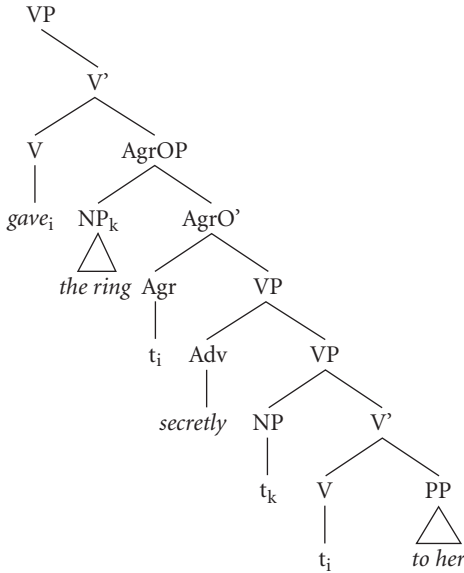
Adverb adjunction, Koizumi (1993:109f.) argues, is to VP, since Agr as a 'pure' functional category has no lexical semantic content. Under the assumption that for an adverb to be licensed it must adjoin to its semantic licenser, adverbs may not adjoin to AgrOP or any other functional projection. In (17) (=(16a)), overt object movement is to Spec-AgrOP, while adverb adjunction is to VP. Both the verb and the nominal object end up in a position preceding the adverb, accounting for what has been known as the adjacency requirements for verbs and their nominal complements (cf. e.g. Stowell 1981). The ungrammaticality of (16b) follows straightforwardly under the assumption that adverbs cannot adjoin to AgrOP. If two PP-complements are involved as in (16c) and (d) (=(14)), the adverb can appear either in a position preceding (16d) or following (16c) the first complement. The grammaticality of both constructions follows under the assumptions that (1) the PP_{to} is generated in a VP-shell dominating the VP hosting the PP_{about}, that (2) the adverb may be adjoined to either VP, and that (3) neither PP moves to Spec-AgrOP, since there is no accusative case feature to check. Under the first of these assumptions, the contrast in (15) can also be accounted for.

Similar evidence for overt movement of nominal objects to a higher functional projection comes from the order of complements of different categories. The nominal complement usually has to precede complements of other categories. Compare the examples in (18), taken from Radford (1997:431).

(18)   a.   He admitted to her that he was guilty.
        b.   He admitted his guilt to her.

The NP *his guilt* in (18b) has to precede the PP, because it is in Spec-AgrOP in overt syntax, whereas the CP-complement *that he was guilty* in (18a) follows the PP, because it remains in its base position. The examples in (19), taken from Johnson (1991: 577), follow a similar pattern.

(19)   a.   Gary introduced Mittie to Sam.
        b.   *Gary introduced to Sam Mittie.
        c.   Gary told Sam to leave.
        d.   *Gary told to leave Sam.

The nominal objects *Sam* and *Mittie*, respectively, have to precede the complements of other categorial status. Under the assumption that object DP's but not other objects move to Spec-AgrOP in overt syntax for case reasons, this pattern follows straightforwardly.

Lasnik (1995, 1999a, b) develops the ideas of Koizumi further and provides evidence for overt object movement to Spec-AgrOP from structures involving the ellipsis phenomenon *pseudogapping* and also from *binding theory*. With regard to *pseudogapping*, consider the examples given in (20) and (21), taken from Lasnik (1999b: 201).

(20)   a.   If you don't believe me, you will Ø the weatherman.
        b.   I rolled up a newspaper, and Lynn did Ø a magazine.

(21)   The DA proved Jones guilty and the Assistant DA will ~~prove~~ Smith ~~guilty~~.

In (20), the main verb is deleted, in (21) the ellipsis site includes the main verb plus the SC predicate.[5] The remnant, i.e. the DP that is not deleted (*the weatherman* and *a magazine* in (20), *Smith* in (21)) is accusative in each case. Lasnik assumes that pseudogapping involves VP ellipsis after overt raising of the remnant DP to Spec-AgrOP.[6] Under the assumption of covert object movement, the deleted elements in (21) (*prove … guilty*) would not form a constituent in overt syntax. Due to the assumption that only overt movement forces movement of an entire constituent, but that covert movement is only feature movement (Chomsky 1995), the deleted strings would not even form constituents in the covert syntax, so that, as Lasnik (1999a: 159, 1999b: 202) puts it, "it is very difficult to see how covert raising of (the formal features of) accusative NP to [Spec, AgrO] could possibly create an ellipsis licensing configuration". However, under overt object movement, a configuration of this kind is created along the lines of (22), illustrating the simple pseudogapping examples in (20). Note that for the more complex SC-example in (21), the SC [Smith guilty] is in

complement position to the verb in its underlying position. Raising of the SC-subject *Smith* to Spec-AgrOP leaves the verb *prove* and the SC-predicate *guilty* as adjacent elements within the lower VP as the constituent that is deleted in the case of pseudogapping.

(22)   *Pseudogapping* (according to Lasnik 1999b: 204, 1999a: 161)
   a.   If you don't believe me, you will Ø the weatherman.
   b.   I rolled up a newspaper, and Lynn did Ø a magazine.

In (22), the ellipsis site is the lower VP, so that the verb but not the object is deleted, thus yielding the examples given in (20) above. (Note that it is implicitly assumed here that the PV *roll up* in (20b) is inserted as a complex V head.) An obvious question that must be addressed here is why the verb need not raise, particularly since in non-elliptical examples it must raise (**You will the weatherman believe*). Lasnik (1999a: 161, 1999b: 204ff.) argues that V raising in the elliptical constructions is not necessary under the following assumptions. V bears a strong feature that drives its raising to an upper functional head in non-elliptical structures. If this feature is not deleted prior to Spell-Out, the derivation will crash at PF. However, in the pseudogapping cases the lower VP containing the verb and its strong feature is deleted in the PF component. Con-

sequently, this feature cannot cause the crash of the derivation since the V head and its strong feature will be gone at the relevant level.[7]

Additional evidence for the assumption that the V head does not raise in the cases of pseudogapping comes from *sluicing*, a related ellipsis phenomenon, which is standardly analysed as wh-movement followed by IP-ellipsis in the literature (cf. Lasnik 1999b: 206 for references). Examples are given in (23), taken from Lasnik (1999b: 206).

(23)   *Sluicing*
   a.   Speaker A: Mary will see someone.
        Speaker B: I wonder who ~~Mary will see~~.
   b.   Speaker A: Mary will see someone.
        Speaker B: Who ~~Mary will see~~?

Now consider (24), the structure of the matrix sluicing example in (23b).

(24)   *Sluicing* (according to Lasnik 1999b: 206f.)
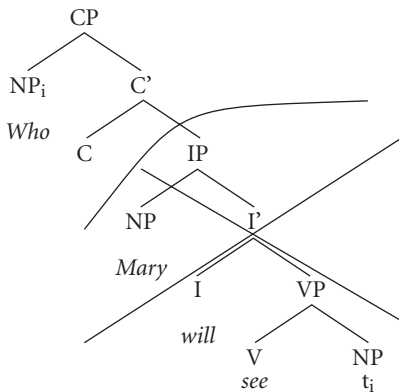
Under the assumption that sluicing is IP-ellipsis, *will* may not raise to C in the sluicing cases, but must raise in the non-sluicing cases (**Who Mary will see?*). Apparently, we are confronted with a similar situation as with pseudogapping in (22) above, where the main verb does not raise to an upper head position. Accordingly, Lasnik (1999b: 207) argues that a strong feature of I is involved which must be checked in non-sluicing cases and drives movement of I (*will*) to C. In the sluicing cases, this feature does not have to be checked since it is deleted in the PF component together with the I head and the complete IP.

According to Lasnik (1999a: Chapter 8), more evidence for overt object movement in English comes from *binding theory*. Contrary to Chomsky (1995: 272), Lasnik (1999a: 181ff) argues that feature movement never suffices

for binding. Consider the examples in (25), taken from Lasnik (1999a: 182, 184), and (26) and (27), taken from Chomsky (1995: 272).

(25) a. There arrived two knights$_i$ on each other's$_i$ horses.
      b. I saw two men$_i$ on each other's$_i$ birthdays.

(26) a. The DA accused the defendants$_i$ during each other's$_i$ trials.
      b. The DA proved the defendants$_i$ to be guilty during each other's$_i$ trials.

(27) *The DA proved that the defendants$_i$ were guilty during each other's$_i$ trials.

 Chomsky's line of reasoning is the following. According to common assumptions about phrase structure, the reciprocals in both (25) and (26) are not c-commanded by their antecedents in overt syntax under the general assumption of covert object movement. In (25) and (26a), the antecedent (in (25) *two knights* and *two men*, respectively, in (26a) *the defendants*) is (within) the complement to the verb, the reciprocal is positioned within an adjunct that is adjoined to the VP. In (26b), the antecedent (*the defendant*) is the subject within the embedded clause, the reciprocal is positioned within the adjunct that is adjoined to the VP of the matrix clause. However, under the assumption that feature movement can alter binding relations in that raised features can serve as binders, the grammaticality of both (25) and (26) follows straightforwardly. At the LF level, the Agr-features of the complement-DP's in (25b) and (26a) raise to AgrO for case checking and can bind *each other* in that position. The same is true for the Agr-features of the embedded subject (*the defendants*) in (26b). In (25a), *arrive* being an unaccusative, the Agr-features of the DP *two knights* presumably raise to AgrS where they can bind the reciprocal. In (27), the Agr-features of the antecedent *the defendants* do not raise to AgrO of the matrix verb, since the relevant features are checked in AgrS of the embedded clause. Therefore, the features cannot serve as binder for the reciprocal *each other*. But now consider the examples in (28) and (29), taken from Lasnik (1999a: 183).

(28) a. Some linguists$_i$ seem to each other$_i$ [t$_i$ to have been given good job offers].
      b. *There seem to each other$_i$ [to have been some linguists$_i$ given good job offers].

(29) a. Some defendant$_i$ seems to his$_i$ lawyer to have been at the scene.
      b. *There seems to his$_i$ lawyer to have been some defendant$_i$ at the scene.

Under the binding by features analysis, Lasnik argues, the ungrammaticality of the (b) examples comes unexpectedly. In the (a) examples in (28) and (29), binding of the reciprocal *each other* in (28) and the pronoun *his* in (29) is

possible by the overtly raised subjects *some linguists* and *some defendants*, respectively. In the (b) examples, there is feature movement of the relevant constituents to the AgrS-projection dominating *seem*, but obviously, the raised features cannot act as binders for the reciprocal or the pronoun. This leaves us with the paradox that feature movement does and does not create binding configurations. Obviously there is an asymmetry between accusative objects and ECM subjects on the one hand ((25) and (26)), and nominative subjects on the other hand ((28) and (29)), in this respect. Lasnik (1999a: 184) concludes that feature movement in general does not suffice for binding. This explains the ungrammaticality of (28b) and (29b), but the well-formed examples in (25) and (26) above demand a new explanation.

This new explanation, Lasnik (1999a: 186ff.) suggests, involves overt (object) movement to Spec-AgrOP. Once again, Lasnik follows Koizumi's argumentation that accusative case is checked overtly in English, just like nominative case. "The accusative NP overtly raises to [Spec, AgrO] (with V raising to a still higher head position, the V head of a 'shell' VP)" (Lasnik 1999a: 186).

In the direct object and ECM subject cases in (25) and (26), the accusative NP raises overtly to Spec-AgrOP, AgrOP dominating the lower VP. The relevant antecedent NP is then in a position that makes it possible to act as a binder for the reciprocal *each other*. In the *there*-constructions in (28) and (29), only features raise to the AgrS head dominating the projection in which the relevant reciprocal and pronoun that fail to be bound are situated. For illustration, consider the phrase marker for the direct object case in (25b) and (26a) above, given in (30).

(30)   *Overt object movement*
       The DA accused the defendants$_i$ during each other's$_i$ trials.

```
                        AgrSP
              ┌───────────┴────────┐
            NP_k                 AgrS'
             △            ┌────────┴────────┐
          The DA        AgrS              VP
                               ┌───────────┴──────┐
                             NP                   V'
                              │          ┌─────────┴──────┐
                             t_k         V             AgrOP
                                      accused_m    ┌──────┴───────┐
                                                 NP_i          AgrO'
                                                  △       ┌───────┴──────┐
                                           the defendants AgrO          VP
                                                           │      ┌───────┴─────┐
                                                          t_m    VP           PP
                                                             ┌────┴────┐       △
                                                             V        NP   during each
                                                            t_m       t_i  other's_i trials
```
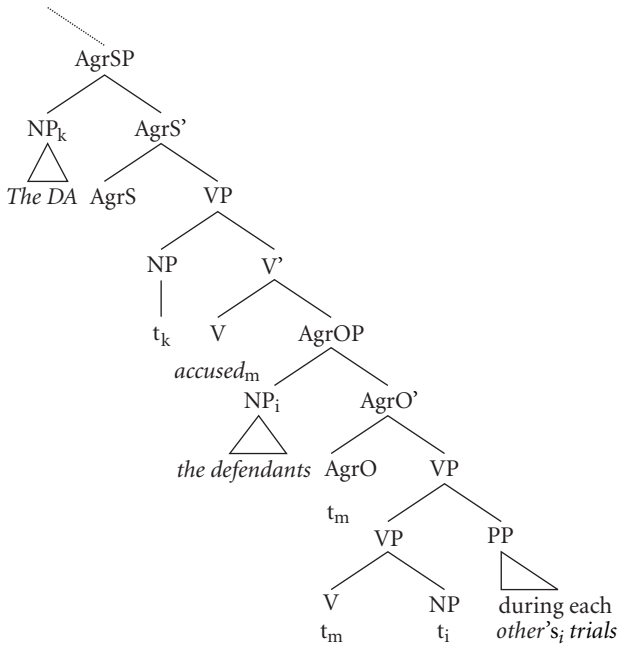
The accusative object NP *the defendants*, which is antecedent to *each other*, originates in a position that makes it impossible for it to serve as a binder. However, after overt object movement to Spec-AgrOP, the antecedent can serve this function, thus rendering the sentence grammatical.

In Section 5.2.3 below, I will follow Johnson, Koizumi, and Lasnik among others in their assumption that object movement to Spec-AgrOP is overt in English and that the structure of the extended VP is of the form suggested by Koizumi and Lasnik and given in (17), (22) and (30) above. The structure I suggested in Dehé (2000b) for PV constructions thus cannot be maintained.

5.2 PV constructions

Having briefly outlined the syntactic background I presuppose in the remainder of the discussion, I will now return to PV constructions in English.

5.2.1 The nature of object movement in PV constructions

I argued in Dehé (2000b) that the nominal object in PV constructions pre-
poses if it is a background constituent. By this movement operation, the focus
domain is restricted, so that only focused constituents remain in this domain.
In the case of discontinuous PV constructions the relevant constituent is the
particle as the focus exponent. The movement of the object results in the dis-
continuous order. Remember that I noted in Chapter 4.1.2 above that for ex-
ample for German, the relevant movement operation which is involved here
is scrambling and that the main function of this operation is the ordering of
the clausal constituents according to the information structure of the context.
An obvious question to ask at this point of the discussion is therefore whether
object movement in PV constructions is (related to) scrambling.

    There certainly are similarities between scrambling and DP-movement
with English PV constructions as assumed in my (2000b) analysis, such as its
restriction to the VP as the category that hosts the base position of the DP, its
syntactic optionality, and the property that the movement results in a structure
that deviates from the base order in order to account for information struc-
ture. However, what is more important here is that there are basic differences
between the two phenomena. Scrambling is defined as the change in order of
the arguments within the clause aiming at a change in the argument hierar-
chy, whereas with the PV constructions in English only one argument DP is
involved. Internal arguments of double-object verbs in English are not allowed
to occur in a free order, whereas this is syntactically possible with the corre-
sponding German verbs, as is shown in (31) and (32). The behaviour of the
German double object construction is due to the morphological case-marking
on the definite article. I follow Olsen (1997:68f.) who takes this as an argu-
ment in favour of the claim that movement of the complement-DP with PV-
constructions in English does not show the properties of scrambling in German
and that it is therefore a different grammatical phenomenon.

(31)   English (taken from Olsen 1997:69):
    a.   She [gave$_i$ [the girl [e$_i$ the present]]]
    b.   *She [gave$_i$ [the present$_j$ [the girl [e$_i$ e$_j$]]]]

(32)   German:
    a.   Er   gab   dem Mädchen   das Geschenk.
         He gave the-DAT girl   the-ACC present

b. Er gab   das Geschenk   dem Mädchen.
    He gave the-ACC present the-DAT girl
    'He gave the present to the girl.'

Furthermore, it is widely assumed that only SOV-languages have scrambling (cf. Vikner 1994 among others). English as an SVO-language should therefore not show any scrambling, so that (31) corresponds to what is expected.[8] Another piece of evidence against the assumption that DP-preposing in PV constructions in English and scrambling in SOV-languages might be a related phenomenon follows from the discussion led above with regard to overt object movement. If overt movement is obligatory for nominal objects in English for grammatical reasons, then it cannot at the same time be motivated by the requirement to order the clausal constituents according to the information structure of the context.

    An even more interesting question is whether the preposing of the object in English PV-constructions is related to *Object Shift* in Scandinavian languages. Remember that Johnson (1991) argues that overt object movement in English PV constructions is an instance of object shift (cf. Chapter 2.3.2 above). As object shift is a property that occurs with SVO-languages, it is indeed more reasonable to assume that this type of movement might appear in English than scrambling. The term *object shift* refers to clause-internal raising of a nominal object in the Scandinavian languages (Danish, Faroese, Icelandic, Norwegian, Swedish; cf. Johnson 1991; Diesing & Jelinek 1993; Vikner 1994; Svenonius 1996b among others), as illustrated in (33) through (36) below (examples taken, and slightly modified, from Vikner 1994).

(33) Icelandic: full NP

    a. I gær   las$_i$ Péter *bókina$_k$* eflaust   ekki t$_i$ t$_k$
        yesterday read Peter book.the without.doubt not
        'There is no doubt that Peter did not read the book yesterday.'
    b. I gær las$_i$ Péter eflaust ekki t$_i$ *bókina.*

(34) Icelandic: pronoun

    a. I gær   las$_i$ Péter *hana$_k$* eflaust   ekki t$_i$ t$_k$
        yesterday read Peter it   without.doubt not
    b. *I gær las$_i$ Péter eflaust ekki t$_i$ *hana*

(35) Danish: full NP

    a. *I går   læste$_i$ Peter *bogen$_k$* uden tvivl   ikke t$_i$ t$_k$
        yesterday read   Peter book.the without doubt not
    b. I går læste$_i$ Peter uden tvivl ikke t$_i$ *bogen*

(36) Danish: pronoun

    a. I går   læste$_i$ Peter *den*$_k$ uden tvivl   ikke t$_i$ t$_k$
       yesterday read   Peter it   without doubt not
    b. *I går læste$_i$ Peter uden tvivl ikke t$_i$ *den*

In Icelandic, both pronouns and full NP's may undergo object shift (cf. (33) and (34)), whereas in Danish, Faroese, Norwegian, and Swedish only pronouns, but not full NP's may undergo object shift (cf. (35) and (36) for Danish). Moreover, object shift is obligatory with pronouns (cf. (34) and (36)), whereas full NP's in Icelandic undergo optional object shift (33). The movement of the object is obligatorily accompanied by overt verb movement, hence the ungrammaticality of (37), taken from Diesing & Jelinek (1993:20), where the verb remains in its base position.

(37) Icelandic

    *Jón   hefur bókina   ekki lesið.
    John has   book.the not read
    'John has not read the book.'

Stress/focus on a pronoun can override the obligatoriness of object shift in Danish and Icelandic, the pronoun can then remain in its base position (examples in (38) taken from Diesing & Jelinek 1993:27; stress indicated by bold type):

(38) Stressed pronoun (a) as opposed to unstressed pronoun (b)

a.	Hann	las	ekki	**Þær**	(Icelandic)
a′.	Peter	læste	ikke	**den**	(Danish)
	H/P	read	not	**them**	
	'Hann/Peter didn't read them.'				

b.	*Hann	las	ekki	*þær*	(Icelandic)
b′.	*Peter	læste	ikke	*den*	(Danish)
	H/P	read	not	them	
	'Hann/Peter didn't read them.'				

Diesing and Jelinek (1993:28) further note that the optional shift of full NP objects is restricted to presuppositional constituents.

A number of properties of object shift structures are thus similar to PV constructions in English, for example: (1) a pronominal object raises obligatorily unless it is focused; (2) raising of a full DP object (in Icelandic and English) is syntactically optional but requires a presuppositional interpretation of

the shifted phrase; and (3) heavy DP's are preferred in the rightmost position (Svenonius 1996b:62).

However, both Svenonius (1996b) and Olsen (1997) come to the conclusion that the preposing of the object in discontinuous PV constructions in English is not a type of object shift. One important difference is that non-definite DP's, irrespective of number, do not undergo object shift (39), whereas indefinite DP's in PV constructions may be preposed in both Icelandic (40) and English (41).

(39) Object shift (Plural-NP: Icelandic; Svenonius 1996b:62)

    a. *Ég sá *nokkra bíla* oft.
        I saw some cars often
        'I often saw some cars.'

    b. Ég sá oft *nokkra bíla*.

    Object shift (Plural-NP: Icelandic; Diesing & Jelinek 1993:23)

    c. *Hann las *bækur* ekki.
        He read books not
        'He didn't read books.'

    d. Hann las ekki *bækur*.
        He read not books

    Object shift (Singular-NP: Icelandic; Diesing & Jelinek 1993: 23)

    e. *Eg las *bók* ekki.
        I read book.a not
        'I didn't read a book.'

    f. Eg las ekki *bók*.
        I read not book.a

(40) Object preposing in PV constructions (Icelandic; Svenonius 1996b:62)

    a. Ég gerði *nokkra bíla* upp.
        I fixed some cars up.

    b. Ég gerði upp *nokkra bíla*.

(41) Object preposing in PV constructions (English; Olsen 1997:66)

    a. She doesn't want to pass an opportunity up.

    b. She has always turned solicitors away.

    c. She is filling a form out.

Another important difference between object shift in Icelandic and PV constructions is that the former, but not the latter only occurs with finite main verbs that move out of the lower VP, but not e.g. with participle forms that do not undergo movement. This is illustrated in (42) through (44) (accord-

ing to Svenonius (1996b: 59), the behaviour of PV constructions in Icelandic is identical to that of their English counterparts with respect to pronominal DP's, very heavy DP's, and modification, so that it seems legitimate to use them as examples here).

(42) Object Shift (Icelandic; Svenonius 1996b: 62)

    a. *Ég hef *bíllinn* oft   séð.
        I   have the.car often seen.
        'I have often seen the car.'

    b. Ég hef oft séð *bíllinn*.

(43) PV construction (Icelandic; Svenonius 1996b: 62)

    a. Ég hef gert *bílinn* upp.
        I   have fixed the.car up

    b. Ég hef gert upp *bílinn*.
        I   have fixed up   the.car

(44) PV construction (English)

    a. I have fixed up the car.
    b. I have fixed the car up.

We can thus maintain that English has neither object shift nor scrambling (cf. Vikner 1994: 488) and that the preposing of the object in English PV constructions must be a movement operation of a different kind despite obvious similarities. I will follow Johnson (1991); Koizumi (1993); Lasnik (1999a, b) among others in their argumentation that overt object movement is obligatory for grammatical reasons (cf. Section 5.1.3 above) and I will show in Section 5.2.3 below that it is not the preposing of the object that determines the discontinuous order, but the non-preposing of the particle which, in the case of the discontinuous order, does not pied-pipe along with the verb to a functional head position.

5.2.2 Kayne (1998)

Kayne (1998: 163f.) provides one syntactic account for the impact that focus has on the word order of PV constructions which I have not mentioned so far. Recall from Chapter 2.2 above that Kayne (1998) assumes the derivations for PV constructions given in (45) and (46) (my bracketing), and that particle preposing is to Spec-PredP, negative phrase preposing to Spec-NegP, and VP-preposing to Spec-WP.

(45) *Continuous order derived from:*
      John $_{VP}$[invited $_{SC}$[no strangers in]]

    a. *Negative phrase reposing*
        John $_{NegP}$[no strangers$_i$ $_{VP}$[invited $_{SC}$[t$_i$ in]]]

    b. *VP-preposing*
        John [$_{VP}$[invited $_{SC}$[t$_i$ in]]$_k$ $_{NegP}$[no strangers$_i$ t$_k$]]

(46) *Discontinuous order derived from:*
      John $_{VP}$[invited $_{SC}$[no strangers in]]

    a. *Particle preposing*
        John $_{PredP}$[in$_m$ $_{VP}$[invited $_{SC}$[no strangers t$_m$]]]

    b. *Negative phrase preposing*
        John $_{NegP}$[no strangers$_i$ $_{PredP}$[in$_m$ $_{VP}$[invited $_{SC}$[t$_i$ t$_m$]]]]

    c. *VP-preposing*
        John [$_{VP}$[invited $_{SC}$[t$_i$ t$_m$]]$_k$ $_{NegP}$[no strangers$_i$ $_{PredP}$[in$_m$ t$_k$]]]

But note that this is not the end of the story. Kayne accounts for the contrast in acceptability of the sentences in (47a) and (b) in terms of an abstract focus head (Foc^0).

(47) a. What is he looking up?   He's *looking up a linguistic term*.
    b. What is he looking up?   ?He's *looking a linguistic term up*.

First, let me show how Kayne motivates the abstract functional heads that he assumes to be involved in the derivation. Kayne (1998: 148f.) observes that negative phrases appear both as part of the direct (DP-) object and of a prepositional object (48). As opposed to that, the status of examples with *only* as part of a prepositional object is not always the same (49). (The '?' in front of (49b) is intended to indicate that "speakers vary substantially in their judgements, ranging from fully acceptable to fully unacceptable"; Kayne 1998: 148).

(48) a. John reads no novels.
    b. John spoke to not a single linguist / no one / no student.

(49) a. John criticised only Bill.
    b. John spoke to only one linguist.
        BUT: ?John spoke to only Bill.

(50) John spoke only to Bill.

What is striking here, Kayne argues, is that *only one linguist* in (49b) behaves like *not a single linguist* in (48b), but *only Bill* does not. Kayne further argues that *only one N* should therefore be treated as strongly parallel to *not a single N* with regard to the movement operations involved in the derivation. To il-

lustrate the derivation, let me use the (less complex) example in (49a). To start with, the DP (*Bill*) is merged with the verb, yielding the VP *criticise Bill*. *Only* is then merged with the whole VP (before the subject is merged with the resulting constituent). The underlying order of the example in (49a) is thus *John only criticised Bill*. *Bill* then raises up to *only* after which VP-preposing applies, establishing the correct word order. Overt raising of the object *Bill*, Kayne argues, is triggered by some feature of *only* ("perhaps via a focus feature", as Kayne 1998: 148 puts it). Movement is to Spec-*only*, *only* being a head in the syntax. Moreover, Kayne postulates that *only* has the feature +w ("mnemonic for 'word order'") that must be checked in the overt syntax by another abstract head in the functional domain, which is W. VP-preposing is to Spec-WP. The steps of the derivation are illustrated in (51) below (my bracketing).

(51) *Underlying order:* John [only $_{VP}$[criticised Bill]].
    a. *Attraction of* $_{DP}$Bill *by* only ("perhaps via a focus feature")
        ... [Bill$_i$ only $_{VP}$[criticised t$_i$]]
    b. *Raising of* only (to the abstract functional head W)
        ... $_{WP}$[only$_k$+W [Bill$_i$ t$_k$] $_{VP}$[criticised t$_i$]]
    c. *VP-preposing to Spec-WP*
        ... $_{WP}$[$_{VP}$[criticised t$_i$]$_m$ only$_k$ [Bill$_i$ t$_k$] t$_m$]

Example (50) is derived in a similar way, except that *only* does not attract a DP (as in the case of *Bill* in (51)), but it attracts a PP (*to Bill*), deriving [$_{WP}$[$_{VP}$[spoke t$_i$]$_m$ only$_k$ [[to Bill]$_i$ t$_k$] t$_m$]]. Now why is *?John spoke to only Bill* in (49b) less acceptable? The only way to derive this sentence would be under stranding of the preposition *to*, whereas the DP *Bill* is attracted by *only* in the first step of the derivation. Kayne's (1998: 151) suggestion is that P-stranding under attraction to *only* is not available, just as it is not available in middle constructions (**That kind of person doesn't speak to easily*) and in Heavy-NP-Shift constructions (**I was speaking to about linguistics the same person you were*). Other restrictions on P-stranding are mentioned in this context.

A similar analysis as for the example in (51) involving *only* is proposed for constructions with *not* such as given in (52) below (Kayne 1998: 152f.). The derivation (ignoring *but Bill*) is illustrated in (53) (my bracketing).

(52) I saw not John, but Bill.

(53) *Underlying order:* I [not $_{VP}$[saw John]]
    a. *Attraction of* $_{DP}$John *by* not
        ... [John$_i$ not [saw t$_i$]]

b. *Raising of* not (to the abstract functional head W)
... $_{WP}$[not$_k$+W [John$_i$ t$_k$] $_{VP}$[saw $_i$]]

c. *VP-preposing to Spec-WP*
... $_{WP}$[$_{VP}$[saw t$_i$]$_m$ not$_k$ [John$_i$ t$_k$] t$_m$]

Now let me come back to PV constructions and the contrast in (47), repeated here as (54) for convenience.

(54) a. What is he looking up? He's *looking up a linguistic term*.
      b. What is he looking up? ?He's *looking a linguistic term up*.

Kayne (1998:164) argues that this kind of focus is subject to overt attraction by an abstract head Foc^0 in a parallel way to attraction by *only* and *not* shown above. The derivation of (54) is given in (55) (my bracketing). The DP *a linguistic term* is attracted by the abstract head Foc^0. Foc^0 then raises to W to check its feature. Subsequently, the VP raises to Spec-WP.

(55) *Derivation of the continuous construction, minimal focus on the DP* [a linguistic term]
      Underlying structure: ... Foc^0$_{VP}$[looking $_{SC}$[a linguistic term up]].

      a. *Attraction to Foc*
         ... $_{FocP}$[a linguistic term$_i$ Foc^0$_{VP}$[looking $_{SC}$[t$_i$ up]]]

      b. *Raising of Foc to W* (parallel to raising of *only* to W in (51))
         ... $_{WP}$[Foc^0$_k$+W $_{FocP}$[a linguistic term$_i$ t$_k$ $_{VP}$[looking $_{SC}$[t$_i$ up]]]]

      c. *VP-preposing to Spec-WP* ... $_{WP}$[$_{VP}$[looking $_{SC}$[t$_i$ up]]$_m$ Foc^0$_k$+W $_{FocP}$[a linguistic term$_i$ t$_k$ t$_m$]]

Now consider the derivation of the discontinuous construction in (54b), given in (56) (my bracketing).

(56) *Derivation of the discontinuous construction*
      Underlying structure: $_{VP}$[looking $_{SC}$[a linguistic term up]]

      a. *Particle Preposing* (cf. (46) above)
         ... $_{PredP}$[up$_i$ $_{VP}$[looking $_{SC}$[a linguistic term t$_i$]]]

      b. *Merger of Foc*
         $_{FocP}$[Foc^0 $_{PredP}$[up$_i$ $_{VP}$[looking $_{SC}$[a linguistic term t$_i$]]]]

      c. *Attraction to Foc*
         $_{FocP}$[a linguistic term$_k$ Foc^0$_{PredP}$[up$_i$ $_{VP}$[looking $_{SC}$[t$_k$ t$_i$]]]]

      d. *Raising of Foc to W*
         $_{WP}$[Foc^0$_m$+W $_{FocP}$[a linguistic term$_k$ t$_m$ $_{PredP}$[up$_i$ $_{VP}$[looking $_{SC}$[t$_k$ t$_i$]]]]]

e. *VP-preposing*
    $_{WP}[_{VP}[\text{looking } _{SC}[\text{t}_k \text{ t}_i]]_p \text{ Foc}^0_m + W _{FocP}[\text{a linguistic term}_k \text{ t}_m _{PredP}[\text{up}_i \text{ t}_p]]]$

The first step is particle preposing to PredP. Then, the focus head is merged to the structure, followed by movement of the DP *the linguistic term* to Spec-FocP (via attraction). The following steps are parallel to those in (55) above. Kayne (1998: 164) argues that the deviance of the answer sentence in (54b) "must be due either to particle preposing itself, or to a locality effect induced by it". Obviously, the Foc head incorporates a strong focus feature that must be checked against focused DP's. This is, one could argue, what happens in (55), in the derivation of the continuous construction where the DP is focused (since it is elicited by the wh-question). The DP *a linguistic term* raises to Spec-FocP in order to check its focus feature against the feature incorporated in the strong Foc head. This is also what happens in the derivation of the discontinuous order in (56), this time preceded by particle preposing. Successful checking of the focus feature obviously leaves the Foc head with another feature, namely +w, which must be checked against W and therefore induces raising of Foc to W.

    In commenting on this suggestion, let me (for reasons of space and coherence) concentrate on the derivation of the PV construction in (55) and (56), not so much on Kayne's postulating the functional categories and his analysis of VP syntax as such. For one thing I have rejected the SC-analysis that this suggestion is based on in Chapter 2 above. I have also rejected the assumption of an overt focus head/projection in the syntax of the VP. Furthermore, as argued in Chapter 2, it is unclear to me why particle preposing takes place in one case but not the other. Now this last point has become even more unclear in connection with the assumption of a FocP and the corresponding movement operation. If movement of the DP to Foc is obligatory in examples such as (54a) and (b), and if particle preposing is responsible for the deviance of (54b), and if, furthermore, particle preposing is optional with PV constructions in English, then why is the particle in (56) preposed in the first place? A possible answer to this question is that particle preposing is possible because merger of Foc takes place after particle preposing. Moreover, one could argue, the derivation in (54b) is deviant, so the derivation involving particle preposing crashes. However, this is not always true, not even with focused DP's, as was seen in the previous chapter. Remember the cases involving contrastive focus. So how can Kayne account for these facts: particle preposing is optional; in cases where it takes place, it may yield a deviant structure in one case, namely where the DP is part of the focus of the sentence, but a non-deviant structure in

another (contrastive focus on the DP in connection with discontinuous order). Furthermore, it remains unclear if the derivation including particle preposing and the one without particle preposing are equivalent in contexts where the focus is not on the object DP alone or not on the object DP at all. The operation of particle preposing thus appears to be a real problem of Kayne's analysis. First, it is not clear why it is optional with the PV construction, but not with other SC constructions. Second, in the construction where it is optional it creates problems with regard to focus structure. At a later point in the discussion, Kayne (1998: 178) claims that "[p]article preposing (resulting in the discontinuous order) is usually associated with some degree of deviance." But this is obviously not true. We can easily think of examples where not the discontinuous order is deviant, but where the continuous order is less acceptable, namely in cases where the DP is part of the background part of the sentence.

5.2.3 A syntactic structure for PV constructions in English

5.2.3.1 *The assumption*
Suppose that the assumption is correct that within the extended VP in English, overt movement of a nominal object to a functional projection between VP and vp is obligatory for case reasons and that this projection is AgrOP. Assume further that the verb moves overtly via $AgrO^0$ to v. In the case of PV's, the particle is optionally stranded in a position following the object or pied-pipes along with the verb to the position preceding the object, according to the information structure of the context in which the relevant clause/sentence is embedded. How can we syntactically account for this role of information structure?

In Chapter 3 above I gave evidence for the assumption that the continuous order is the underlying one for all kinds of true PV's. Furthermore, I follow Johnson (1991), Koizumi (1993) and particularly Olsen (2000) among others in their assumption that true PV's (as opposed to verb + adverb constructions) enter the syntactic derivation as complex heads, being aware of the fact that they are exceptional in that the two parts, verb and particle, may be separated in the syntax by the nominal object and in that PV's are left-headed.[9]

According to the general assumptions given above, the underlying structure of transitive PV's in English is as given in (57) below. The PV is a complex V head which merges with a DP complement to form the VP. AgrOP dominates VP and is dominated by *v*P. The subject is generated as the specifier of *v*P, which I neglect here for reasons of simplicity.

(57)   *Transitive PV constructions in English:* Underlying structure
(put away the phone, give up the job)

```
              vP
          ┌────┴────┐
          v       AgrOP
              ┌─────┴─────┐
           AgrO⁰          VP
                      ┌────┴────┐
                      V        DP
                  ┌───┴───┐     ╱│
                  V      Part   the phone
                 put     away   the job
                 give    up
```
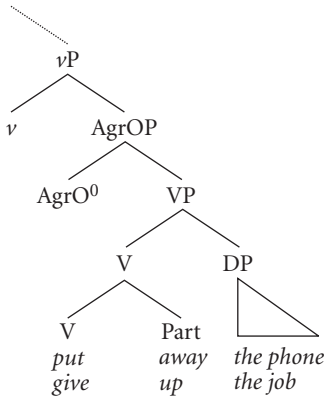
In (58) I have illustrated the movement operations that take place obligatorily
for grammatical reasons under the above made assumptions.

(58)   *Transitive PV's:* Obligatory overt movement operations

```
                   vP
            ┌───────┴───────┐
            v             AgrOP
           ╱│         ┌─────┴─────┐
      [V Part]ᵢ      DPₖ        AgrO'
       put away    the phone  ┌────┴────┐
       give up     the job   AgrO      VP
                              tᵢ     ┌───┴───┐
                                     V       DP
                                     tᵢ      tₖ
```
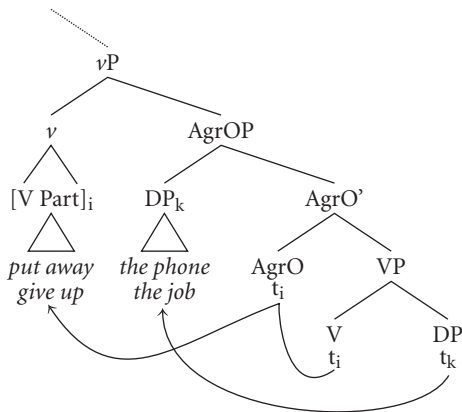
The verb moves to AgrO to check its Agr-features, then on to *v*. The nom-
inal object moves, equally overtly, to Spec-AgrOP to check its case features.
What is important here is that I assume that the PV is a complex head and that
therefore verb movement is movement of the complex PV whenever possible.
Excorporation of the verb or the particle out of the complex head would be
an additional operation that would render the derivation more costly, i.e. less
economical, and should thus be avoided whenever possible.

Now let us look at how this structure can account for the focus-background-structure(s) I have been concerned with in the course of the discussion. For the purpose of illustration, I will use the familiar example from John Grisham's *The Testament* given in Section 4.2.2.3 above and will modify it according to the given context. The example is repeated here as (59) for convenience.

(59)   Nate carefully opened the SatFone [... – conversation on the phone; N.D. – ...]
       When Nate hung up and *put the phone away*, Jevy asked [...]

<div align="right">(John Grisham, The Testament: 530f)</div>

Recall from Section 4.3.1.3 that focus assignment precedes overt syntax and accent assignment. The first case to consider is that of maximal focus. In this case, the whole sentence (CP) is the focus domain. I have argued earlier in this study that in this case, there is no need for the object-DP to be placed in the position between the verb and the particle. The corresponding derivation is given in (60) below.

(60)   *Maximal focus (continuous order):* (What happened?)

<div align="right">[Nate put away the phone]$_F$</div>
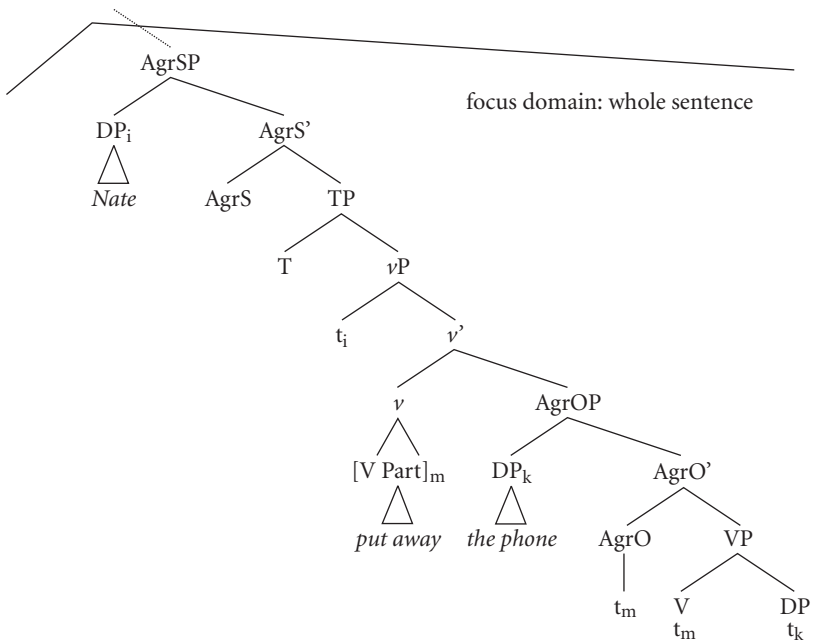
According to Gussenhoven's theory outlined in Section 4.3.1.3 above, pitch accent placement is on *phone*, with a prenuclear accent possible on *Nate*.

The next case I want to consider is that of non-minimal focus on the VP. The focus domain is the VP including the complex verb and the DP-object as the relevant constituent. As argued at length above, the corresponding word order is the continuous one. The structure I want to suggest is given in (61). (In illustrating the cases of non-minimal and minimal focus and the case of the DP as background constituent I will neglect the subject position within the tree diagram and consider only what happens within the VP/*v*P.) The movement operations indicated occur for grammatical reasons. Since the moved elements constitute the focus of the sentence, the corresponding traces are marked [+F] for focus. In overt syntax, there are thus two traces within the focus domain that are both positively specified for the focus feature. I assume that this does not pose a problem for the analysis, but that the relevant constituents, since they are positively marked for [F], are correctly interpreted as the focus of the sentence, although their overt syntactic position is within the functional layer of the original focus domain VP: The overt syntactic positions result from movement to the functional domain of the lexical projection that constitutes the focus domain (VP).

(61)   *Non-minimal focus (continuous order)*: (What did Nate do?)

He [put away the PHONE]$_F$
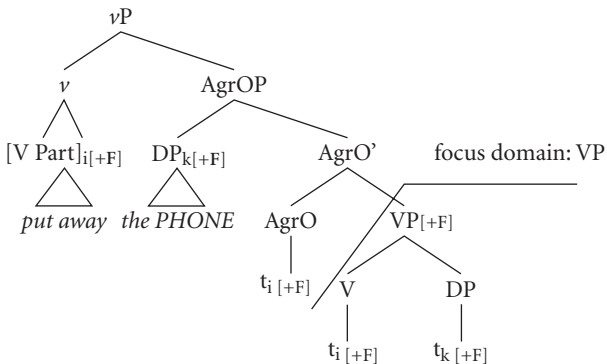
With regard to intonation, I assume that the accent assignment rule sees the focus features on the lexical elements and, according to Gussenhoven's *Sentence Accent Assignment Rule* (SAAR; cf. Chapter 4.3.1.3 above), assigns the focal accent to the relevant constituent within the focused part of the sentence, which is the noun *phone* within the internal argument of the verb. According to Gussenhoven's (1999) focus projection rule, a focused predicate (P) that is adjacent to

an accented argument (A) is de-accented. It follows then that neither the verb nor the particle are assigned an accent in the case of non-minimal focus. These assumptions with regard to accent placement are in line with the results of the experimental studies reported on in Chapter 4 above.

The third case we consider here is the case of minimal focus on the object-DP, which is illustrated in (62). The focus domain is the DP and I have argued above that once again, there is no need to change the word order. The movement operations indicated in (62) are for the usual grammatical reasons. The accent assignment rule sees the [+F] focus feature on the DP, the accent is placed on the noun. The DP-trace that remains within the focus domain bears the focus feature.

(62)   *Minimal focus (continuous order)*: (What did Nate put away?)
                                   He put away [the PHONE]$_F$
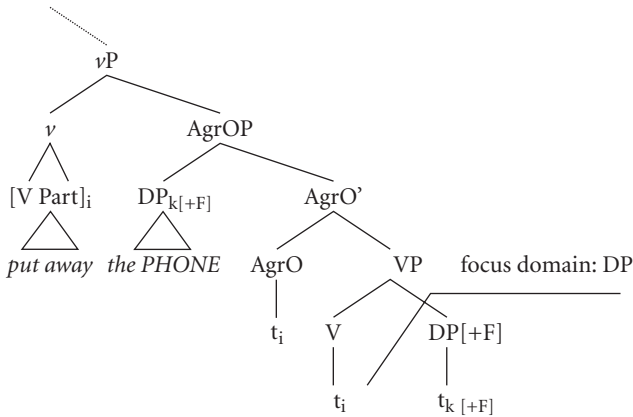
As can be seen in the examples and structures in (60) through (62) above, the continuous order does not pose any problem. The derivation follows the pattern suggested e.g. by Koizumi (1993) and Lasnik (1999) (cf. e.g. (17) and (30) above). Remember that I have shown in Chapter 3 above that the continuous order is the neutral one. Given this fact, it is a natural consequence that the continuous order follows the normal course of the derivation without needing additional assumptions or operations. But now consider the case of the DP-object as a background constituent, which, as I have shown in the preceding chapter, yields the discontinuous construction. A corresponding question-answer-pair is given in (63) for illustration.

(63)   (What did Nate do with the phone?)

Nate$_m$ $_{vP}$[t$_m$ $_{v'}$[put$_{i\,[+F]}$ $_{AgrOP}$[the phone$_{k\,[-F]}$ $_{AgrO'}$[t$_i$ $_{VP[+F]}$[t$_{i[+F]}$ aWAY t$_{k[-F]}$]]]]]

The structure in (64) below shows what would happen if the normal movement operations took place. The focus domain is the VP because the verb is under focus and the focus feature is assigned to the relevant maximal projection, which is the VP. (Recall from Section 4.1.2 that Lambrecht (1994:215) notes that a focus domain is always a phrasal, but never a lexical syntactic category.)

(64)   *DP as a background constituent (discontinuous order)*
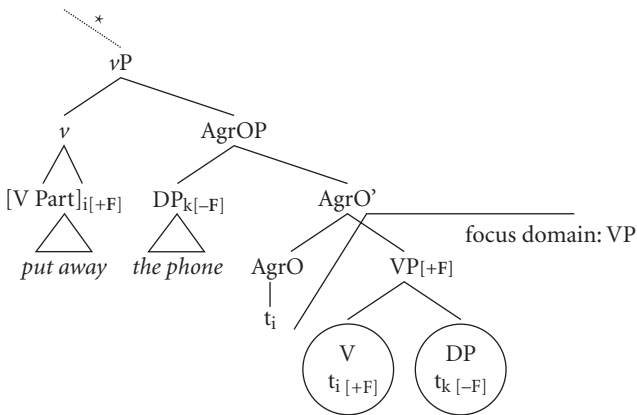
Importantly, the object-DP is not part of the focused part of the sentence. Its base position is within the focus domain VP, but the DP is negatively specified for the focus feature. On the other hand, the verb is assigned the [+F] focus feature. Movement of the verb and the object to their positions within the functional domain of VP leaves the two corresponding traces within the VP. The trace of the verb is positively marked for the focus feature, whereas the trace of the nominal object is marked for [–F]. Consequently, after the movement operations have taken place, two contrasting focus features remain within the focus domain that are both phonologically empty. Now the underlying idea within my syntactic analysis of PV constructions in English is that this feature mismatch within the focus domain is not allowed unless the [+F] feature is bound in an appropriate way. One way to bind the focus feature is by overt phonological realisation. Let me formulate this idea as a *Condition on Focus Domains* as given in (65) in a preliminary version.

(65)   *Condition on Focus Domains (preliminary)*:
       Within a focus domain, a [+F] focus feature must be bound phonologically iff there is a mismatch with regard to focus features.

In the structure in (64) above, an obvious way to account for the condition in (65) is by binding [+F] within the focus domain by stranding of the particle. Consider the corresponding derivation in (66).

(66)   *DP as a background constituent (discontinuous order)*
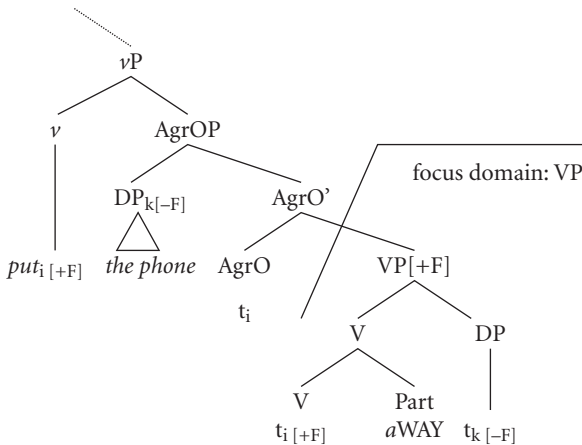
What happens in this case is that the PV makes use of an operation that is costly, but possible with PV's, namely excorporation of the verb and stranding of the particle in its base position within the VP, yielding the structure in (66). The particle remains within the focus domain, binding the [+F] feature and thus meeting the condition on focus domains in (65). Since this condition would otherwise be violated, excorporation of the verb and stranding of the particle is not only possible but necessary in this case. With regard to intonation, accent placement is on the focused P, following SAAR. More precisely, the accent assignment rule sees the focus feature on the particle within the focus domain. Consequently, the particle as part of the focused P is assigned the accent. Since all other constituents are outside the focus, this is the only possible accent assignment according to SAAR and the focus projection rule. Again, this pattern is in agreement with the results of the experimental studies on PV intonation. Note that it is still a focus feature mismatch that is responsible for the derivation of the discontinuous order. Contrary to my earlier proposal (cf. Dehé 2000b and (2) above), the feature mismatch does not trigger the movement of the nominal object, but it triggers the stranding of the particle, thus

yielding the discontinuous word order. Notice also that verb excorporation and particle stranding was also part of my earlier approach to the discontinuous order as given in (2). I argued that the particle's function as focus exponent was responsible for this operation. This function of the particle, of course, follows also from the structure in (66).

5.2.3.2 *Questions and answers about the analysis*

There are some obvious questions with regard to the structure(s) as suggested in the preceding section. The first question concerns the obligatoriness of the stranding of the particle in the case of (66). In the case of the DP as a background constituent, what rules out the derivation of the continuous order with accent placement on the particle to indicate the focus of the sentence? The answer to this question follows straightforwardly under the assumption of the condition on focus domains in (65). Movement of the complex PV in this case would lead to a feature mismatch within the focus domain as has been illustrated in (64), yielding a violation of the condition on focus domains. Moreover, I have outlined in Section 4.1.1 above that, apart from the special cases such as VERUM focus and contrastive focus and the use of focus-sensitive particles such as even, only, and too, which I am not addressing here, we know of the following patterns with focus in English: (1) Stylistic devices in the form of syntactic movement operations are used in order to highlight the focused constituents. These devices include topicalisation of a focused constituent, cleft-constructions, the use of the passive and the like. (2) The FOCUS LAST generalisation which states that focus is realised as late as possible in the clause has been observed to hold in the unmarked case. In the case of (63), no such movement operation or stylistic device is involved in the derivation. However, the derivation in (66) does meet the *Focus Last* generalisation.

A second question with regard to my suggestion for a syntactic structure of PV's in English is why it is not possible to have the particle stranded in the case of non-minimal focus, where the whole VP is focused, and in the case of minimal focus on the DP. The answer to this question follows straightforwardly under the assumption that it is more economical to avoid excorporation and move the verb as it is, since the PV is a complex head in the syntax. Both for the case of non-minimal focus and for the case of minimal focus the resulting continuous structure follows the *Focus Last* generalisation. Moreover, after the movement operations have taken place, there is no feature mismatch within the focus domain. In the case of non-minimal focus (cf. (61)), both traces within the domain are marked for [+F]. Consequently, the [+F] constituent does not have to be phonologically realised or otherwise bound. There

is no violation of the condition on focus domains. In the case of minimal focus on the DP (cf. (62)), the only trace left within the focus domain is the DP-trace which is marked for [+F], so that there is no violation of the condition on focus domains, either.

An even more obvious and important question seems to be the following. What happens if instead of a PV a simplex verb is involved in structures such as (66)? Consider for example the sentences in (67).

(67) (What did Nate do with the phone?)
       Nate LOST the phone.
       Nate HID the phone.
       Nate USED the phone.

It seems at first sight that these examples yield a violation of the condition on focus domains as formulated in (65). With simplex verbs, there is – obviously – no particle that can be stranded and bind the [+F] feature via overt phonological realisation. However, there is the same feature mismatch within the focus domain as in the case of the PV in (64). The movement operations have to take place for grammatical reasons. Both verb and object leave the VP which is the focus domain. What remains within the VP is one trace marked for [+F] (the trace of the verb) and one trace marked for [–F], the DP-trace. Since no particle can be stranded, the focus is 'visible' by intonation only. Accent placement is on the simplex verb.

So what do I do about this dilemma of the feature mismatch within the focus domain and about the obvious problem that the condition on focus domains in (65) is not met? Remember once again the observation made by Bolinger (1971:49f.) that PV's, as opposed to simplex verbs, can place part of their structure at some other point than before its complement, in order to highlight the corresponding information. PV's thus make use of a device that simplex verbs do not have, namely separation of their parts. The answer to the question posed above about simplex verbs is therefore the following. I assume that verbs in general have an (abstract or non-abstract) kind of affix, the nature of which will have to be modified below in this section. In the case of PV's this 'affix' is represented by the particle, whereas in the case of simplex verbs, this kind of affix is abstract, i.e. phonologically null. (Note that in the case of simplex verbs, accent assignment must be to the verb as the element marked for [+F], since the abstract affix as a phonologically null element cannot be accented. I will return to this point in Section 5.2.3.3 below.) It is this affix that serves to satisfy the condition on focus domains formulated in (65). Before I turn to the exact nature of this abstract affix, let me illustrate the resulting

structure for the examples in (67) above. The abstract affix remains within the focus domain, binding the [+F] feature and yielding the derivation in (68).

(68) *DP as a background constituent: Simplex verb*
      (What did Nate do with the phone?) He LOST the phone.
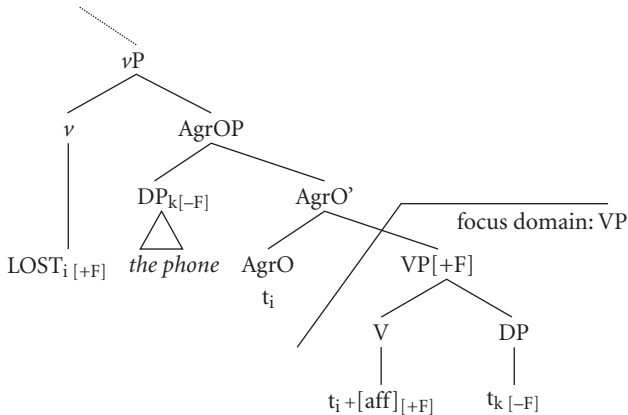
This is why the condition on focus domains has only been preliminarily formulated, so far. The structure in (68) yields no violation of this condition despite the fact that the [+F] feature within the focus domain is not phonologically bound, as required by the condition in (65), but bound by an abstract affix. The condition on focus domains is therefore reformulated as in (69).

(69) *Condition on Focus Domains (final version):*
      Within a focus domain, a [+F] focus feature must be bound by some kind of verbal affix if there is a mismatch with regard to focus features.

In the case of PV's, the particle serves the function of this verbal affix and binds the [+F] focus feature. Let me now turn in more detail to the nature of the affix that is involved in the case of simplex verbs, as illustrated by the structure in (68). In principle, the idea that the particle is a kind of affix that serves a function that is otherwise served by an abstract affix is not new. Recall from Section 2.5 above that Keyser & Roeper (1992), in postulating their *Abstract Clitic Hypothesis* (ACH), assume that all verbs in English have an invisible clitic position that may be occupied either directly by an element of every major syntactic category or by a marker. Particles in PV constructions function as markers in their analysis along with the verbal prefix [*re-*], the abstract dative marker and lexical categories in idiomatic constructions. In the case of PV's, the particle originates in the clitic position. The corresponding structure for

PV's is repeated here as (70) for the VP and (71) for the complex verb, for convenience. In order to derive the discontinuous order, the verb moves to a higher V position, leaving the particle stranded in the lower clitic position. Remember also that this structure has been adopted e.g. by Koizumi (1993).

(70)   [$_{VP}$ [$_V$ [$_V$ give] $_{Cl}$[up]] Object]   (Keyser & Roeper 1992)

(71)

```
        VP
        |
        V
       / \
      V   Cl
    give   up
```
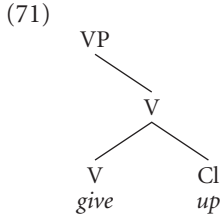
Obviously, the affix involved in my proposed analysis cannot be of the same type as the clitic marker in Keyser & Roeper's suggestion, since with a prefix verb, e.g., the marker raises along with the verb.

(72)   (What did Nicole do with the structure?)
       She reconsidered the structure.

In (72), the clitic marker in the sense of Keyser & Roeper, the verbal prefix [*re-*], raises to a functional head together with the verb, but there still has to be an affix that can bind the focus feature in the base position of the verb. Prefixes of the kind of [*re-*] are morphologically bound and thus cannot undergo excorporation and be stranded in the head position of the VP. But remember that Ishikawa (2000: 251f) notes as a problem for Keyser & Roeper's (1992) analysis that no independent arguments, other than the restriction on their co-occurrence shown in (73), are provided for the assumption that markers as different as morphologically bound prefixes such as [*re-*] and morphologically free elements such as verbal particles are generated in the same syntactic position (Cl).

(73)   a.   *He rethrew out the ball.
       b.   *He rethrew the ball out.

In other words, Ishikawa (2000) rejects the idea of assuming one and the same position for prefixes on the one hand and particles on the other and concludes that they have to be generated in distinct positions, an assumption that is shared in the literature (cf. Koopman 1995 for Dutch; Wurmbrand 1998 for German, among others).[10] Let me consider Ishikawa's alternative account in some more detail. Ishikawa suggests the *two V^0-internal domain analysis* (2VD

analysis), developed in Ishikawa (1999). Motivation for the analysis comes from the fact that prefix verbs such as those given in (74) are formed in the lexicon and that for these verbs, the *Principle of Lexical Integrity* holds, which states that no syntactic rules can refer to elements of morphological structure (cf. Lapointe 1980).

(74)   a. $[_V [_P$ out $[_V$ live$]]]$
      b. $[_V$ re- $[_V$ live$]]$

On the other hand, lexical integrity obviously does not apply to PV's, since particle and verb can be separated in the syntax. However, under the assumption that PV's are complex heads in the syntax, an assumption that Ishikawa follows at least for purely idiomatic PV's, the complex verb $_V[V$ Part$]$ must be equally formed in the lexical component. (Recall from the introductory chapter (Chapter 1 above) that Ishikawa (1999) distinguishes three types of PV's: purely idiomatic PV's, hybrid idiomatic PV's, and compositional PV's (simple combination type in his terminology). For the pure idiom type Ishikawa (1999: 337ff.) suggests that the 2VD analysis is the underlying structure.) Ishikawa (1999: 337ff.) therefore suggests the 2VD analysis as a head structure that accounts for the fact that a head is formed in the lexicon, but that the structure must be accessible for syntactic operations. The central assumption of this analysis is that the category V^0 is divided into three levels, namely V^{00} as the level of the verb stem, V^{01}, and V^{02}. V^{02} closes off the V-internal structure, i.e. V^{02} is V^0. The corresponding structure is illustrated in (75), taken from Ishikawa (1999: 338, 2000: 254).

(75) $V^0 = [_{V02} \ldots [_{V01} \ldots V^{00}$ (stem) $\ldots$] $\ldots$]

The internal structure of the verb consists of two domains. Domain A is the domain under V^{01}. This is the domain in which morphological rules can apply, but syntactic rules cannot. Domain A is thus the domain in which the principle of lexical integrity holds. Domain B is the domain over domain A and immediately under V^{02}. In this domain, lexical integrity does not hold, i.e. both morphological and syntactic rules can apply in domain B. Ishikawa (1999: 338, 2000: 255) illustrates the two domains of rule application as in (76).

(76) $V^0 =$ V^{02}

domain B
(syntactic rules, morphological rules)

... V^{01} ...

domain A
(only morphological rules)

... V^{00} (stem) ...
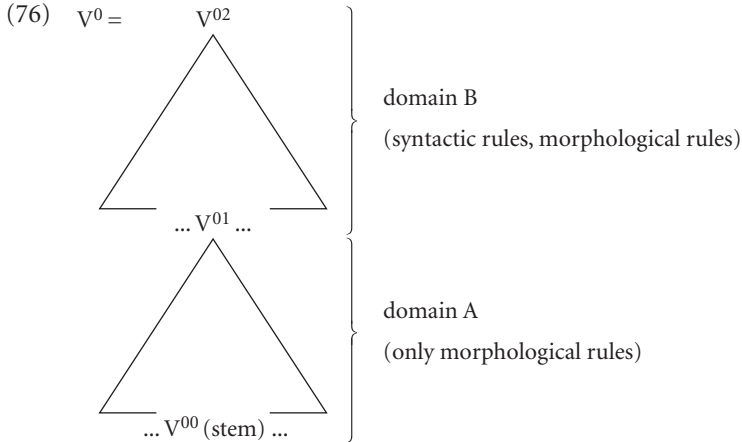
According to this analysis, $V^0 (= V^{02})$ is the output of the lexical component, i.e. the head that enters the syntactic variation. Syntax then has only access to domain B, but not domain A. Affixes that are generated within domain B can therefore be separated from the verb in the syntax, whereas affixes generated within domain A cannot. It follows that the particle has to be generated as sister to V^{01} as indicated in (77), taken from Ishikawa (1999: 339).

(77) Position of the particle within V^0

V^{02}
V^{01} Part
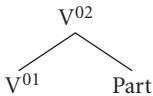
Prefixes are generated as sister to V^{00}, daughter of V^{01} (cf. Ishikawa 2000). The structure given in (78) below shows the possible options for the positions within V^{02}.

(78) The structure of V^{02} (= V^0) according to Ishikawa (1999, 2000)

$V^0 =$ V^{02}
V^{01} Part
prefix V^{00}(stem)
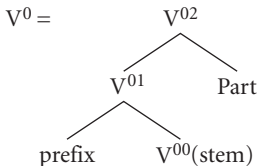
In support of the 2VD analysis, Ishikawa (1999: 339ff.) gives the following two arguments. Firstly, this approach can also account for certain extraction facts in Italian causative constructions. Consider the example in (79) (cited from Ishikawa 1999: 339).

(79) Piero fa   spesso riparare la   macchina (da Giovanni).
      Piero makes often repair   the car   (by Giovanni)
      'Piero has the car often repaired by Giovanni.'

The causative *fa riparare* is argued to be a complex verbal head in the underlying structure (cf. Ishikawa 1999:339 and references given there for details). *Fa* is then subject to a syntactic movement operation that preposes it to the position preceding the time adverbial *spesso*. If *fa riparare* is formed along the lines of (75) through (78) with *fa* in the position that the particle occupies in (77) and (78), then this derivation can be accounted for.

   Secondly, Ishikawa (1999:340f.) argues that the 2VD analysis accounts for the apparent violation of Williams' (1981) *Righthand Head Rule* (RHR) for the case of PV's under the assumption that the RHR, similar to lexical integrity, is only valid within domain A, but not within domain B of the structure. With regard to this assumption, which appears stipulative at first sight, Ishikawa (1999:340) argues that the verb-particle order is determined by a kind of head-complement parameter. Ishikawa suggests that this parameter holds both for the order of a V^0 (= V^{02}) head and its complement and for the V^{01} level of the verb internal structure and its sister, since the latter is equally accessible in the syntax. Ishikawa (1999:340) refers to the corresponding parameter as the *Extended Head Parameter*. Evidence in support of this assumption, Ishikawa argues, comes from the fact that with respect to V-complement order, head final languages such as German and Dutch show the pattern particle-V, whereas head initial languages such as Swedish and English show the order V-particle. From a diachronic point of view, Ishikawa (1999:341) argues, the extended head parameter is further supported by the fact that in English, the change from a head final to a head initial language on the one hand and the change from the particle-V order to the V-particle order on the other hand occurred in almost the same period of Early Middle English. Note that this is in line with what Hiltunen (1983) observes. Hiltunen (1983:114, 144) notes that in Early Middle English, the order V-particle became the standard pattern, with the order particle-V still possible but rare in this period. He observes further (1983:144) that the development of the SVO order, i.e. the change from the SOV to the SVO order, has long been attributed to the development of English from a synthetic to an analytic language which took place in the Middle English Period. Ishikawa concludes from this simultaneous development that the order in which the verb and the particle appear depends on the verb complement order.

Notice that the three-layered V-structure is also covered by Selkirk's (1982:20) *Revised RHR*. The head of the PV is the verb as the rightmost member of the complex V^{02}-structure that contains the feature complex of V. The particle does not contain these features. Obviously, both under Ishikawa's extended head parameter approach and under Selkirk's revised RHR, it follows straightforwardly that affixation cannot be to the particle, but has to be to the verb, since inflectional affixation is to the stem rather than to a V^{02}-element. Therefore, Kayne's (1985:125f.) argument against a complex head approach concerning inflection is rendered untenable. (Remember that he argued that a complex head would be inflected as in (80a), rather than as in (80b).

(80)   a.   *John look up-ed the information.
       b.   John looked up the information.

Let me now turn to the different classes of PV's that Ishikawa distinguishes. For the *pure idiom type*, Ishikawa (1999) assumes the structure given in (77) above as the base structure. The PV is formed in the lexicon as a complex V head with the particle as a sister to V^{01}. The discontinuous order is derived by movement of the verb to a higher functional projection in combination with raising of the object-DP to Spec-VP and stranding of the particle within V^{02}. For the *simple combination type* ($\sim$ semantically compositional PV's, cf. Chapter 1 above), Ishikawa (1999:342) suggests that the particle is base generated as a resultative predicate in the complement position of V^{02} and that it can overtly incorporate as P^0 into V^{02}, its target position then being within domain B of V^{02}, the same position that is the base position of the particle within the idiomatic type. For the simple combination type, the corresponding structures for the discontinuous and the continuous order are given (81) and (82), respectively.

(81)   Discontinuous order according to Ishikawa (1999:342ff., 2000:255; PrP = Predicate Phrase, functional projection)
He threw the ball out
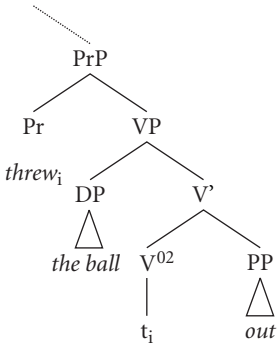
(82)   Continuous order according to Ishikawa (1999:342ff., 2000:255)
He threw out the ball
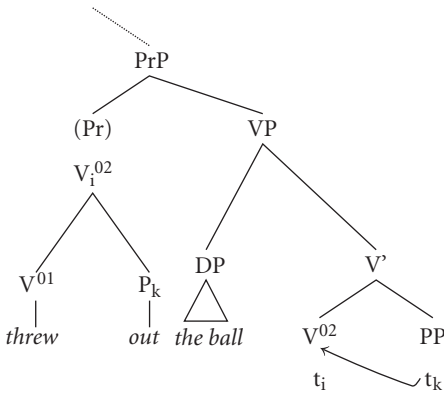
In order to derive the continuous order, illustrated in (82), the particle *out* first overtly incorporates into V^{02}. Subsequently, the complex verb raises to the Pr head. With regard to syntax, PV's of the *hybrid idiom type* behave similarly.[11] The particle is generated in the complement position of V^{02} and can be overtly incorporated as P^0 into V^{02}. I do not want to go into too much detail here about Ishikawa's assumption of particle incorporation. Analyses along the lines of (81) and (82), where the particle is generated as a PP-complement to the verb and incorporated into the verbal head, have been rejected, elsewhere. Recall from Section 2.3.2 above that Olsen (2000) argued convincingly against the incorporation analysis. Moreover, I assume the same syntactic structure for true PV's of all types. However, let us take a closer look at the internal structure

of V^0 and the assumption that V^0 consists of the three levels V^{00}, V^{01}, and V^{02}, plus the assumption that syntactic rules can apply only in domain B, but not in domain A.

I have assumed above that the complex PV enters the syntactic derivation as a complex head. I have further assumed that the particle can be stranded within the VP in order to meet the condition on focus domains (cf. (65) and then (69)) and bind the [+F] feature in the case of a focus feature mismatch within VP as the focus domain (cf. (66) above). Remember that the question I am pursuing here is what happens in the case of simplex and prefix verbs in contexts such as (67), where no particle is available to bind the focus feature. We were in need of an explanation as to what kind of abstract affix can bind the [+F] focus feature in the corresponding structure given in (68) above. We are now in a position to define the nature of this affix. Suppose that Ishikawa is correct in that a verbal head is of the form given in (75) through (78) above, involving different levels which provide positions for affixes and/or particles on the one hand and different domains of syntactic vs. morphological rule application on the other hand. Suppose that we adopt the assumption of the layered V^0-structure for our purposes and assume that elements in the third level of V^0-structure can be separated from the verb as part of the verbal domain in which syntactic rules can apply. Assume further that the structure given in (77) above is the underlying structure for all true PV's in English. The particle is base generated within domain B of V^0, i.e. it's base position is within V^{02} as sister to V^{01}. Given the layered V^0-structure of the kind given in (76) above, this is a natural conclusion, since only this level is accessible for syntactic rules. The particle can be separated from the verbal head by a DP, so that it must clearly be able to undergo syntactic operations. Let me further assume that in principle, the 2VD analysis holds for any verb, not only for PV's. In the case of PV's, verbal particles are generated within domain B, whereas in the case of simplex or prefix verbs, there is an abstract affix holding this position. The corresponding structures are illustrated in (83) through (85) below, where the abstract affix is indicated by $[\emptyset]_{\text{aff}}$. In English, $[\emptyset]_{\text{aff2}}$ is overtly reflected by verbal particles, $[\emptyset]_{\text{aff1}}$ by prefixes.

(83)   Particle verb *(give up)*

$$V^{02}$$

```
            V^{02}
           /      \
        V^{01}    Part
       /     \     up
  [Ø]_aff1   V^{00}
             give
```
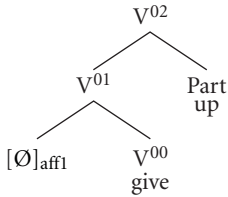
(84)   Prefix verb *(reconsider)*

```
            V^{02}
           /      \
        V^{01}    (Part)
       /     \    [Ø]_aff2
     re-    V^{00}
           consider
```

(85)   Simplex verb *(like)*
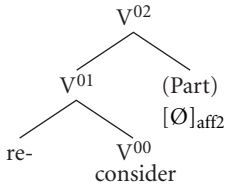
```
            V^{02}
           /      \
        V^{01}    (Part)
       /     \    [Ø]_aff2
  [Ø]_aff1  V^{00}
             like
```
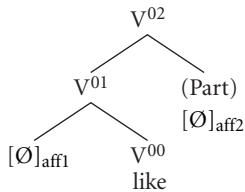
If this assumption is correct then the elements generated in the position sister to V^{01} can serve the function of meeting the condition on focus domains as formulated in (69) above. Both the overt particle and the abstract affix can be stranded under the relevant conditions. In other words, V^{01} moves, leaving the higher layer of the verbal structure stranded in the V-head position. The former case, i.e. the case of the PV, is illustrated in (86), the latter, the case of the simplex V, in (87) below. With regard to accent placement, remember that according to SAAR, every argument outside the focus constituent is unaccented. Following SAAR then, the object DP *the phone* is unaccented in both (86) and (87). In the case of PV's, accent assignment is to the particle marked for [+F] in its base position within the focus domain VP (cf. also the discussion of (66) above). In the case of simplex verbs, accent assignment must be to the verb as the element marked for [+F] (*lost* in (87)), since accent cannot be assigned to phonologically empty elements, hence not to the abstract affix that remains in the VP-internal position sister to V^{01}. A prefix verb such as *reconsider* in (72) above behaves similarly to the simplex verb in (87). The prefix *re-* is within V^{01} and thus cannot be stranded in the syntax, whereas an abstract

affix in the position sister to V^{01} is stranded under the verbal head to bind the focus feature.

(86) DP as a background constituent (discontinuous order); compare (66) above
(What did Nate do with the phone?)
Nate$_m$ $_{vP}$[t$_m$ $_{v'}$[put$_{i\ [+F]}$ $_{AgrOP}$[the phone$_{k\ [-F]}$ $_{AgrO'}$ [t$_i$ $_{VP\ [+F]}$[$_{V02}$[$_{V01}$[t$_{i[+F]}$]
aWAY$_{[+F]}$] $_{DP}$[t$_{k[-F]}$]]]]]]]
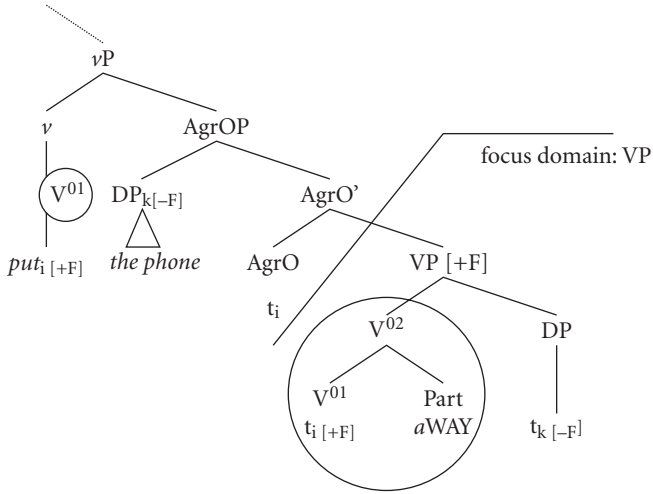
(87)   DP as a background constituent: Simplex verb; compare (68) above
(What did Nate do with the phone?)

He$_m$ $_{vP}$[t$_m$ $_{v'}$ [LOST$_{i\,[+F]}$ $_{AgrOP}$[the phone$_{k\,[-F]}$ $_{AgrO'}$ [t$_i$ $_{VP\,[+F]}$[$_{V02}$[$_{V01}$[t$_{i[+F]}$][$\emptyset$]$_{aff[+F]}$] $_{DP}$[t$_{k[-F]}$]]]]]]]

vP

v   AgrOP

V^{01} DP$_{k[-F]}$ AgrO'   focus domain: VP

LOST$_{i\,[+F]}$ the phone   AgrO   VP [+F]

t$_i$ V^{02} DP

V^{01} [$\emptyset$]$_{aff[+F]}$ t$_{k\,[-F]}$
t$_i$
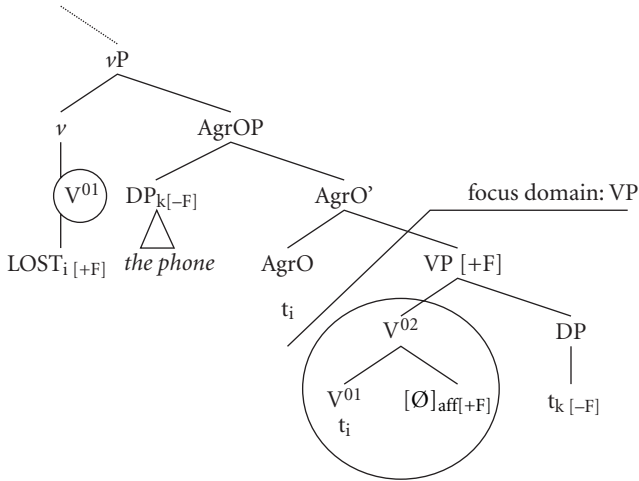
Now that I have outlined my suggestion for a syntactic structure of PV's in English, let me give some general advantages of my approach.

5.2.3.3 *General advantages of the analysis*

The analysis proposed in the previous sections offers the following obvious advantages over earlier suggestions. First, it accounts for the fact outlined in Chapter 3 above that the continuous order is the underlying one and that the discontinuous word order is derived from the underlying continuous alternate. Recall from Section 4.2 that it was one of my arguments against the SC-analysis for PV constructions that the SC analysis suggests that the discontinuous rather than the continuous order is the underlying one. Second, and very importantly, my analysis accounts for the fact that the choice of the word order with PV constructions in English is highly dependent on the information structure of the context in which the PV is embedded. Remember that with the exception of Olsen (1996, 2000), none of the syntactic analyses suggested for PV constructions take into account the focus background structure as a factor that is responsible for the choice of the word order. Note that Olsen (e.g. 1996: 278ff.) mentions the role that focus background structure plays for the word order in PV constructions, but does not map this observation onto the syntactic structure she suggests. Notice also that I do not count Kayne's (1998)

analysis introduced in Section 5.2.2 above as an analysis taking into account the focus structure of the construction. Kayne does not account for the alternating word orders in terms of focus background structure, but he only looks at the one example (given here as (47) and (54) above) involving minimal focus on the object-DP. I have argued at length in Chapter 4 above that the continuous order is chosen in cases where the object-DP is part of the focus of the sentence and that the discontinuous order is preferred if the nominal object provides background information. I believe that since there is this obvious relation between IS and the position of the object-DP with transitive PV's in English and since therefore the choice of the word order with transitive PV's is not optional (contrary to what has often been claimed in the literature), this relation must be mapped onto the syntax, i.e. it must be taken into account in the derivation of the discontinuous order from the underlying continuous one. This is exactly the merit of the structure I have proposed above. Recall from the introductory chapter that other syntactic accounts for PV constructions imply that the choice of the word order is optional, i.e. that movement operations take place optionally and that features are selected from the lexicon in an equally optional way. With regard to the latter, i.e. feature selection, remember that Nicol (1999, 2000, 2002) suggests that the light w head which hosts the particle enters the derivation optionally with either a nominal or a verbal feature and that this feature then determines which of the possible word orders is derived. Similarly, Koizumi (1993) suggests that English has both Ω with a strong and a weak NP-feature and that one or the other can be selected from the lexicon relatively freely. The strength property of this feature then determines the word order of PV constructions. The nominal object raises overtly to a position between the verb and the particle (Spec–ΩP) if Ω hosts a strong NP-feature, but remains in a position following the particle (Spec-AgrOP) if Ω hosts a weak NP-feature. With regard to apparently optional movement operations, Johnson (1991) suggests that the particle can optionally accompany the verb to the μ head or remain in its base position. In Harley & Noyer's (1998) analysis, particle incorporation into the verb is optional. However, evidence from IS and intonation shows that this apparent optionality that has been assumed in the literature is not given. Rather, the word order of transitive PV constructions is chosen according to the focus background structure. From this point of view, my analysis as suggested in the previous sections is highly advantageous over previous analyses proposed in the literature.

Thirdly, my analysis makes use of well-known and common operations, such as the assignment of the focus feature, and the use of the focus domain. We do not need to allow additional, purely stylistic movement operations such

as scrambling, VP-adjunction, right-node-raising, extraposition, etc, or other kinds of movement which Chomsky (1995: 324) summarises as "rearrangements" (cf. Section 5.1.2 above). This means that there is no necessity for making use of any kind of movement that is not grammatically licensed, but exclusively motivated by information structure. Remember that other approaches to mapping IS onto the syntactic structure involve exactly these kinds of movement, in particular scrambling and VP-adjunction for German (Rosengren 1993, 1994, 1995; Steube 1997), but also p(rosodically motivated)-movement for Romance (Zubizaretta 1998). One kind of syntactic operation that is in fact involved in my analysis is excorporation (cf. e.g. Roberts 1991 and subsequent work for a discussion of excorporation). In order to derive the discontinuous order, the verb excorporates out of the complex PV and leaves the particle stranded. However, as has become obvious in Chapter 2 above, excorporation is a common device in many approaches to PV constructions, not only with complex head analyses (cf. Johnson 1991; Koizumi 1993), but also with analyses which assume the verb and the particle to be independent heads in the syntax (cf. e.g. Radford 1997). Moreover, in my analysis I make use of this costly, less economic operation of excorporation only if necessary, namely in the case of a feature mismatch within the focus domain, i.e. in order to avoid a violation of the condition on focus domains as given in (69) above.

Having given these general advantages of the analysis suggested above, I will test the structure against the data in the following section.

5.2.3.4 *Testing the structure*

In this section I want to test the structure against the data and take a look at how my analysis can account for the behaviour of PV constructions in English. The first point under consideration here is modification. No modifier is possible between the verb and the particle in the continuous order (cf.(88)).

(88)   a.   *look *right* up the linguistic term
       b.   *hand *finally* in the dissertation

The ungrammaticality of the examples in (88) follows straightforwardly, since the PV is a complex head in the syntax. Within the derivation of the continuous order, there is no position for an adverbial modifier. The data in (89) and (90) are more tricky to explain. With the discontinuous order, an adverbial modifier is or is not possible, a fact that has already been mentioned in connection with my discussion of Nicol's (1999, 2000, 2002) proposal for a syntactic structure of PV's in Section 2.3.1 above.[12]

(89) a. Dan slept the long afternoon *entirely* away.   (Jackendoff 1997:535)
      b. Please shut the gas *completely* off.   (Jackendoff 2002:71)
      c. Sue threw the paper *quickly* away.   (Jackendoff 1997:536)
      d. He poured the whiskey *slowly* out.   (Radford 1997:436)
      e. He shut the gas *slowly* off.   (Jackendoff 2002:72)
      f. He turned the situation *laboriously* around.   (Jackendoff 2002:72)
      g. Let us set this problem *temporarily* aside. (McIntyre, personal e-mail)

(90) a. *We'll get inside this trunk and take your dresses *quickly* out.
      b. *She took the handout *curiously* up.
      c. *They brought their children *gently* up.
      d. *They called the strike *finally* off.

(91) a. *Holden threw the paper *luckily* away.
      b. *Tom gave the job *however* up.

A possible position for the modifying elements in the examples in (89) is adjunction to VP, an assumption that is in line with Koizumi's (1993) suggestion (cf. the discussion of (17) above). Generating the modifying adverb in this position would account for the fact that the adverbs in (89) do not modify the particle alone, but the whole VP. In (89d), for example, the adverb can be equally placed in a position following the particle (*He poured the whiskey out slowly*). The adverb *slowly* does not modify the particle *out* but the action of the pouring out of the whiskey. Similarly, *quickly* in (89c) refers to the action of the throwing away of the paper, not to *away* alone. On the other hand, the question then remains why modification is not possible in the examples in (90). In particular, this is unclear since with *quickly*, the same kind of manner adverb that is grammatical in (89c) yields ungrammaticality in (90a). It seems then that this is not a question that can be solved in the syntax. Thomas Weskott pointed out to me (p.c.) that since the same type of adverb may be involved both in grammatical and ungrammatical examples, it does not seem to be a question of semantics, either. Certainly, typical sentence adverbs are not allowed in the position preceding the particle (cf. (91)). But with *quickly*, for example, a manner adverb seems to be grammatical in one case, but deviant in another. Moreover, it does not seem to be a question of the degree of semantic transparency/compositionality of the PV that is involved. *Throw away* in (89c) and *take out* in (90a) seem to me to be equally compositional in nature. So what is the point here? How can the ungrammaticality of the examples in (89) and the ungrammaticality of the sentences in (90) be explained? How can we determine when modification with true PV's is possible and when it is not? The position for modification by an adverb is given, but it can only be filled

in some cases, but not in others. I am afraid I cannot solve this problem here, but I believe that the question is independent of my (or any) proposal for a syntactic structure.

Jackendoff (2002:71f.) argues that the particle and the modifying adverb form a constituent in some cases, but not in others. Compare the examples in (92a) and (92b), taken from his article.

(92)   a.   He shut the gas *completely off*, not *partly off*.
       b.   He shut the gas *slowly off*, *not *quickly off*.

In (92a), Jackendoff argues, the fact that the particle and the adverb can be stranded together by ellipsis of the verb and its DP-object indicates that the two elements form a constituent of some kind in the syntax. Since the same constructions yields ungrammaticality in (92b), the adverb and the particle cannot form a constituent in these cases. Jackendoff assumes a flat, ternary VP-structure of the form $_{VP}$[V NP Part(P)]. In his framework, the difference between (92a) and (92b) translates into different syntactic positions of the adverbs involved. *Completely* and *partly* in (92a) are argued to be in specifier position to the particle, whereas *slowly* and *quickly* in (92b) occupy a different position, which is not further specified. However, this does not explain, not even within Jackendoff's proposal of a flat VP-structure, why the examples in (89c) and (d), but not the sentences in (90) are grammatical. Moreover, the question arises which position the adverb in (92b) (and in (89c–e)) occupies. If it is an adverb in VP, then how can it be situated between the NP- and the PP-complement in a flat structure? If movement is involved, e.g. of the verb and the NP-object, then the adverb and the particle necessarily end up as a constituent at surface structure.

Susan Olsen (p.c.) notes that (some of) the examples in (89) are marked (or at least more marked than the ungrammatical examples in (90)) and that therefore the question must be whether the grammar should allow (89), rather than how the ungrammaticality of (90) can be explained. However, the grammar obviously does allow examples like (89), at least in some varieties. One answer to this problem, if not a very attractive one, is that the grammar makes a position for modification available, in my account among others the VP-adjunction position, but that this position may or may not be filled according to the example involved.

Note that German behaves differently with regard to modification. Consider the German counterparts to the English examples in (90), given in (93). In the German V2 examples, where both movement of the verb to the position following the subject and stranding of the particle in the base position are

obligatory for grammatical reasons, a modifying adverb in the position preceding the stranded particle does not yield ungrammaticality. This, however, is not unexpected, since for German it is generally assumed that manner adverbs are generated within VP (cf. Frey & Pittner 1998 among others). For English, the question remains what determines whether an adverb can be inserted or not.

(93) a. English: *We took   the dresses quickly out.
           German: Wir nahmen die Kleider schnell heraus.
      b. English: *She took the handout   curiously up.
           German: Sie   nahm das Thesenpapier neugierig auf.
      c. English: *They brought their children gently   up.
           German: Sie   zogen   ihre Kinder   liebevoll auf.
      d. English: *They called the strike finally   off.
           German: Sie   sagten den Streik schließlich ab.

Another point that I want to take a closer look at is gapping in co-ordinated structures. It has been discussed in the literature that gapping in co-ordinated structures is not possible with the continuous order. Consider once again the examples in (94).

(94) a. *Gary looked up Sam's number, and Mary up my number.
      b. *Turn off the oxygen and on the acetylene.

In my analysis, the ungrammaticality of the sentences in (94) follows straightforwardly from the fact that the particle and the object do not form a constituent at any stage of the derivation in the continuous order. The particle is part of the verbal head, whereas the nominal object is situated in Spec-AgrOP in overt syntax.

With regard to the discontinuous order, we find in the literature, particularly in the SC-literature, that gapping in co-ordinated structures is possible (cf. Section 2.2 above). This is once again illustrated in (95) below.

(95) a. Turn the oxygen off with your knee, and the acetylene on with your elbow.
      b. She sent Mary up to her room and Dora down to the kitchen.
      c. He brought the bag up to the office and the letter down to the porter.

Advocates of the SC-analysis for PV constructions argue in terms of constituency in this context. The DP and the particle, they argue, form a constituent, this constituent is a SC (cf. e.g. den Dikken 1995:43; cf. also Section 2.2 above). However, this line of reasoning would be no problem for my analysis, either. According to the structure I have suggested in (66) above, the DP and

the particle form a constituent in overt syntax, they are within the same AgrOP. The verb undergoes excorporation and raises without being accompanied by the particle. Instead, the particle is stranded in its base position within V^{02}. The nominal object raises to Spec-AgrOP in overt syntax. Consequently, both DP and particle, but not the verb are dominated by AgrOP after the movement operations have taken place.

But notice that this is not the end of the story. As has been observed in Section 2.2 above, this kind of co-ordination is possible only with semantically compositional PV's. Compare the ungrammatical sentences in (96).

(96) a. *He looked the word up and the information up.
      b. *They brought their children up and the cats up.

With these verbs, co-ordination of the kind that worked in (95) yields ungrammaticality. This fact seems to indicate that for co-ordination, constituency of the elements involved might be a necessary, but cannot be a sufficient condition. Otherwise the ungrammaticality of the examples in (96) is unexpected, since both under the assumption that PV's are best represented as SC constructions (which I have rejected) and within extended EVPA accounts such as those suggested by Radford (1997) and by Harley & Noyer (1998) and the one proposed in (66) above, the postverbal DP and the particle form a constituent of the same kind as in the grammatical counterparts in (95). Apparently, a different kind of explanation is thus needed. I want to propose that co-ordination is possible in cases where it is not a true PV that is involved, but where we are concerned with a V+adverb structure. We know of the ambiguity between PV and V+adverb constructions in general. I have outlined in Section 2.3.2 the line of reasoning put forward by Olsen (2000) with regard to the difference between the two structures. Remember that Olsen argues along the lines of modification by *right* and the scope of the modifier. Bearing this in mind, consider the examples in (97) and (98) below. There is a difference in meaning between the (a) and the (b) examples, respectively.

(97) a. She sent Mary *right* up to her room and Dora *straight* down to the kitchen.
      b. *She sent Mary up *right* to her room and Dora down *straight* to the kitchen.

(98) a. He brought the bag *right* up to the office and the letter *straight* down to the porter.
      b. *He brought the bag up *right* to the office and the letter down *straight* to the porter.

In (97a), *right* modifies the upward movement which is to the room, *straight* modifies the downward movement which is to the kitchen. In these examples, *up* and *down* function as prepositions, projecting a complex PP as complement to the simplex verb. (98a) behaves correspondingly. Gapping in these co-ordinated structures is possible. I give the structure I assume for (97a) in (99) below for illustration.

(99) Gapping in co-ordinated structures: V+adverb structure

```
                        vP
                       /  \
                 t_Subj    v'
                          /  \
                         v    AgrOP
                      sent_i   /   \
                       AgrOP       AgrOP
                      /   \    and  /   \
                   DP_k   AgrO'   DP_1   AgrO'
                   /\     /  \    /\     /  \
                 Mary  AgrO  VP  Dora  AgrO  VP
                        |   /  \        |   /  \
                        t_i t_k  V'     t_i t_1  V'
                               /  \           /   \
                              V    PP        V     PP
                              |    /\        |     /\
                             t_i  right up  t_i  straight
                                  to her room    down to
                                                 the kitchen
```
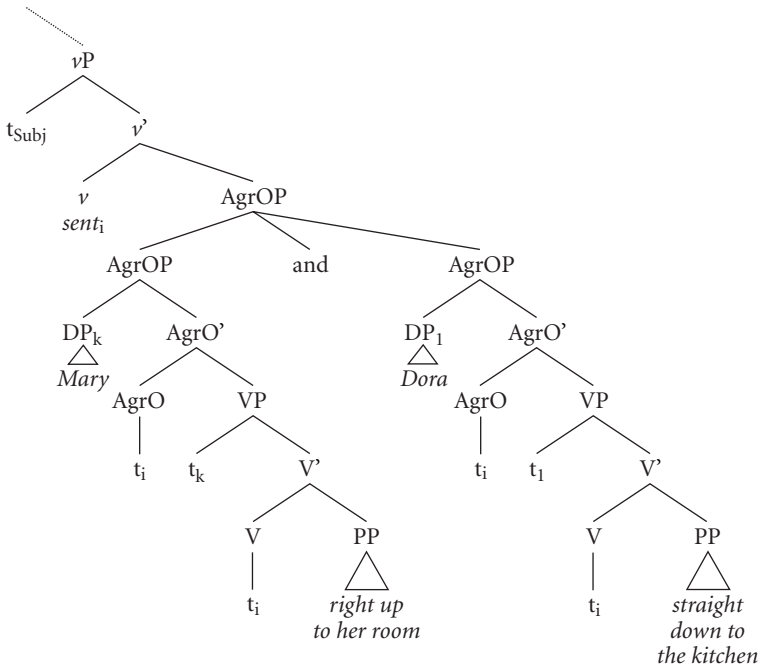
However, the (b) examples are different. In (97b), the PP *right to her room* modifies the complex PV *sent up* in the sense that *Mary* is sent up "directly to her room" as opposed to "directly up". Similarly, *straight to the kitchen* modifies the complex PV *sent down*. The question remains why co-ordination in these cases is not possible, since the postverbal DP and the particle are within the same projection (AgrOP) in overt syntax. I assume that this must have to do with the quasi-affixal status of the particle which is in fact a free morpheme, but can apparently not act independently in all syntactic surroundings. In (more) idiomatic PV constructions (cf. (96)), this kind of co-ordination is completely impossible, since there is no such ambiguity between true PV's on the one hand and V+adverb constructions on the other hand. Co-ordination is only possible

in the examples involving V+adverb constructions, but not PV constructions (cf. in particular (97) and (98) and the corresponding structure in (99)). Since particles in idiomatic PV constructions such as the examples given in (96) cannot be interpreted as (directional) adverbs, and since co-ordination is not possible with true PV constructions (cf. also the (b)-examples in (97) and (98)), the sentences involving co-operation in (96) are ruled out.

As a third point besides modification and gapping in co-ordinated structures let me consider the fact that the discontinuous order is possible with nominal objects, but not with prepositional or clausal objects. Consider the examples in (100) and (101).

(100)   PP-complement (examples taken from Johnson 1991:594):
     a.   Mikey teamed up with the women.
     b.   *Mikey teamed with the women up.
     c.   Betsy narrowed in on the problem.
     d.   *Betsy narrowed on the problem in.

(101)   CP-complement (examples taken from Johnson 1991:594):
     a.   Mikey pointed out that Gary had left.
     b.   *Mikey pointed that Gary had left out.

The ungrammaticality of the examples in (100) and (101) in which the particle follows the complement follows from the fact that only nominal objects but not prepositional or clausal objects raise to the specifier of an AgrO-projection for case reasons. The derivation of (100a) and (101a) is given in (102). The object remains in its base position, thus the structures in (100b) and (101b) cannot be derived.

(102)   PV with PP-/CP-complement
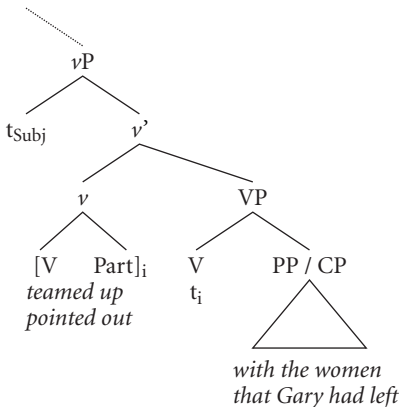
Note that in cases, where the object is part of the background of the sentence, the particle must be stranded in the VP which is the focus domain in order to bind the [+F] feature and thus meet the condition on focus domains. The accent assignment rule sees the positive feature on the particle and places the focal accent on the particle. This assumption about accent placement has been verified by the second experiment on intonation, where sentence type B, which involved PP-complements, displayed accent placement on the particle in the case of the discontinuous order. The corresponding syntactic structure is given in (103).

(103)   PP-/CP-complement as a background constituent
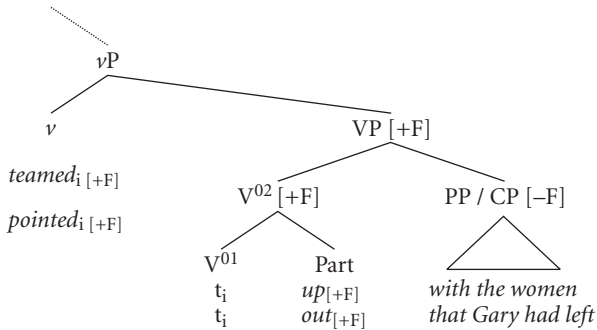
There seems to be no syntactic device to move the PP/CP marked for [−F] out of the focus domain VP.[13] Note that this point provides an argument against my earlier analysis as suggested in Dehé (2000b) and given in (2) above: if the mismatch of the focus feature specifications within the focus domain were the only motivation for the preposing of the [−F] constituent and if the pure aim of this movement was for the [−F] constituent to leave the focus domain, in other words, if the preposing of the object was completely independent of grammatical (case) reasons, then the ungrammaticality of the answer sentence A2 in (104) below would be unexpected. It should then be possible to prepose background constituents irrespective of their syntactic category. The target position of the CP/PP-raising could equally be VP-adjunction. However, A2 in (104) is ungrammatical.

(104)   (What did Mikey do with the women?)
   A1:   He teamed UP with them.
   A2:   *He$_i$ $_{vP}$[t$_i$ teamed$_k$ $_{VP}$[with them$_m$ $_{VP}$[t$_k$ UP $_{PP}$[t$_m$]]]]

So far, I have only considered full DP's as nominal objects within PV constructions. In the next sections, I will consider the case of pronominal objects.

5.2.3.5 *Pronominal objects*

It is well-known and has been repeatedly mentioned in the course of the discussion that unstressed, non-focused pronouns occur obligatorily between the verb and the particle (cf. (105) and (106)), but that pronouns are allowed in the continuous order if they are focused (107).

(105) a. Holden knows this term.
           He looked *it* up.   vs. *He looked up it.
       b. Tom likes Jane.
           He took *her* out, tonight. vs. *He took out her, tonight.

(106) If Marilyn Monroe walked into Weight Watchers today, no one would bat an eye. They'd sign *her* up.

<div align="right">(National Geographic Magazine 01/2000: 116)</div>

(107) The school board contemplated throwing out Spanish in order to throw out *ME*.   (Bolinger 1971:39)

I have argued in Chapter 4 above that pronouns are a typical case of nominal objects as background constituents and that therefore, it follows straightforwardly that they occur in the discontinuous order. The fact that pronouns most typically refer to a well-known entity, namely to a nominal constituent that has been present (explicitly or implicitly) in the preceding context, has long been observed (cf. e.g. Postal 1969:201).[14] I have argued that since pronouns are typical background constituents they appear between the verb and the particle in the unmarked cases. Before I proceed, let me add a few remarks on the categorial status of pronouns. Postal (1969:203) argues that "the so-called pronouns *I*, *our*, *they*, etc, are really *articles*, in fact types of *definite* articles". This view has been adapted and further developed in the literature and has led to the assumption that pronouns have the categorial status of determiners (cf. Abney 1987:178ff. among others). Abney argues that pronouns are determiners rather than nouns since they cannot occur with any specifying elements that typically appear with nouns (determiners, adjectives, etc). They do not occur in typical noun positions, such as the position following an article (**the she* in the meaning of *the female person*). Furthermore, Abney argues that both pronouns and determiners incorporate the grammatical features of noun phrases such as the φ-features (person, number, gender) and case. Typically, pronouns appear as intransitive determiners (*We like syntax*), but they can also be used transitively (*We linguists like syntax*).

It has further been argued in the literature, that object pronouns are clitics (cf. e.g. Kayne 1991 and Uriagereka 1995 for Romance). A clitic can be

regarded as a bound morpheme in that it needs to attach to a host, which can be a (fully inflected) word or phrase. The French and Italian examples in (108) through (110) are taken from Kayne (1991:648, 658, 661). The examples in (108a) and (109) show that in French, clitics come as proclitics. They precede their hosts, which is the embedded infinitive *parler* in (108a), the auxiliary *a* in (109). In Italian, object clitics occur as enclitics. They adjoin to the right of their host element, the embedded infinitive *parlar* in (108b), the infinitival form *dar-* in (110).

(108) a. *Lui*   parler   serait   une erreur   (French)
           him_{DAT} to.speak would.be an error

       b. *Parlargli*   sarebbe   un errore   (Italian)
           to.speak.him_{DAT} would.be an error

(109) Marie *nous*   a parlé.   (French)
       Marie us_{DAT} has spoken

(110) Gianni vuole *darceli.*   (Italian)
       Gianni wants to.give.*us*_{DAT}.*them*

Chomsky (1995:338) notes that "[i]f English-type pronouns are simple, they too must cliticize [...]" to an appropriate host. The relevant pronouns are phonologically weak, i.e. they are unstressed and appear in a phonologically reduced form. The fact that personal pronouns in English are phonologically weak has also been indicated by Ladd (1996:180). Thus, *She heard it* is distinct from *She heard a football* in that the accent is placed on the nominal object in the latter, but not the former case, since the pronoun is typically unaccented. Accent on a pronoun, Ladd (1996:226) argues, clearly conveys narrow focus. Thus, the interpretation of (111), where the pronoun appears in object position to the preposition *for*, depends on accent placement. The sentence can be pronounced with either the pronoun or the preposition accented. In the unmarked case, the pronoun occurs unaccented, and the accent is on the preposition *for*, as indicated in (111b). If the accent is on *him* (111a), the only possible interpretation is *I did it for him and not for someone else*, with narrow focus (contrastive focus) on the pronoun. If the pronoun occurs in the unmarked, i.e. unstressed variant, Ladd (1996:227) argues, it is likely to occur in a phonologically reduced form (*'im* or *'m* as in *for'im*), but the pronoun occurs in its full phonological form only if it is stressed, i.e. focused.

(111) a. I did it for HIM.
       b. I did it FOR him.

Also for English, Uriagereka (1998:219) provides the example given in (112). He argues that the pronoun *it* in (112a) will usually be pronounced as in (112b), indicating that it cliticises to the verb as illustrated in (112c).

(112)   a.   I like *it*.
        b.   I *like't*.
        c.

```
                    Verb
                   /    \
              verb     Pronoun
           like + 't       t(it)
```
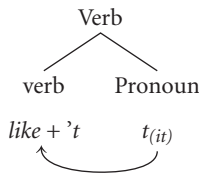
Keeping in mind that simple object pronouns are (1) of the category D and (2) are phonologically weak and cliticise to an appropriate head, let me return to the case of PV constructions with pronominal objects as given in (105) through (107) above. For the purpose of illustration, let me first consider the example in (106) in some more detail. The sentence in which the relevant pronoun *her* occurs (*They would sign her up*) is a case of minimal focus on the predicate (P) in Gussenhoven's sense, i.e. on the verb *sign up* which provides new information. The subject pronoun *they* refers to *Weight Watchers* mentioned in the immediately preceding sentence. Similarly, the object pronoun *her* refers to a person who has been explicitly mentioned before, namely *Marilyn Monroe*. Since *her* occurs in the unstressed (non-focused) use, the sentence is likely to be pronounced something like *They would sign'er up.* We would therefore assume, following the suggestions about pronouns made in the literature and outlined above, that *her* cliticises to the verb. The question now is, in what way exactly the syntactic structure is derived. Note that if overt object movement is for case reasons, then pronoun movement must be equally overt. With regard to case features, pronouns and full DP's differ in that pronouns are inherently marked for case, whereas nouns are optionally assigned their case features (i.e. the case feature is optionally specified as the noun enters the numeration; cf. Section 5.1.1 above). However, as a formal feature, the case feature of the pronoun must be checked against the case assigning feature of the verb ([assign accusative case]) in the case of the examples involving objective pronouns. Radford (1997:480) assumes that weak object pronouns check their case by adjoining directly to AgrO, which would mean that full objective DP's and weak objective pronouns check their cases in different ways. Full DP's raise to Spec-AgrOP to check their case in a Spec-head relation against the case assigning features of the verb, whereas objective pronouns check their case by adjoining

to the complex head $_{AgrO}$[V AgrO]. The pronoun, since it is a clitic and thus a bound morpheme, would then have to accompany the verbal head to the upper position. However, since pronouns have been analysed as DP's of the form $_{DP}$[D] in the literature (cf. e.g. Abney 1987: 180), we could also assume that the pronoun moves to Spec-AgrOP to check its case features and that the D head cliticises to the verb, subsequently. The syntactic structure of the example in (106) would thus be derived as in (113). Remember that the VP is the focus domain and that the particle is therefore stranded in its base position in order to meet the condition on focus domains by binding the focus feature.

(113)   They would sign her up.

vP

v AgrOP

V^{01} DP$_k$ [–F]   AgrO'

D   AgrO   VP [+F]   focus domain: VP

$sign_{i [+F]}$ + her_k t_k (her) t_i

pronoun-cliticisation

V^{02} DP

V_{01} Part $t_{k [–F]}$
$t_{i [+F]}$ *up*
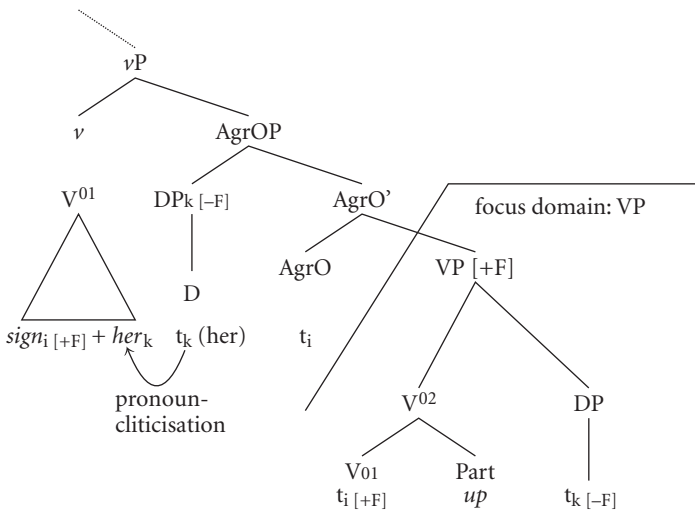
The pronoun raises from its underlying position as complement to the verb to Spec-AgrOP in order to check its case feature against the [assign accusative case] feature of the verb which moves to AgrO and on to v. The particle is stranded in the base position where it binds the [+F] focus feature according to the condition on focus domains. Since the pronoun is in its weak form, it cliticises to the verb. Note that cliticisation must be to the V^{01}-level of the verbal structure, since the particle, i.e. the V^{02}-level, is stranded in the base position.

Now consider the example in (107) (*The school board contemplated throwing out Spanish in order to throw out ME*). It is obvious that the pronoun *me* is under focus here, just like the pronoun *him* in (111a) is focused. The complex verb (*to throw out*) is part of the background information. The pronoun occurs in its full phonological form and is thus not cliticised to the verb. Consequently, we could argue that the derivation of the corresponding syntactic

structure follows the pattern in (62) above (minimal focus on the object DP). The complex verb raises to the functional domain. There is no need to strand the particle since the PV is not part of the focus domain. Accent placement is on the pronoun since the accent assignment rule sees the [+F] focus feature on the pronoun. The only possible interpretation is narrow focus on the pronoun, as is indicated by the contrast between *Spanish* and *me*.

5.2.3.6 *Pronominal Objects: The case of minimal focus on the subject*

So far, we have only considered cases of maximal focus, non-minimal focus on the VP, minimal focus on the DP and the case of the DP as a background constituent. In this section, I want to take a brief look at sentences where the minimal focus is on the subject. I have argued in the course of the discussion that my analysis can account for the obligatory position of unstressed pronouns between the verb and the particle in terms of their status as typical background constituents and I have proposed an analysis for sentences involving pronominal objects in the previous section. In addition to the normal object movement to the AgrO-projection, they cliticise to the verb due to their status as phonologically weak elements. In the case of (106)/(113) above, the pronoun surfaces between the verb and the particle because the particle (i.e. the V^{02}-level of the verb) is stranded in its base position in order to bind the focus feature. The pronoun cliticises to the V^{01}-level of the moved verb in the *v*-head position. But now consider the examples in (114) through (116) below.

(114)   Q: Who looked up this term?
  a.   A1: HOLden looked up the term.
  b.   A2: ??HOLden looked the term up.

(115)   Q: Who looked up this term?
  a.   A1: HOLden looked it up.
  b.   A2: *HOLden looked up it.

(116)   Q: Who took out Jane?
  a.   A1: TOM took her out.
  b.   A2: *TOM took out her.

As opposed to the case of (106)/(113) above, the complex verb is not part of the focus here. Therefore, there is no need for the particle to be stranded in the base position. Instead, the complex PV raises to the *v* position. In cases where a full DP is used in object position, we expect the continuous order, since there is no necessity of separating the verb and the particle (cf. (114)). With regard to the VP, the syntactic derivation is the same as in the case of maximal focus (cf.

(60) above). Movement of the complex PV is to *v* via AgrO, the object raises to Spec-AgrOP. The difference is that the focus domain is not the whole sentence, but is restricted to the subject. The VP is thus marked for [–F]. The focal accent falls on the subject noun (*HOLden* in (114a)). However, if the object is pronominal, the discontinuous order is obligatory, as is illustrated in (115) and (116). This is odd at first sight, since I have argued above that the derivation of the discontinuous order is triggered by the requirement of the focus feature on the VP to be bound by an appropriate affix. In the cases of (115) and (116), the VP is not marked for [+F], suggesting that the discontinuous order need not be derived. Let me illustrate how the requirement for the unstressed pronoun to occur in the discontinuous order can still be accounted for. In fact, the explanation for the grammaticality of the (a) but not the (b) examples of (115) and (116) follows straightforwardly from what was said in the discussion of (106)/(113) above with regard to cliticisation facts. I will first give the tree diagram for the sentence in (116a), and will then explain the steps involved. The example in (115) behaves accordingly. Consider (117).

(117)   TOM took her out.

AgrSP

DP$_{i\,[+F]}$ AgrS'

TOM   AgrS   TP

T vP

DP v'

t$_{i[+F]}$

v AgrOP

V$^{02}{}_x$ DP$_m$ AgrO'

t$_{(her)}$

V^{01} Part *out*   AgrO t$_x$ VP$_{[-F]}$

took + her$_m$ V$^{02}{}_{[-F]}$ t$_x$ DP$_{[-F]}$ t$_m$

pronoun-
cliticisation
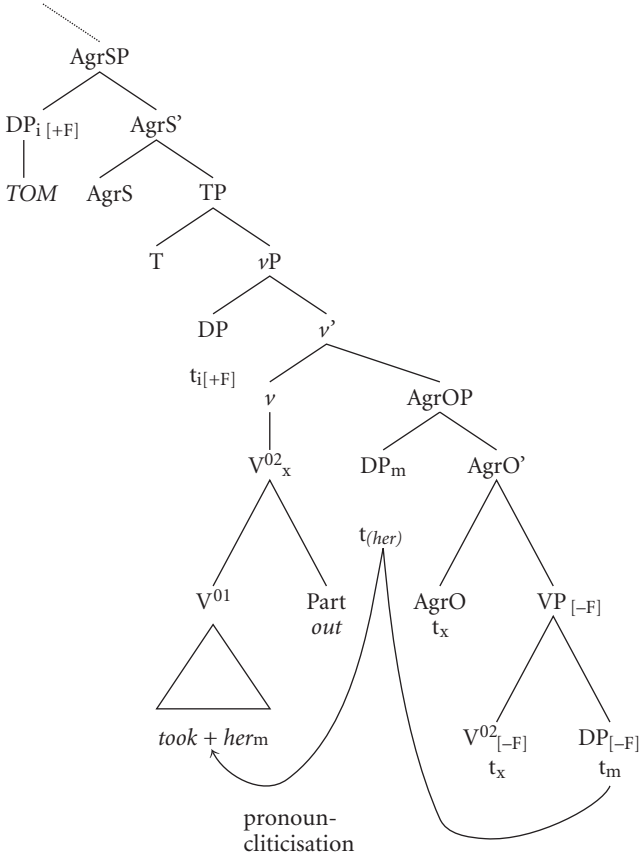
Overt subject movement is to Spec-AgrSP (cf. Section 5.1.1 above). The subject is marked for [+F] according to the discourse situation, i.e. according to the wh-question (*Who*...?) which focuses the subject. The complex PV raises via AgrO to v, since there is no need for the particle to be stranded in the base V position. The pronominal object moves to Spec-AgrOP for case checking reasons. The pronoun then cliticises to the verb. The pronunciation is something like *Tom took'er out*. It follows from the derivation in (113) above that cliticisation must be to V^{01}. If cliticisation were to V^{02}, then the pronoun could not cliticise to the verb in the cases where the particle – and with it the V^{02}-level of the verbal structure – is stranded in its base V position. Under the obviously following assumption that cliticisation of the pronoun to the verb is to the V^{01}-level, we can easily account for the fact that the unstressed pronoun is obligatorily placed between the verb and the particle not only in cases where

the particle is stranded in VP in order to bind the focus feature and meet the condition on focus domains (cf. (113)), but also in cases where the complex PV raises to the upper *v* head (117).

Remember that I have cited Chomsky (1995: 338) above who mentions that "[i]f English-type pronouns are simple, they too must cliticize [...]". Chomsky (ibid.) further notes that "[t]he barrier to such structures as *I picked up it* might follow". It is obvious from my discussion that this barrier does indeed follow. The ungrammaticality of structures such as *I picked up it* and *Tom took out her* is a direct consequence of the layered V-structure and of the fact that pronouns cliticise to the V^{01}-level of the verbal structure.

Note that cliticisation of the pronoun to the V^{01}- but not the V^{02}-level of the verb is no problem for the complex head analysis of PV's. The V^{01}-level is an autonomous level with regard to syntax. Cliticisation is to the fully inflected form, since inflection is also to V^{01}. Finally, notice that from the fact that pronoun cliticisation is to V^{01} it does not follow that particle modification should also be possible in the continuous order. The relevant modifying elements such as *right* and *straight* or other adverbs do not cliticise to the PV. Adverb adjunction within the complex PV to a position between the verb and the particle is not allowed.

5.3 Conclusion

In this chapter, I have developed a syntactic structure for PV's in English that accounts for the fact that the choice of the word order and thus the derivation of the corresponding structure is highly influenced by the information structure of the context in which the construction occurs. The structure suggested here follows the assumption that both verb and object movement are overt in English for grammatical reasons. In PV constructions, the verb and the particle undergo the regular syntactic movement operations as a complex head whenever possible, i.e. in the cases of maximal focus, intermediate focus, minimal focus on the object-DP, and minimal focus on the subject-DP. Only if the nominal object but not the PV are part of the background of the sentence can the complex verb be separated. Separation of the verb and the particle results in the discontinuous order. The particle is then stranded in its base V position within the VP as the focus domain in order to bind the [+F] focus feature and to meet the condition on focus domains. This condition holds that within a focus domain, a [+F] focus feature must be bound by an appropriate element iff there is a mismatch with regard to focus features (cf. (69)).

Stranding of the particle leaves the nominal object in a position between the verb and the particle. The structure suggested here can easily account for the fact that unstressed pronominal objects occur obligatorily in the discontinuous order, whereas they are allowed in the position following the particle if they are stressed, i.e. focused.

Notes

1. A *Numeration* (N) is "a set of pairs (LI, *i*), where LI is an item of the lexicon and *i* is its index, understood to be the number of times that LI is selected" (Chomsky 1995:225). The computational process (C_{HL}) maps N to a linguistic expression. The operation *Select*, a procedure of C_{HL}, selects a lexical item LI from N and introduces it into the derivation as a syntactic object. A second procedure, *Merge*, combines syntactic objects. "A derivation converges only if this operation has applied often enough to leave us with just a single object, also exhausting the initial numeration" (Chomsky 1995:226). In the numeration, formal features are specified, either by the lexical entry, as in the case of intrinsic features, or by the operation that forms the numeration, as in the case of optional features (cf. Chomsky 1995:237f.).

2. I do not differentiate here between N-feature (also NP-feature) and D-feature (also DP-feature) as the categorial feature related to nominal elements. According to Chomsky (1995:233), the difference between D-features and N-features translates into the following variants of the EPP: (1) a DP is required as IP-Spec, (2) a NP is required, (3) a nominal category, whether NP or DP, is required. Not differentiating between the two features, I intend to remain neutral with regard to these choices. For more discussion on this question cf. Chomsky (1995:340ff., 349ff.).

3. Chomsky (1995:315f., 352) follows Hale and Keyser (1993) in their assumption that intransitive (unergative) verbs are hidden transitives. Under this assumption, only unaccusatives lacking agentive subjects would be simple VP structures, all other verbs would be represented by the VP-shell-analysis.

4. Note that Chomsky (1995:353) argues that overt object movement does not seem to provide compelling reason for the existence of AgrO. Alternatively, he suggests, an outer VP-Spec-position could be constructed to which the object raises.

5. Notice that I have rejected the SC-concept for PV constructions in Chapter 2 above. Remember that my argumentation against a SC-analysis for PV constructions was based on systematic differences in the syntactic behaviour of true SC's on the one hand and PV constructions on the other hand. The example in (21) is a case of a true SC. There is a predicate-argument relation between *guilty* and *Smith* which can be paraphrased e.g. by a full CP (*The Assistant DA will prove that Smith is guilty*). The SC [*Smith guilty*] is a constituent and as such is internal argument to the verb *prove* (*The Assistant DA proved it*). Within the SC, *Smith* is θ-marked by *guilty*.

6. Lasnik considers ellipsis an operation involving a PF deletion process (cf. also e.g. Chomsky 1995:125f.), but is aware that this analysis is not uncontroversial. He notes that "[i]n fact, it is quite widely rejected in favour of an LF copying theory". Cf. Lasnik (1999b:200f.) for discussion.

7. In Lasnik (1999a:161) this strong feature driving V-raising is suggested to be a θ-feature of V, given the assumption that the subject is base-generated in the specifier of the higher VP. However, it is not clear to me, how the subject can be θ-marked by the verb in this position in elliptical constructions if the feature that is responsible does not raise to the upper V head but is deleted. It is obvious, though, that the subject must be assigned its θ-role, since otherwise the derivation would crash for θ-reasons. Also, if the verb features do not raise to AgrO, then how can the accusative case of the object be checked? There is one more thing I would like to add, concerning the strong θ-feature of V. As just mentioned, Lasnik (1999a:161) assumes that the strong θ-feature driving V-movement is "a feature of the V that raises (rather than of the position it raises to)". Given that the subject is base-generated in the specifier of the higher VP, the corresponding θ-feature must be assigned by V1 adjoined to the upper V2 head, forming the complex head $_{V2}$[V1 V2]. But note that Chomsky (1995:313) argues that θ-relatedness is a "base-property" in that "a raised element cannot receive or assign a θ-role". However, if the raised V assigns the θ-feature in Lasnik's framework, then either Chomsky's assumption about θ-relatedness as a base-property, or Lasnik's assumption about the strong θ-feature being a property of the V that raises cannot be correct. In either case, the external θ-role is related to the upper V, be it intrinsically, or by V-adjunction.

8. Haider & Rosengren (1998) argue that the correlation between the language type (SOV vs. SVO) and the occurrence or non-occurrence of scrambling is due to the VP-internal structure. They note that a head-initial VP is a more complex structure than a head-final one. The SOV-language has a single head position at the foot of the projection, whereas they assume a VP-shell-analyses for SVO-languages with more than one head position within the VP and overt movement of the verbal head from the lower to the upper V head (or V to v). I refer the reader to Haider and Rosengren (1998:44ff.) for a detailed discussion.

9. As has become obvious in Chapter 2 above, the question of whether PV's are heads or phrases in the syntax has been controversially discussed in the literature and has not been settled, yet. Some of the arguments that have been provided in support of either hypothesis have been mentioned above. Among the suggestions that favour the complex head approach but that have been neglected so far are Neeleman (1994), Neeleman and Weerman (1995) and van Marle (2002) for Dutch, Stiebels & Wunderlich (1996), Härtl & Witt (1998), and Witt (1998) for German, and Ishikawa (1999) for purely idiomatic PV's. The topic has also been discussed in research on language acquisition (cf. Hyams, Johnson & Schaeffer 1993 for the assumption that the acquisition data favour the complex head analysis over the SC analysis, cf. Bennis et al. 1995 for the opposite assumption). Cf. Zeller (2002) for the suggestion that PV's can appear either as complex V^0 heads of the form $_V$[V Part] or alternatively as V'- or VP-nodes consisting of the verb and a phrasal particle complement. I have rejected the SC analysis for PV constructions and the assumption that the verbal particle functions as a predicate taking the postverbal DP as an argument of some kind (external or internal) in Section 2.2. EVPA's that favour the assumption that the PV is not a complex heads but two

independent heads in the syntax need to incorporate the particle into the verb at some stage of the derivation (Radford 1997; Harley & Noyer 1998). Olsen (2000) has argued convincingly against this operation (cf. Section 2.3.2 above). Another option has been to generate the particle as a functional category (Solà 1996; Dehé 1997, 2000a), an assumption which I have rejected in Section 2.4. For the sake of discussion let me assume that the PV is a complex head in the syntax and keep in mind that the central aim of my discussion is to map evidence from IS onto the syntactic structure.

10. Ishikawa (2000) accounts for the co-occurrence restriction on particles and prefixes in examples such as those in (73) in terms of the historical development of the two categories, their functions and distribution, from OE on. I refer the reader to his article for details.

11. Within PV's of the *hybrid idiom type*, particles lose their own meaning, but change the selectional properties of the verb (e.g. *look up* in *look up the information*; cf. Ishikawa 1999:330ff. and Chapter 1 above).

12. The examples in (90) and (91) have been repeatedly judged by a number of native speakers of English. I will have to rely on their judgements, here. In general, judgements of PV constructions in combination with modification often turn out to be rather diverse and might vary from speaker to speaker, a fact which makes it even more difficult to use the corresponding examples in order to test a syntactic structure.

13. Thomas Weskott (p.c.) mentioned to me that the PP-object in this context might not be a real background constituent, since it cannot be questioned (**Mikey teamed up who/what?*). It is rather the DP within the PP that can be questioned (*Mikey teamed up with whom?*). However, we can substitute the CP-complement for a wh-word (*Mikey pointed out what?*).

14. Note that Reinhart (1991:535) mentions two basic uses of (third person) pronouns, which are illustrated in (1) through (3) below.

(1)   He is very original.
(2)   Felix$_i$ is convinced that he$_i$ is very original.
(3)   Every writer$_i$ is convinced that he$_i$ is very original.

In the uses in (1) and (2), the pronoun *he* refers to some person or object in the world that can be inferred either from the situational context (1) or from the linguistic context (2). In (3), the value of the pronoun is not fixed, but depends on the choice of value for the antecedent. In the present discussion, I will be concerned with the first type (cf. examples (105) and (106) above). Note that in both uses mentioned by Reinhart, the pronoun does not have independent reference, but depends in its interpretation on another entity that takes part in the discourse.

Conclusion and outlook

In this study on transitive particle verb constructions in English, main emphasis has been put on the alternation between the continuous word order, repeated here in (1) below, and the discontinuous construction, given in (2).

(1) Continuous order
  a. I *gave up* my job.
  b. I *turned down* the radio.
  c. I *finished off* my thesis.

(2) Discontinuous order
  a. I *gave* my job *up*.
  b. I *turned* the radio *down*.
  c. I *finished* my thesis *off*.

I have shown that the continuous order is the underlying order from which the discontinuous alternate must be derived (Chapter 3). Evidence came both from previous studies on the topic and a speech production experiment I carried out and have reported on. I have further argued in some detail that the choice of the word order is highly influenced by the information structure of the context in which the PV construction is embedded (Chapter 4). If the object is a full DP, the continuous order is chosen in cases where the nominal object (*my job*, *the radio*, *my thesis* in (1)) is part of the focus domain of the sentence, whereas the discontinuous order is preferred in cases where the nominal object is part of the background information, but where the complex verb belongs to the focus. Evidence in Chapter 4 came both from empirical data and descriptive observations as well as from two experimental studies on intonation patterns of PV's in English. Following these results, I developed a syntactic structure for PV's in English in Chapter 5, after having given a survey and discussion of prior syntactic analyses of the construction at the beginning of the study (Chapter 2). Within my own proposal, the focus feature plays a role in the derivation of the discontinuous order, in particular. The feature is assigned to the relevant syntactic category. Syntactic elements that are dominated by the focus feature in their base position belong to the focus domain. According to the *Condition*

on Focus Domains which I suggested in Chapter 5, traces remaining within the same focus domain after the relevant overt movement operations induced by grammatical requirements are not allowed to occur with contrasting focus feature specifications. If there is a mismatch with regard to the focus feature specification, the [+F] focus feature must be bound by some kind of verbal affix. In the case of PV's, the particle can serve the function of this verbal affix and binds the [+F] focus feature in the relevant cases. The particle is then stranded in its base position within the VP, thus triggering the derivation of the discontinuous PV construction. From this analysis, it follows straightforwardly that unstressed pronouns occur in the discontinuous order, obligatorily, but that focused pronouns can occur in the discontinuous construction.

I believe that my syntactic analysis of PV constructions is more advantageous than prior suggestions for a number of reasons that I outlined in Chapter 5. The most obvious and important of these factors is that the structure suggested in Chapter 5 can account for the fact that the choice of the word order is not optional, but is driven by the context situation, as was outlined at length in Chapter 4.

There are some points that remain open but need to be mentioned. Firstly, it remains to be seen to what extent the analysis suggested here can be applied to constructions other than transitive PV's which undergo some kind of word order alternation that might be influenced by the context situation in which the relevant construction occurs. This is certainly true for more complex PV constructions. Another obvious candidate is the double object construction of the form *He gave a book to Mary* vs. *He gave Mary a book*. It will be an interesting question to pursue whether the choice of one order over the other is made according to the information structure of the given context and whether and in what way the influence that pragmatic factors have can be encoded in the syntactic structure. Moreover, double object constructions such as those given in (3) below almost certainly display pronoun cliticisation. The unstressed pronominal object *it* is not allowed in the position following the full DP in (3d), but has to precede the indirect object as in (3b). One explanation could be that the pronoun cliticises to the verb *gave* in overt syntax, yielding a complex head of the form $_V$[V Pronoun]. The corresponding pronunciation would be something like *He gave't to Mary*.

(3)   a.   He gave the book to Mary.
     b.   He gave it to Mary.
     c.   He gave Mary the book.
     d.   *He gave Mary it.

Secondly, in discussions of my work it has been mentioned as a challenge to my analysis that PV constructions behave differently in languages such as the Scandinavian languages on the one hand, and German on the other hand, where the facts that have been observed with regard to the syntactic behaviour of PV's seem to contradict the conclusions drawn in the previous chapters. In V2 languages such as German, the verb is obligatorily separated from the particle in main clauses for grammatical reasons (cf. (4a)), but the verb and the particle appear adjacent in subordinate clauses (cf. (4b)). Stranding of the particle in German can therefore not be argued to take place in order to satisfy the condition on focus domains which was formulated in Chapter 5 above, but will have to occur in all V2 contexts independently of the information status of the syntactic categories involved.

(4) a′. Sie   *sagten_i* das Konzert *ab* t_i.
    They called   the concert off(Part)
    'They called off the concert.'

a″. *Sie   *absagten*   das Konzert.
    They off.called the concert

b′. …, dass sie   das Konzert *absagten*.
    … that they the concert off.called
    '… that they called off the concert'

b″. *…, dass sie   *sagten* das Konzert *ab* t_i
       that they called the concert off (Part)

Of the Scandinavian languages, e.g. Norwegian (cf. (5)) and Icelandic (cf.(6)), but not Danish and Swedish, display the same alternation as English (cf. Svenonius 1994, 1996b, the examples below are taken from his work). In Danish, the particle must follow the DP, i.e. Danish shows the discontinuous, but not the continuous order, as is illustrated in (7). On the contrary, Swedish only has the continuous order, the particle obligatorily precedes the nominal object (cf.(8)).

(5) a. Olaf *kastet ut* hunden   (Norwegian)
        Olaf let   out the.dog
        'Olaf let out the dog.'
    b. Olaf *kastet*   hunden *ut*

(6) a. Ég *tók*   *upp* kartöflur   (Icelandic)
        I   picked up potatoes
    b. Ég *tók*   kartöflur *upp*.

(7) a. Boris *skruede* musikken *ned*.   (Danish)
         Boris turned   the.music down
     b. *Boris *skruede* *ned*   musikken.

(8) a. Vi *slapp* *ut*   hunden   (Swedish)
         We let   out   the.dog
     b. *Vi *slapp*   hunden *ut*

One obvious question is whether information structure plays a role in the
choice of the word order in Norwegian and Icelandic. For Norwegian, Sveno-
nius (1996b: 54f.) reports a general preference of speakers for the continuous
order, but also a preference for the discontinuous order if the DP carries old
information, and for the continuous order whenever the content of the parti-
cle is old in the discourse, but the object DP belongs to the focus of the sen-
tence. The continuous order is further preferably chosen if the nominal ob-
ject is heavy, the discontinuous order is used with modified particles and un-
stressed pronouns. The same pattern is also observed for Icelandic (cf. Sveno-
nius 1996b: 59ff.) despite the fact that, contrary to English and Norwegian, a
"slight tendency" has been reported for speakers of Icelandic to prefer the dis-
continuous order (ibid.). It seems at first sight, then, that the analysis I have
proposed for English might apply directly to Norwegian and most probably to
Icelandic, a conclusion that could be the starting point for further investigation
of these languages.

   With regard to Danish and Swedish, where no alternation between two
word orders is possible at all, we naturally cannot argue in terms of informa-
tion structure. However, I do not consider this a problem for my analysis, since
syntactic operations that are triggered by information structure seem to be op-
tional across languages in general. Remember that for example in Russian, the
surface order is not a result of overt movement operations induced by the re-
quirement that strong grammatical features must be checked, but that in prin-
ciple, all syntactic constituents can remain in their base positions. Overt move-
ment operations in Russian are argued to be due to the requirements of in-
formation structure (cf. e.g. Junghanns & Zybatow 1995). Russian is therefore
a language whose surface appearance is diverse and depends on the discourse
situation. German and Dutch as scrambling languages also show some free-
dom with regard to the surface order of the syntactic constituents which can
be arranged according to the context of the relevant sentence. On the contrary,
English as an analytic language displays relatively strict word order with com-

paratively little tolerance for discourse requirements. However, the PV construction obviously seems to be one case where even in English, the word order can be chosen according to context requirements, rather than merely according to grammatical requirements.

The final point I want to mention here is the following. I have been concerned in the previous chapters only with regular cases of transitive PV constructions in English. I have not considered the set of idiomatic PV's that does not undergo the word order alternation (cf. Chapters 1 and 3.1 for examples), nor have I looked at structures involving contrastive focus or other types of special focus. It would certainly be interesting to carry out some research with regard to this latter aspect. I have mentioned in Chapter 4.1.1 that in principle, contrastive focus is not bound to a particular position. Junghanns and Zybatow (1995: 311) among others argue that this type of focus is realised instead by means of a syntactic focus feature [F_C] "with the corresponding phonological and semantic consequences". It has been briefly mentioned in Chapter 4.3.3.2 above that in natural language, the discontinuous order might be produced despite the fact that the nominal object is focused if contrastive focus is realised on the DP. Compare examples (121) through (123) of Chapter 4, repeated here as (9) and (10) for convenience.

(9) – "How do you have your coffee?"
– "White, please, with more milk than coffee."
– "Oh, I am very sorry, you can't. Someone has used the *MILK* up."

(10) Lisa is doing the washing-up. She asks her brother:
"Can you bring me the glasses, please, I want to wash *THEM* up, not the cups."

I have argued at the relevant stage of the discussion that this poses no problem for the analysis, since contrastive focus and the corresponding accent placement is not bound to a certain syntactic position. In the examples in (9) and (10), we are concerned with object DP's that carry given information (*milk* and *the glasses*, respectively) but are focused since they are contrasted to other entities in the discourse (*coffee* and *the cups*, respectively). However, it would be worthwhile to explore contexts that involve focus structures other than the ones considered in Chapters 4 and 5 above with regard to their syntactic mapping. I have to leave these open questions to future research.

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