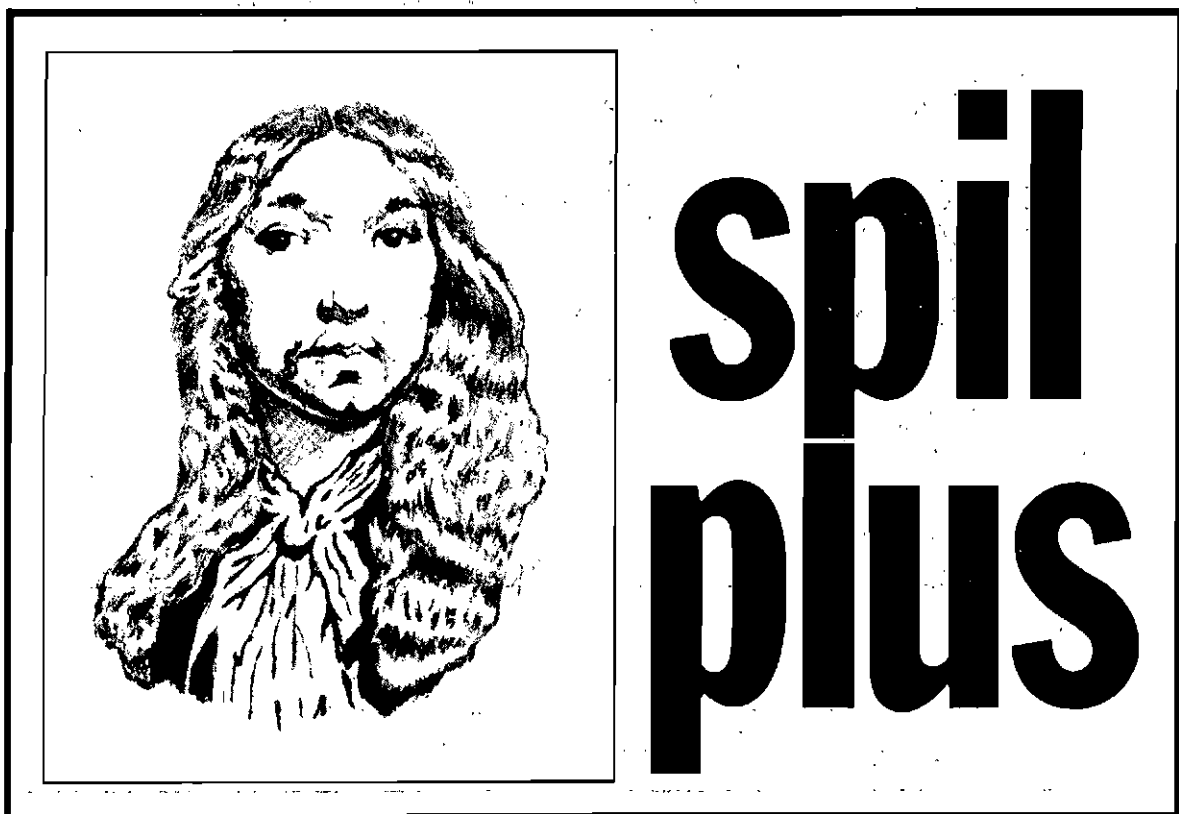


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**on the interface of morphology  
and syntax**



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**EDITORIAL**

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ON THE INTERFACE OF MORPHOLOGY AND SYNTAX:  
EVIDENCE FROM VERB-PARTICLE COMBINATIONS  
IN AFRIKAANS

by

Cecile le Roux

Thesis approved in partial fulfilment of the  
requirements for the degree of Master of Arts  
at the University of Stellenbosch  
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C. le R.  
STELLENBOSCH  
November 1988

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Chapter 1

INTRODUCTION

1.1 General

The first formulation of what has come to be known as the Lexicalist Hypothesis appeared in Chomsky's (1970) article "Remarks on nominalization". Since then the greater part of the literature on word formation in generative grammar has either argued for, or taken as a point of departure, the position that there is a theoretically significant difference between word structure on the one hand and phrase structure on the other hand. This position is formulated as follows by Selkirk (1982:2):

"... aside from the category Word itself, the categories involved in word structure are distinct from those of syntactic structure and, moreover, ... the two types of structure combine these categories in significantly different ways."

Acceptance of this position has given rise to the proposal of so-called lexicalist theories of morphology/word formation. A first concern of these theories has been to show that the properties of words must be accounted for in terms of a set of elements, rules and constraints that are fundamentally different from the elements, rules and constraints in terms of which the properties of phrases and sentences are accounted for.<sup>1</sup> A second concern of these theories has been to characterize the nature of the relationship between a theory of morphology on the one hand and theories of syntax, phonology, and semantics on the other hand.<sup>2</sup>

The major aim of this study is to present an argument to the effect that the way in which the relationship between morpho-

logy and syntax is construed on lexicalist theories of morphology is incorrect. More specifically it will be argued that, in order to account for the properties of verb-particle combinations in Afrikaans, lexicalist hypotheses such as the Lexical Integrity Hypothesis and the No Phrase Constraint, and the hypothesis that rules of morphology form part of a separate, lexical, component of the grammar, must be either relaxed or relinquished. These hypotheses, the content of which will be elucidated in par. 1.2 immediately below, are central to the lexicalist construal of the relationship between morphology and syntax.<sup>3</sup>

The argument will be developed as follows. First, in chapter 2, it will be shown that verb-particle combinations in Afrikaans share many of the properties of the corresponding constructions in English and Dutch. Then, in chapter 3, three lexicalist analyses of verb-particle combinations in English and Dutch, viz. those proposed by Simpson (1983 a, b), Baayen (1986), and Selkirk (1982) respectively, will be discussed critically. The aim of the discussion will be to identify problematic aspects of these analyses and also to examine the major general linguistic assumptions underlying each analysis. The aim of chapter 4 is analogous to that of chapter 3. The analyses considered are those proposed by Van Riemsdijk (1978) and Stowell (1981) for verb-particle combinations in Dutch and English respectively. These analyses may be termed nonlexicalist by virtue of the fact that neither Van Riemsdijk nor Stowell presents an explicit lexicalist theory of morphology. Chapter 5 will consider the import which the shortcomings of the analyses discussed in chapters 3 and 4 have for a lexicalist construal of the relationship between morphology and syntax. It will be argued that some of the major empirical and conceptual shortcomings of the analyses discussed in chapter 3 are attributable to the fact that these analyses are couched within a lexicalist framework incorporating the constraints mentioned above. In addition, it will be argued that the major shortcomings of Van Riemsdijk's and Stowell's analyses too

stem from their (explicit or implicit) acceptance of some of the lexicalist hypotheses in question.

Chapter 6 will focus on alternative views of the relationship between morphology and syntax that have been proposed recently by, e.g., Fabb (1984), Baker (1985), Sproat (1985, 1987), and Lieber (1984, to appear). One of these in particular, viz. that argued for by Sproat and Lieber, will be considered critically. On this view, a theory of grammar is assumed not to include an independent theory of morphology. It is assumed that the properties of words may be accounted for in terms of the same elements, rules, and constraints that are required to account for the properties of phrases and sentences. The term theory of syntactic word formation will be used to refer to versions of a theory of word formation which assume a single theory of morphosyntactic structure. The empirical and conceptual consequences of accepting a theory of syntactic word formation such as that outlined in (Sproat 1985, 1987) and (Lieber to appear) will be systematically explored with reference to an analysis of verb-particle combinations in Afrikaans. The main findings of the study will be summarized in the concluding chapter, chapter 7.

It has to be pointed out right at the outset that both the analysis of Afrikaans verb-particle combinations presented in chapter 6 and the discussion of a theory of syntactic word formation as a possible alternative to lexicalist theories of morphology are highly exploratory in nature. The aim is to identify some of the potentially problematic consequences of accepting a theory of syntactic word formation such as that outlined by Sproat and Lieber, with a view to indicating what the issues are that will have to be addressed by further research. The aim is not to propose solutions to the problems raised.

The choice of verb-particle combinations as the phenomenon to be focused on in this study may require some explanation. My interest in this phenomenon was sparked during the writing of a paper dealing with possible constraints on the

occurrence of affixes in Afrikaans synthetic compounds. It appeared that affixes which do not occur productively in synthetic compounds in Afrikaans can often occur in synthetic compounds containing verb-particle combinations.<sup>4</sup> The question arose whether verb-particle combinations should be analyzed as (morpho)syntactically complex verbs or as phrases. It became clear that, by virtue of their curious array of morphological, syntactic, phonological, and semantic properties, verb-particle combinations constitute an ideal testing ground for alternative conceptions of the relationship between the various components of a grammar.

Before proceeding to an outline of the lexicalist construal of the relationship between morphology and syntax, a few terminological points require clarification. The term syntactically complex will be used as shorthand for "having morpho-syntactic structure". The term verb-particle combination will be used to refer to syntactically complex verbal forms such as those in (1). The " + " symbol indicates the constituent boundary in the Afrikaans forms, which are written as one word orthographically.

- (1)        *look over*        (Afrikaans : *deur + kyk*)  
          *count out*        (Afrikaans : *uit + tel*)  
          *throw up*        (Afrikaans : *op + gooi*)

What sets the forms in (1) apart from ordinary compound and derived verbs on the one hand, and from syntactic verb phrases on the other hand, is the fact that they exhibit properties of both kinds of entities. The properties of verb-particle combinations will be discussed and illustrated in chapter 2 below.

And, finally, unless otherwise specified, the terms morphology and morphological component will be used to refer to that part of a theory of grammar which is concerned with accounting for the morphosyntactic form of complex words, eschewing for the time being questions such as whether or not morphology is dis-

tinct from syntax, whether morphology is part of the lexicon or not, and whether or not the properties of all syntactically complex words are accounted for by rules and principles of the morphological component. The term word formation will be used from time to time as a synonym for morphology.

Let us turn now to a brief overview of the major tenets constituting the lexicalist construal of the relationship between morphology and syntax.

#### **1.2 The lexicalist construal of the relationship between syntax and morphology**

This section will be concerned with three hypotheses which, taken together, constitute what I will refer to as the lexicalist construal of the relationship between morphology and syntax. The relevant hypotheses are the Lexical Integrity Hypothesis, the No Phrase Constraint, and what Botha (1984: 137) has called the Lexical Component Hypothesis.<sup>5</sup>

The hypothesis about the relationship between morphology and syntax to which I shall be referring as the Lexical Integrity Hypothesis is but one of many different, more or less restrictive, versions of the lexicalist position concerning the extent to which syntactic rules and principles may be allowed to contribute and/or be sensitive to the information encoded in the grammatical representations assigned to words. The expression "syntactic rules and principles" must be interpreted in its widest sense as referring to all rules responsible for deriving representations at the various syntactic levels of the grammar, i.e. D-structure, S-structure, and LF, and all principles and constraints which play a role in determining the well-formedness of representations at the various syntactic levels. Chomsky's (1970) hypothesis concerning the formation of derived nominals in English, which has come to be known as the Lexicalist Hypothesis, represents not only the first but also the weakest of the various formulations of this position. The formulation of the Lexicalist Hypothesis

in (2) is that of Botha (1984:136).<sup>6</sup>

(2) Lexicalist Hypothesis

Derived nominals are not formed by means of syntactic transformations but are present in deep structure.

A somewhat stronger version of the Lexicalist Hypothesis, which Botha (1984:136) calls the Elaborated Lexicalist Hypothesis, has been taken as a point of departure by the majority of generative grammarians working within the framework of what came to be known as lexicalist morphology in the decade from 1972 to (roughly) 1982. The Elaborated Lexicalist Hypothesis is formulated as follows by Selkirk (1982:1):<sup>7</sup>

(3) Elaborated Lexicalist Hypothesis

Words with derivational morphology (i.e. derived words --- CleR) and compound words are not formed by syntactic transformation.

A significant subset of lexicalist morphologists have argued, however, that inflected words are not formed by syntactic transformation either.<sup>8</sup> The version of the Lexicalist Hypothesis which these morphologists accept is formulated as the Strong Lexicalist Hypothesis by Lapointe (1978:3).

(4) Strong Lexicalist Hypothesis

Syntactic transformations never have to be allowed to perform morphological operations.

Inflection is not the only morphological operation about the (non)syntactic status of which there is disagreement among generative grammarians. Since 1982 a number of grammarians, among them Zubizarreta (1982), Fabb (1984), and Baker (1985), have argued that certain subsets of complex words other than

inflected words must be created in the syntax. Details of their proposals are irrelevant at this point, but will become relevant in chapter 6.

Apart from the debate about exactly what kinds of morphological operations fall within the scope of a constraint such as (4), two other related areas of disagreement about the scope of the constraint exist. A first area of disagreement concerns the question of what exactly is subsumed by the notion 'to perform a morphological operation'. A second area of disagreement concerns the question of whether only syntactic transformations should be barred from performing morphological operations.

As regards the first area of disagreement, on a weak interpretation of (4), the prohibition against the performing of morphological operations is understood to be a prohibition against the modification of word structure by syntactic transformations. That is, on such a weak interpretation of (4), syntactic transformations are allowed neither to add morphemes to, nor to move or delete morphemes from a lexical category. This is the interpretation explicitly adopted by, e.g., Bresnan (1982:54), Selkirk (1982:70), and Simpson (1983a:1). This weak interpretation of (4) is expressed as follows by Selkirk:

(5) Lexical Integrity Hypothesis (weak version)

No deletion or movement transformation may involve categories of both W-structure [i.e. word structure --- CleR] and S-structure [i.e. sentence structure --- CleR].

On this weak variant of (4), syntactic transformations are, for instance, prohibited from performing word building operations such as compounding, derivation and inflection (if the latter is considered to be a word building operation), or deletion operations such as the gapping of parts of words.<sup>9</sup>

A stronger variant of (4) is proposed by Simpson (1983a:2). On Simpson's strong variant of (4), syntactic rules are prevented not only from modifying word structure, but also from referring to any aspect of the internal structure of words, i.e. from analyzing word-internal structure. This stronger variant of (4) which, according to Simpson, represents the strongest version of the Lexical Integrity Hypothesis may be represented as follows:

- (6)        Lexical Integrity Hypothesis (stronger version)  
            Syntactic rules can neither analyze nor change  
            word structure.

Similarly strong variants of (4) are assumed, e.g., by Brame (1978:22) whose Spelling Prohibition states that "transformations cannot spell out or alter morphological material", by Lapointe (1980:66) whose Generalized Lexicalist Hypothesis prevents syntactic rules from referring to a morphological category or feature, and by Thomas Flinders (1983:82-83) who holds that "rules accessing information about the internal structure of words cannot be formulated (or can be formulated only at great cost to the grammar)".

The stronger version (6) of the Lexical Integrity Hypothesis not only blocks the movement or deletion of morphemes which form part of complex words, it also rules out, e.g., reference to features associated with parts of words,<sup>10</sup> the establishment of anaphoric relations between parts of complex words and elements of syntactic structure, and appositive modification of parts of complex words.<sup>11</sup> Thus, any grammarian who accepts the strong version of the Lexical Integrity Hypothesis in (6), by implication assumes a highly restrictive interpretation of the notion 'to perform a morphological operation' in (4). On this interpretation, performing a morphological operation includes both the modification of the morphosyntactic structure of a lexical category and reference to or modification of any information (e.g.



features) associated with the constituents of a lexical category.

As indicated above, a second area of disagreement about the scope of the Strong Lexicalist Hypothesis (4) concerns the question of whether only syntactic transformations should be barred from performing morphological operations. As is clear from the discussion above, those grammarians who accept a strong version of the Lexical Integrity Hypothesis, also accept a stronger version of the Lexicalist Hypothesis than the version given in (4): a version on which not only syntactic transformation, but all syntactic rules are prevented from referring to and/or modifying any aspect of word-internal structure.<sup>12</sup> On this stronger version of (4), not only syntactic transformations, but also, e.g., the rules of the categorial component, the rule(s) of agreement, the coindexing rules relevant to Case theory,  $\theta$ -theory, binding theory, etc., are prevented from analyzing and/or modifying word structure. This more restrictive interpretation of the Strong Lexicalist Hypothesis (4) is reflected in the formulation of the strong version of the Lexical Integrity Hypothesis in (6) above, where the expression "syntactic transformations" has been replaced by the expression "syntactic rules". Thus, the strong version (6) of the Lexical Integrity Hypothesis could be considered to be the most restrictive version of the Lexicalist Hypothesis. Except where explicitly otherwise indicated, all further reference to the Lexical Integrity Hypothesis will be to the version presented in (6).

It must be emphasized once again that not all morphologists who subscribe to a version of the Lexicalist Hypothesis, subscribe to the strongest interpretation of this hypothesis as represented by the Lexical Integrity Hypothesis (6). Nor can all generative grammarians who accept a version of the Lexical Integrity Hypothesis be described as lexicalist morphologists. Some version of the Lexical Integrity Hypothesis has also been accepted by grammarians who are not concerned with formulating an explicit lexicalist theory of morphology. We shall return

to this point in chapter 5 below.

As is clear from the discussion above, the Lexical Integrity Hypothesis excludes syntactic rules from the class of rules which may create, modify, or refer to word structure. The second of the three hypotheses constituting the lexicalist construal of the relationship between morphology and syntax, viz. the so-called No Phrase Constraint, excludes syntactic rules from the class of rules that form the bases to which word formation rules (WFRs) may apply. This constraint is formulated as follows by Botha (1980:82):

(7) No Phrase Constraint

Morphologically complex words cannot be formed (by WFRs) on the basis of syntactic phrases.

The No Phrase Constraint, in one form or another, has been explicitly adopted or implicitly assumed as a constraint on word formation rules by lexicalist morphologists such as Aronoff (1976:21), Roeper and Siegel (1978:202), Allen (1978: 12 n. 3, 253), Lapointe (1980:53, 67-68), Meijs (1980:281), Lieber (1981, 1983), Anderson (1982:594), Bresnan (1982:30), Selkirk (1982:8), Strauss (1982:24), Van Santen (1984:27, 97), and Walsh (1983:141).<sup>13</sup> The validity of some version of the No Phrase Constraint is also accepted by a number of nonlexicalist morphologists, as will appear immediately below.

There is considerable disagreement among morphologists who subscribe to some version of (7) about (i) the generality of the No Phrase Constraint, and (ii) the interpretation of the notion 'syntactic phrases'. As regards the first area of disagreement, note for instance that Kiparsky (1982: 10 ), whose theory of morphology does not allow syntactic phrases to serve as bases of word formation rules, does allow for "limited recursion from phrase-level syntax back into morphology". Williams (1981:250) allows exceptional "headless rules" to form derived words on the basis of syntactic phrases, but calls such headless rules "sporadic" (p. 247)

and "marked" (p. 257). Similarly, Toman (1985:411-412) proposes a Bar-value Convention in terms of which the unmarked bar level of the nonhead constituent of compounds in German is  $X^0$ . By this convention constituents with a non-null bar level specification, i.e. syntactic phrases, are possible in the nonhead position of compounds as well, but their occurrence is marked.

It should also be mentioned that Aronoff has qualified his position on the No Phrase Constraint to some extent in a later work. Thus, Aronoff (1983:370) would relax the constraint so as to allow word formation rules to refer to the "restricted kind" of phrasal information already present in the subcategorization frames of lexical entries. According to Aronoff (1983:370) "the restriction against including phrasal material in words must be interpreted so as to exclude only material outside the subcategorization frame of a given word". Also, Baker adds a proviso to his (1985:87) assumption that "it is a natural principle of morphology to block syntactic phrases inside a word". In a footnote he (1985:96 n. 24) grants that the No Phrase Constraint "may be subject to linguistic variation" so as to allow for the fact that phrasal compounds occur quite freely in languages such as Dutch and German. And, finally, Lieber (to appear: 5) claims that compound structures "in which the initial constituent is phrasal" may be freely generated in English.

As regards the second area of disagreement, there is difference of opinion as to whether all syntactic phrases, i.e.  $X^{1<}$  in  $\bar{X}$  notation<sup>14</sup>, or only maximal projections, i.e.  $X^{\max}$ , should be prohibited from appearing as part of word structure. Thus Fabb (1984:143) would bar only phrasal constituents containing a specifier from appearing in complex words. That is, according to Fabb, the content of the notion 'syntactic phrase' must be defined as 'constituent containing a specifier' or ' $X^{n<}$ ', where  $n$  represents the bar level at which specifiers are introduced. In a similar vein, Sproat (1985: 198ff) argues that the category level of the nominal sister

of  $V$  in synthetic compounds in English must be higher than  $X^0$ , but cannot be  $X^{\max}$ . Specifically, he (1985:203) proposes that the relevant nominal constituent should be of the category level  $X^1$ .

The morphologists mentioned above are not the first ones who have either allowed for systematic exceptions to the No Phrase Constraint (7) or systematically restricted the class of syntactic phrases to which the constraint applies. Before them morphologists such as Booij (1977:44), Carroll (1979:863), Keenan (1980:205), Botha (1980:140ff), Savini (1983:par. 3.7.2), Hoeksema (1984:147), Hoekstra (1984:264), Kintzel (1984:59-62), and Sadock (1985:433) have argued on the basis of evidence from different languages that the No Phrase Constraint cannot be maintained in its full generality.<sup>15</sup>

The third of the three hypotheses which are taken to constitute the lexicalist construal of the relationship between morphology and syntax, viz. the Lexical Component Hypothesis, is formulated as follows by Botha (1984:137):

(8) Lexical Component Hypothesis

The rules of word structure form part of a separate component: the lexical component or lexicon.

As observed by Sproat (1987:185), acceptance of the hypothesis (8) has been virtually a hallmark of generative morphology since the publication of Chomsky's (1970) "Remarks on nominalization". Arguments for the Lexical Component Hypothesis have been based largely on supposed differences between rules of word structure and rules of phrase structure as regards their productivity and the predictability of the syntactic, phonological, and semantic properties of the forms generated.<sup>16</sup> Rules of word structure are taken to be characteristically limited in productivity in contrast to phrase structure rules which are fully productive, and the forms generated by the former rules are claimed to be more likely to have unpre-

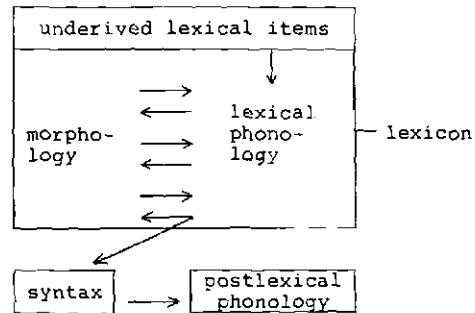
table properties than those generated by the phrase structure rules.<sup>17</sup>

Most lexicalist morphologists simply accept the hypothesis (8) without providing any support for it, and concentrate instead on developing theories of what the lexical component should look like. On the most elaborate of these theories, such as, e.g., the theory of Lexical Phonology and Morphology, the lexicon is taken to be a formally distinct, fully independent "word grammar" which, like a sentence grammar, consists of a syntactic component (the word formation or word structure rules), a phonological component and a semantic component.<sup>18</sup>

Such an independent lexical component generates all the words of a language by means of a distinct set of lexical word formation, (word) phonological, and (word) semantic rules. No rules, principles, conditions, interpretive mechanisms, etc. which form part of sentence grammar are allowed to participate in the formation or interpretation of lexical representations.

The lexicon qua word grammar is taken to intersect with the syntactic component of the grammar at one point only, viz. where words generated by the lexical component are inserted into the structures generated by the rules of syntax. That is, the lexicon is conceived of as being both distinct from and in a feeding relationship to syntax. This is illustrated quite strikingly by Kiparsky's (1982: 4) model of the grammar which is presented here in a simplified form.

(9)



That the lexicon and syntax are perceived as being sequentially ordered with respect to one another is also clear from the use of metaphorical expressions such as those underlined in the following remarks by Kiparsky (1982):

"We must assume some limited recursion from phrase-level syntax back into morphology anyway." (p. 10)

"... the lowest level of phrase structure can in some way be fed back into the lexicon." (p. 32)

Taken together, the Lexical Integrity Hypothesis, the No Phrase Constraint, and the Lexical Component Hypothesis constitute a highly restrictive view of the relationship between the morphological (or word formation) and syntactic components of the grammar. On the one hand, words, i.e. constituents of the category level  $X^0$ , are taken to be unanalyzable, hence minimal units with regard to the rules, principles, and conditions of the syntactic component. On the other hand, no syntactic rule, principle, or condition is allowed to account for the properties, or to participate in the formation of words or parts of words. That is, morphology (as part of the lexicon) and syntax (as part of sentence grammar) are taken to represent two fully independent subsystems or modules of grammar.

This kind of modularity represents what Botha (1984:142) calls a "formalistic" and Sadock (1983:199) a "strict" interpretation of the fundamental assumption of generative grammar known as the Modularity Hypothesis or the Autonomous Systems Hypothesis. This hypothesis is formulated as follows by Culicover, Wasow and Akmajian (1977:2):

"... the grammar of a language is formulated in terms of the interaction of a number of distinct components, each formally characterizable as an independent system, subject to its own constraints and principles of organization."

That is, the grammars of human languages are assumed to be organized into a number of distinct and independent subsystems of rules and principles, also known as components or modules. These components are distinct and independent in the sense that the elements, properties and relations described by the rules and principles of one component are not entirely reducible to the elements, properties and relations described by the rules and principles of another component.<sup>19</sup>

As pointed out by Sadock (1983:198f), the Autonomous Systems Hypothesis says no more than that the grammar is organized into various subsystems. Assumptions about the degree of formal distinctness of the elements and principles constituting the various subsystems or modules, and possible areas of intersection between the various modules, are logically independent from the assumption that separate modules exist. And it is exactly on its assumptions concerning the degree of independence of morphology and syntax that lexicalist morphology has been challenged recently.

On the one hand, grammarians such as Marantz (1981), Pesetsky (1985), Lieber (1984, to appear), and Sproat (1985, 1987) have argued that certain properties of syntactically complex words can be accounted for quite straightforwardly by the syntactic, phonological, and semantic rules and principles required independently to account for the properties of

phrases and sentences. On the other hand, various types of natural language phenomena have been shown to require an analysis on which syntactic rules and principles are allowed to participate in accounting for the properties and/or formation of complex words. Among the phenomena that have been discussed in the literature are words with inflectional morphology (e.g. Anderson 1982; Pranka 1983; Fabb 1984), synthetic compounds (e.g. Botha 1980, 1984; Fabb 1984; Sproat 1985), clitic constructions (e.g. Stowell 1981; Zubizarreta 1982, 1985; Zwicky 1984b; Borer 1986), causative constructions (e.g. Marantz 1981; Zubizarreta 1982, 1985; Taraldsen 1983; Baker 1985), prepositional passives (e.g. Hornstein and Weinberg 1981; Fabb 1984; Baker 1985; Christensen 1986), and noun incorporation phenomena (e.g. Sadock 1983, 1985; Baker 1985). Phenomena such as these have been cited as evidence in arguments for a greater degree of interdependence between the morphological and syntactic components of the grammar.

This study must be seen as an attempt to contribute to the debate about the way in which the relationship between morphology and syntax should be construed. The significance of the phenomenon to be considered, viz. verb-particle combinations, lies in the fact that, like the constructions cited above, these combinations exhibit properties both of (syntactically complex) words and of phrases. It is to an illustration of this point that we turn in chapter 2.



Chapter 2

PROPERTIES OF VERB-PARTICLE COMBINATIONS

2.1 General

The class of expressions with which I shall be concerned in this study is a class of complex verbal constructions which is denoted in the literature by terms such as "verb-particle combinations", "separable-prefix verbs", "phrasal verbs", "particle verbs", "two-word verbs", "separable verbal compounds", "separable verbs", or "discontinuous verbs".<sup>1</sup> Expressions such as those underlined in (1) below are instances of what I shall be referring to as verb-particle combinations in English (1a), Dutch (1b), and Afrikaans (1c) respectively.<sup>2</sup> In order to avoid confusion I shall consistently use the term "verb-particle combination", regardless of whether the particle precedes or follows the verb in a given construction.

A technical note may be in order here. The examples provided in this study appear in italics. Examples from languages other than English are accompanied by a gloss, i.e. a literal word-for-word (or morpheme-for-morpheme) translation, where possible, and an idiomatic translation if necessary. Glosses appear immediately below the example in question and are followed by the translation in inverted commas. The symbol "+" is used to indicate the constituent boundary separating the particle and the verb in cases where they are written as one word orthographically.

- (1)(a) John cleaned out his room.  
(b) Jan zei dat hij op + gaf.  
John said that he up gave  
'John said that he gave up.'

- (c) *Jan sal natuurlik ons pogings af + maak.*  
John will of course our efforts off make  
'John will of course disparage our efforts.'

Pretheoretically, verb-particle combinations such as those illustrated in (1) may be characterized as verbal expressions consisting of a verb and another, nonverbal, constituent --- the "particle" --- which, in the majority of cases, superficially resembles a preposition or an adverb.<sup>3</sup> What sets these verbal expressions apart from ordinary compound and derived verbs on the one hand, and from syntactic verb phrases on the other hand, is the fact that they exhibit properties of both. That is, the constituents of verb-particle combinations behave partly as syntactically independent constituents and partly as members of a single word-like constituent, as will be amply demonstrated immediately below.

Because of their hybrid properties, verb-particle combinations provide an ideal testing ground for hypotheses concerning the relationship between the morphological and syntactic components of the grammar. The aim of this chapter, then, is to present an overview of those properties of verb-particle combinations that have been identified in the extensive literature on the subject as being relevant to the question of whether, theoretically, these expressions are to be assigned the status of words or of phrases. The emphasis will be on the properties of verb-particle combinations in English, Dutch, and Afrikaans, as these are the languages with which this study will be mainly concerned.

## 2.2 Separability

The superficial resemblance which verb-particle combinations bear to ordinary syntactic phrases is mainly attributable to the fact that the verb and the particle can occur separated

from one another in sentences. Thus, corresponding to (1a-c) we have (2a-c) respectively.

- (2)(a) *John cleaned his room out.*
- (b) *Jan gaf op.*  
John gave up  
'John gave up.'
- (c) *Jan maak altyd ons pogings af.*  
John makes always our efforts off  
'John always disparages our efforts.'

Notice that the syntactic separability of the verb and the particle is manifested in Dutch and Afrikaans in a slightly different way from that in which it is manifested in English. It is clear from a comparison of (1) and (2) above that, whereas the position of the verb is fixed in English, the particle may occupy either the position immediately to the right of the verb, or the position immediately following the direct object-NP as illustrated in (1a) and (2a) respectively. In Dutch and Afrikaans, by contrast, it is not the position of the particle that is variable, but rather that of the verb. That is, whereas particles in these languages always appear immediately to the left of the verb in underlying structure, the application of rules such as V-second and V-raising have the effect of separating the particle and the verb by virtue of moving the verb to another position in the sentence.<sup>4</sup>

The effect of V-second on verb-particle combinations in Dutch and Afrikaans is illustrated in (3) and (4) respectively. Note that, because the word order in embedded clauses is assumed to reflect the underlying word order, embedded clauses will be used in examples whenever it is necessary to abstract away from the distortion of the underlying word order resulting from the application of V-second, as in (3a), (4a), and (5a, b) below.<sup>5</sup>

- (3) Dutch:
- (a) *dat hij het meisje op + belde*  
that he the girl up rang  
'that he rang up the girl'
- (b) *Hij belde het meisje op.*  
he rang the girl up
- (4) Afrikaans:
- (a) *dat hy die meisie op + bel*  
that he the girl up rings  
'that he rings up the girl'
- (b) *Hy bel die meisie op.*  
he rings the girl up

In (5) the separation of the verb and particle by the application of V-raising in Dutch is illustrated.

- (5)(a) *omdat Carol [hem op + belde] kon*  
because Carol him up to ring could  
'because Carol could ring him up'
- (b) *omdat Carol [hem op e] kon belde*  
because Carol him up could to ring  
'because Carol could ring him up'

In (3a), (4a), and (5a), representing the underlying constituent order, the particle *op* is adjacent to and immediately to the left of the verb. After the application of V-second, the particle is to the right of and no longer necessarily adjacent to the verb, as shown in (3b) and (4b). After the application of V-raising in Dutch, the particle may be separated from the verb by one or more intervening verbs, as shown in (5b). V-raising differs from V-second, however, in that V-raising may move the particle along with the verb, giving (6) instead of (5b) in Dutch.

- (6) *omdat Carol [hem e] kon op + belien*  
because Carol him could up ring  
'because Carol could ring him up'

V-raising in Afrikaans differs from that in Dutch. First, V-raising in Afrikaans is obligatory, as shown by the fact that (7a) with the verb in the embedded position is ill-formed. Second, according to Du Plessis (1972:38), speakers of Afrikaans find sentences such as (7b), in which the verb is separated from the particle by the application of V-raising, only marginally acceptable, if not completely ill-formed. Only sentences such as (7c), in which the particle appears in the "raised" position adjacent to the verb, are judged well-formed by all speakers of Afrikaans.

- (7)(a) \**omdat Jan [haar op + bel] wou*  
because John her up ring wanted
- (b) ?*omdat Jan [haar op e] wou bel*  
because John her up wanted ring
- (c) *omdat Jan [haar e] wou op + bel*  
because John her wanted up ring  
'because John wanted to ring her up'

Van der Merwe (1980:136f) provides the following examples of Afrikaans sentences in which the particle and the verb are separated by V-raising, but which are nevertheless judged well-formed by speakers of Afrikaans (the structural indications are mine!):

- (8)(a) *Om [op e] te mag tree, moet hulle eers toestemming*  
for up to may step, must they first permission  
*verkry.*  
obtain  
'In order to be able to act, they must first obtain permission.'

The phenomenon appears to be limited to infinitival constructions and to be related to the fact that *te* always separates the particle and the verb in *om ... te* (= for ... to) infinitives in Afrikaans, as shown in (9).

- (9)(a) *Hulle dreig om ons aan te val.*  
they threaten for us on to fall  
'They threaten to attack us.'
- (b) *Hulle hoop om spoedig op te tree.*  
they hope for soon up to step  
'They hope to act soon.'

The important point is that, although the particle may --- and for many Afrikaans speakers must --- be moved along with the verb by V-raising, V-second can never front the particle along with the verb in either Dutch or Afrikaans. Hence the unacceptability of both (10) in Dutch and (11) in Afrikaans.

- (10) Dutch:  
\**Hij op + belde het meisje.*  
he up rang the girl  
'He rang up the girl.'

- (11) Afrikaans:  
\**Hy op + bel die meisie.*  
he up rings the girl  
'He rings up the girl.'

The particle can also (optionally) be separated from the verb in the *aan het* + infinitive construction in Dutch, the equivalent of the English progressive, as illustrated in (12).<sup>6</sup>

- (12)(a) *dat hij aan het achter + raken is*  
that he PROGRESSIVE behind get is  
'that he is falling behind'
- (b) *dat hij achter aan het raken is*  
that he behind PROGRESSIVE get is

Afrikaans, by contrast, does not allow the particle to be separated from the verb in *aan die* + infinitive (the equivalent of Dutch *aan het*) constructions, as will be illustrated in par. 2.7 below.

### 2.3 Internal inflection

Verb-particle combinations in English, Dutch, and Afrikaans take inflectional affixes internally. That is, inflectional affixes appear on the verbal constituent alone and not on the sequence as a whole, as illustrated in (13). The inflectional affixes are capitalized.

- (13)(a) *The king was countING out his money.*
- (b) *Jan had alles weer door + GEhaalD.*  
John had everything again through scratched  
'John had scratched out everything again.'
- (c) *Jan het ons pogings af + GEmaak.*  
John has our efforts off made  
'John disparaged our efforts.'

### 2.4 Semantic noncompositionality

Virtually all linguists who have discussed verb-particle combinations agree that such combinations tend to have non-compositional meanings.<sup>7</sup> Various terms have been used to

denote this property of verb-particle combinations, e.g. terms such as "idiomaticity", "semantic unity/opacity/idiosyncrasy/unpredictability/irregularity", and "metaphoric sense/usage". The lack of uniformity in the terminology used, reflects a lack of unanimity among linguists about the kind and/or degree of semantic noncompositionality displayed by verb-particle combinations. A much debated question is whether or not the noncompositionality displayed by verb-particle combinations is comparable in kind and/or degree to that of "true idioms" such as *kick the bucket*. Steering clear of such questions, the property of semantic noncompositionality will be attributed to a verb-particle combination whenever its meaning includes an element which is not entirely predictable from the literal meanings of its constituents and the relation between them.

Thus widely defined, semantic noncompositionality is indeed a characteristic feature of verb-particle combinations. Thus, each of the following verb-particle combinations in English (14), Dutch (15), and Afrikaans (16) can have both the meaning shown in (a), which is fully compositional, and that shown in (b). The latter meaning may be said to be noncompositional in the sense defined above, although it may be more or less transparent by virtue of being metaphorically or figuratively related to the literal meanings of the constituents of the verb-particle combination in question.<sup>8</sup>

(14) English:

*get back*

*carry out*

(a) 'to return, retrieve'

(a) 'to transport outwards  
by carrying'

(b) 'to have revenge on'

(b) 'to accomplish'



|                                    |  |
|------------------------------------|--|
| <i>look up</i>                     | <i>break in</i>                              |
| (a) 'to direct one's gaze upwards' | (a) 'to enter by breaking'                   |
| (b) 'to search for'                | (b) 'to make less stiff by use (e.g. shoes)' |

(15) Dutch:

|                                      |                                       |
|--------------------------------------|---------------------------------------|
| <i>af + kijken</i><br>down look      | <i>voor + staan</i><br>in front stand |
| (a) 'to direct one's gaze downwards' | (a) 'to stand in front'               |
| (b) 'to copy'                        | (b) 'to lead (in a match)'            |
| <i>in + rijden</i><br>in drive       | <i>op + houden</i><br>up hold         |
| (a) 'to enter by driving'            | (a) 'to hold aloft'                   |
| (b) 'to run in (a car)'              | (b) 'to delay'                        |

(16) Afrikaans:

|                             |                               |
|-----------------------------|-------------------------------|
| <i>in + loop</i><br>in walk | <i>aan + raai</i><br>on guess |
| (a) 'to enter by walking'   | (a) 'to guess some more'      |
| (b) 'to cheat'              | (b) 'to recommend'            |
| <i>uit + gaan</i><br>out go | <i>op + gooi</i><br>up throw  |
| (a) 'to go outside'         | (a) 'to throw upwards'        |
| (b) 'to court (of lovers)'  | (b) 'to vomit'                |

A note of caution may be in order here. It must be emphasized once again that the characterization of the (a)-meanings in (14)-(16) above as "compositional" and the (b)-meanings as "noncompositional" is by no means unproblematic. On the one hand, as far as the characterization of the (a)-meanings as "compositional" is concerned, it could for instance be argued that verbs such as *get* in English, *houden*

in Dutch and *gaan* in Afrikaans, as well as particles such as *in* and *up* in English, and *aan*, *af*, *in*, and *op* in Dutch and Afrikaans, are semantically underdetermined in the sense that they do not have a fully specifiable, context-independent, literal meaning.<sup>9</sup> If this were the case, it would not be clear on what grounds the distinction compositional vs. noncompositional could be maintained with regard to the characterization of the meanings of complex expressions containing such verbs and/or particles.

On the other hand, many of the (b)-meanings which have been characterized as "noncompositional" above, could be argued to result from a metaphoric interpretation of one or both of the constituents of the verb-particle combination in which they occur. Thus, for example, the (b)-meanings of *break in* in English, *voorstaan* in Dutch, and *opgooi* in Afrikaans could be argued to be metaphorically or figuratively related to the (a)-meanings of these expressions. In this discussion, however, no explicit distinction will be made between meanings that may be characterized as metaphorical and those that may be characterized as idiomatic. Both will be termed noncompositional.<sup>10</sup>

Apart from verb-particle combinations such as those exemplified in (14)-(16), which are considered to have both a compositional and a noncompositional meaning, verb-particle combinations which may be argued to have only a noncompositional meaning occur in both English and Afrikaans (and presumably in Dutch as well). First, there are verb-particle combinations for which it is extremely hard, if not impossible, to construct a compositional interpretation, although the literal meaning of each constituent individually, insofar as it can be specified, does appear to bear some relation to the meaning of the verb-particle combination as a whole.

(17)(a) English:

|                            |                          |
|----------------------------|--------------------------|
| <i>top off</i>             | <i>live down</i>         |
| 'to finish'                | 'to endure successfully' |
| <i>do in</i>               | <i>make out</i>          |
| 'to deceive, ruin, murder' | 'to discern'             |

(b) Afrikaans:

|   |                       |
|---|-----------------------|
| <i>na + sien</i>                        | <i>aan + stel</i>     |
| after see                               | on put                |
| 'to correct (e.g. students' exercises)' | 'to appoint'          |
| <i>om + gee</i>                         | <i>af + spreek</i>    |
| about give                              | down/off speak        |
| 'to care about'                         | 'to arrange/agree on' |

Second, verb-particle combinations occur that contain at least one constituent, the phonetic equivalent of which does occur independently in the language but with a meaning which, synchronically, bears no relation at all to the meaning of the verb-particle combination of which it is a constituent.

(18)(a) English (examples from (Fraser 1976:7-8)):

|                   |                            |
|-------------------|----------------------------|
| <i>egg on</i>     | <i>soup up</i>             |
| 'to prod'         | 'to increase the power of' |
| <i>while away</i> | <i>peter out</i>           |
| 'to spend time'   | 'to fizzle out'            |

(b) Afrikaans:

|                                 |                                   |
|---------------------------------|-----------------------------------|
| <i>aan + [rand]<sub>N</sub></i> | <i>af + [vaardig]<sub>A</sub></i> |
| on border                       | down/off skilled                  |
| 'to assault, attack'            | 'to delegate'                     |

|   |  |
|---|--|
| <i>by</i> + [ <i>dām</i> ] <sub>N</sub><br>at/near dam<br>'to accost' | <i>uit</i> + [ <i>sonder</i> ] <sub>prep</sub><br>out without<br>'to single out' |
| <i>op</i> + [ <i>dok</i> ] <sub>N/V</sub><br>up dock<br>'to pay up'   | <i>toe</i> + [ <i>rus</i> ] <sub>N/V</sub><br>to(wards) rest<br>'to equip'       |

When discussing the semantic properties of verb-particle combinations, two further classes of expressions need to be mentioned. The first is a small class of verb-particle combinations in Afrikaans which contain bound morphemes. The bound morphemes marked with an asterisk in (19) are so-called cranberry morphs, i.e. morphemes which occur only in one Afrikaans word.<sup>11</sup>

|      |                                |                  |
|------|--------------------------------|------------------|
| (19) | <i>na</i> + * <i>boots</i>     | 'to imitate'     |
|      | <i>af</i> + * <i>rokkel</i>    | 'to coax away'   |
|      | * <i>teleur</i> + <i>stel</i>  | 'to disappoint'  |
|      | * <i>teweeg</i> + <i>bring</i> | 'to bring about' |

The bound morphemes in (20) below each occurs with two different particles and, in the case of (20a) and (20b), with the prefix *ver-* as well.

|         |                              |                                 |
|---------|------------------------------|---------------------------------|
| (20)(a) | <i>aan</i> + * <i>skaf</i>   | 'to acquire'                    |
|         | <i>af</i> + * <i>skaf</i>    | 'to abolish'                    |
|         | <i>ver</i> + * <i>skaf</i>   | 'to provide'                    |
| (b)     | <i>aan</i> + * <i>kondig</i> | 'to announce'                   |
|         | <i>af</i> + * <i>kondig</i>  | 'to proclaim'                   |
|         | <i>ver</i> + * <i>kondig</i> | 'to announce, proclaim, preach' |
| (c)     | <i>op</i> + * <i>skeep</i>   | 'to burden'                     |
|         | <i>af</i> + * <i>skeep</i>   | 'to neglect' <sup>12</sup>      |

The verb-particle combinations in (19) and (20) could be claimed to be semantically noncompositional in the sense defined above if we accept with Aronoff (1976:10) that there is no noncircular way of assigning meanings to the starred constituents of these expressions.

The second class of verb-particle combinations that deserves special mention when discussing the semantic (non)compositionality of such combinations, is a class of verb-particle combinations in Dutch and Afrikaans of which the "verbal" constituent does not occur independently as a verb in the language. As far as English is concerned, Fraser (1976:7-8) does provide a list of verb-particle combinations which, according to him, contain verbal constituents "which never occur alone as verbs (except with very different meanings)". However, these constituents are all listed as verbs in the dictionary and his examples will therefore be ignored. Examples from Dutch and Afrikaans are provided in (21a) and (21b) respectively.<sup>13</sup>

(21)(a) Dutch:

aan + [dik]<sub>A</sub> + en - \*dikken<sub>V</sub>  
on thick SUFFIX  
'to exaggerate'

op + [vrolijk]<sub>A</sub> + en - \*vrolijken<sub>V</sub>  
up happy SUFFIX  
'to make happy'

in + [blik]<sub>N</sub> + en - \*blikken<sub>V</sub>  
in can SUFFIX  
'to can'

af + [tuig]<sub>N</sub> + en - \*tuigen<sub>V</sub>  
off harness SUFFIX  
'to unharness'

(b) Afrikaans:

|   |   |
|---|---|
| <i>af</i> + [ <i>piat</i> ] <sub>A</sub><br>off level<br>'to level off'   | <i>aan</i> + [ <i>dik</i> ] <sub>A</sub><br>on thick<br>'to thicken'                            |
| <i>aan</i> + [ <i>moedig</i> ] <sub>A</sub><br>on brave<br>'to encourage' | <i>op</i> + [ <i>helder</i> ] <sub>A</sub><br>up bright<br>'to brighten up'                     |
| <i>af</i> + [ <i>tak</i> ] <sub>N</sub><br>off branch<br>'to branch off'  | <i>aan</i> + [ <i>kruiwa</i> ] <sub>N</sub><br>on wheelbarrow<br>'to bring on in a wheelbarrow' |
| <i>in</i> + [ <i>bed</i> ] <sub>N</sub><br>in bed<br>'to embed'           | <i>op</i> + [ <i>hemel</i> ] <sub>N</sub><br>up heaven<br>'to extol'                            |

The forms in (21) differ from those presented in (18b) above in that the meanings which the righthand constituents may be claimed to have as constituents of the verb-particle combinations in (21) are clearly related to the meanings of the adjectives and nouns to which these righthand constituents correspond. What has to be explained by an analysis of verb-particle combinations such as those of (21) is how these righthand constituents acquire their verbal reading. The element of meaning added to that of the righthand constituent to yield a verbal reading is constant in those cases where the righthand constituent corresponds to an adjective. In these cases the added element of meaning can be roughly characterized as "cause to become X" (where X represents the meaning of the adjective). In those cases where the righthand constituent of a verb-particle combination corresponds to a noun, however, the element(s) of meaning which must be added to yield a verbal reading appear(s) to be unpredictable. Thus, for example, in the case of *blik* in *inblikken* the added element of meaning is something like "to put into an X" (where X represents the meaning of the noun). For *tuig*

- ii. *omdat sy vir Jan om + gee*  
because she for/to John about gives  
'because she cares about John'

## 2.6 Ability to serve as bases of word formation rules

Verb-particle combinations in English, Dutch, and Afrikaans may serve as bases of word formation rules such as rules of derivational affixation, compounding, and zero derivation.<sup>15</sup> In English verb-particle combinations can form the bases for the rule of *-ed* suffixation which applies in the derivation of adjectives from verbs, as illustrated in (26).

- (26) *She really is a mixed-up kid.*

Derivational suffixes such as *-er* that normally occur with verbs can occur with verb-particle combinations, as shown in (27).

- (27) *There were plenty of onlookers/passers-by.*

Notice that, like inflectional suffixes --- see par. 2.3 above ---, derivational suffixes are normally attached to the verb and not to the verb-particle combination as a whole. In only a small number of cases, e.g. *onlookers* in (27), the positions of the verb and the particle are reversed, so that it could plausibly be argued that it is not only the verb but the verb-particle combination as a whole which serves as the base for the relevant word formation rule. In all cases, however, the meaning of the derived word is composed by bringing the meaning of the suffix to bear on the meaning of the verb-particle combination as a whole. Thus, an *onlooker* is "someone who looks on" and a *passer-by* is "someone who passes by". Therefore, semantically at least, the entire verb-

- (b) *Hij loopt de schoenen in.*  
he walks the shoes in  
'He tries out the shoes.'

Similarly, in Afrikaans normally transitive verbs may become intransitive when combined with a particle, and vice versa. Thus, the verb *kom* 'to come', which is intransitive as shown in (24a), becomes transitive when combined with the particle *teë*, as evidenced by (24b).

- (24)(a) i. *Hy sal kom.*  
he will come.  
ii. *\*Hy sal haar kom.*  
he will her come
- (b) i. *\*Hy sal teë + kom.*  
he will against come  
ii. *Hy sal haar teë + kom.*  
he will her against come  
'He will encounter her.'

The verb *gee* 'to give', by contrast, is normally a double-object verb in Afrikaans. In combination with the particle *om*, however, it takes only a prepositional object. This is illustrated in (25).

- (25)(a) i. *omdat sy die boek vir Jan gee*  
because she the book for/to John gives  
'because she gives the book to John'  
ii. *\*omdat sy vir Jan gee*  
because she for/to John gives
- (b) i. *\*omdat sy die boek vir Jan om + gee*  
because she the book for/to John about gives



in *aftuigen* it is roughly "to provide with an X". In the case of *tak* in *aftak* it appears to be something like "become (like) an X". For *kruis* in *aankruis* the added element of meaning is roughly "to convey by means of an X". In the case of *bed* in *inbed* and *hemel* in *ophemel* it is impossible to specify exactly what the added element of meaning is. It appears to be justified, therefore, to claim that verb-particle combinations in Afrikaans and Dutch of which the righthand constituent is a noun are semantically noncompositional as well.

## 2.5 Idiosyncratic subcategorization

Verb-particle combinations in English, Dutch, and Afrikaans can have subcategorization properties which differ from those associated with the verb on its own.<sup>14</sup> Thus, whereas *caught* is a transitive verb in English, as is illustrated in (22a), it becomes intransitive with the addition of a particle, as shown in (22b).

- (22)(a) i. He caught the ball really fast.  
ii. ??He caught really fast.
- (b) i. He caught on really fast.  
ii. \*He caught on the problem really fast.

And in Dutch the verb *lopen* "to walk" is an intransitive verb. Yet, when it is combined with a particle such as *in* or *af*, it may be followed by a direct object NP as in the following examples presented by Baayen (1986:38):

- (23)(a) Hij loopt de tentoonstelling af.  
he walks the exhibition down  
'He visits the exhibition.'

particle combination serves as the "base" of the affix ---  
see also n. 16 below.

Like verbs, verb-particle combinations can undergo zero-  
derivation to form nouns, as in (28).

(28) *He has always had the makings of a drop-out.*

And, lastly, a nominalized verb-particle combination can form  
the lefthand member of a compound, as shown in (29).

(29) *We received a shutdown notice in the mail today.*

Dutch verb-particle combinations too may serve as bases of  
word formation rules. Thus, Van Santen (1983:77) cites the  
expressions in (30a) as examples of derived words with verb-  
particle combinations as bases. The derived words in (30b)  
are from (Baayen 1986:44) and those in (30c) from (Zwarts  
1975:143). The derivational affixes are capitalized.

- (30)(a) [onder + duik] ER - onderduiken  
under dive -er 'to dive under(water)'  
'fugitive (in wartime)'' 'to flee (in wartime)''
- [voort + breng] ING - voortbrengen  
forth bring -ing 'to bring forth'  
'bringing forth'
- (b) [om + koop] BAAR - omkopen  
around buy -able 'to bribe'  
'bribeable'
- [af + was] BAAR - afwassen  
off wash -able 'to wash off'  
'removable by washing'

- (c) [ *bijeen + raap* ] SEL - *bijeenrapen*  
together gather AFFIX 'to gather together'  
'that which has been  
(hastily) gathered together'
- [ *uit + trek* ] SEL - *uittrekken*  
out pull AFFIX 'to pull out'  
'excerpt' 'to make an excerpt from'

Both Baayen and Zwarts consider the entire verb-particle combination, rather than the verb which is the righthand constituent of such a combination, to serve as the base to which the affixation rule applies. Such an analysis is at least semantically plausible if one accepts that the meaning of morphologically complex words is compositional in the sense of (Williams 1981:245) and (Botha 1984:110-112). According to Botha (1984:112),

"... if the semantic interpretation (or meaning) of a complex word can be specified as a simple function of the meanings of its constituents, these constituents must be bracketed and labelled in such a way as to make such a specification possible."

Notice that a verb-particle combination such as *onderduiken* in (30a) has a noncompositional meaning, viz. 'to flee (in order to avoid persecution) in wartime'. This meaning is a constituent in the composite meaning 'fugitive (i.e. one who flees in order to avoid persecution) in wartime' with which the derived word *onderduiker* is associated. Given the principle of compositionality outlined above, *onder* and *duiken* should thus be analyzed as forming a constituent in the structural representation assigned to *onderduiker*.<sup>16</sup>

With the possible exception of *byeenraapsel* --- the dictionary provides only *byeenraping* ---, the forms in (30) are well-formed in Afrikaans as well. (*Onderduiker* may not be familiar to speakers of Afrikaans, but is accepted as a possible word with the compositional meaning 'someone who

dives under(water)' by them.) In addition to the Afrikaans equivalents of (30), we also find derived words such as those of (31) in Afrikaans.

(31)(a) Nouns:

|                     |   |                     |
|---------------------|---|---------------------|
| [na + aap] ER       | - | na-aap              |
| after ape -er       |   | 'to imitate'        |
| 'imitator'          |   |                     |
| [af + sak] SEL      | - | afsak               |
| off/down sink AFFIX |   | 'to sink, go down'  |
| 'sediment'          |   |                     |
| [om + koop] ERY     | - | omkoop              |
| around buy -er      |   | 'to bribe'          |
| 'bribery'           |   |                     |
| GE [oor + loop]     | - | oorloop             |
| AFFIX over walk     |   | 'to walk over (to)' |
| 'walking over'      |   |                     |

(b) Adjectives:

|                               |   |                |
|-------------------------------|---|----------------|
| [aan + val] END               | - | aanval         |
| on fall -ing                  |   | 'to attack'    |
| 'attacking, aggressive'       |   |                |
| [af + hang] LIK (= afhanklik) | - | afhang         |
| off/down hang -ly             |   | 'to hang down' |
| 'dependent'                   |   | 'to depend'    |
| [af + val] IG                 | - | afval          |
| off/down fall -ish            |   | 'to fall off'  |
| 'faithless, disloyal'         |   | 'to forsake'   |

The bracketing indicated in (31) can be motivated in at least some of the cases. In the case of [na + aap] ER and GE [oor + loop], for instance, the alternative analyses na [aap + ER] and [GE + oor] loop are impossible because

the affixes are not subcategorized for sister constituents of the type in question, viz. N in the case of *-er* and P in the case of *ge-*. In the case of [*af + hang*] *LIK*, the (non-compositional) meaning of *afhang*, viz. 'to depend', is a constituent in the meaning of *afhanklik* 'dependent'. Given the principle of compositionality outlined above, *af* and *hang* should therefore be analyzed as forming a constituent in the structural representation assigned to *afhanklik*. Since the bracketing assigned to the forms in (31) can be argued to be the only possible bracketing in the cases discussed, it will be assumed to be the correct bracketing for all of the forms in (31).

... Finally, as in English (and presumably Dutch), verb-particle combinations in Afrikaans can occur as constituents of compounds, as shown in (32), and can undergo zero-derivation to form nouns, as shown in (33).

- (32)(a) *Die kleuter is nou in die [op+ klouter]-stadium.*  
the toddler is now in the up clamber stage  
'The toddler is now at the age of wanting to  
climb onto everything.'
- (b) *Hy het 'n [uit + koop]-kontrak met sy broer*  
he has a out buy contract with his brother  
*gesluit.*  
closed  
'He made a contract with his brother to buy him  
out.'
- (c) *Daar is 'n [oor + klim]-plek verder aan.*  
there is a over climb place further on  
'There is a place where you can climb over further  
on.'
- (d) *Hy is 'n uitstekende [weg + breek]-bouler.*  
he is an excellent away break bowler  
'He is an excellent off-spin bowler.'

- (33)(a) Die aan + gee het verlore gegaan.  
the on give has astray gone  
'The pass (= rugby term) has gone astray.'
- (b) Die af + loop van die wedstryd is goed bekend.  
the off walk of the match is well known  
'The result of the match is well known.'
- (c) Ek het my met die oor + spring beseer.  
I have me with the over jump hurt  
'I hurt myself in jumping over.'
- (d) Van uit + stei kom af + stei.  
from out put comes off put  
'Postponement usually leads to abandonment.'

## 2.7 Syntactic cohesiveness

Despite their being syntactically separable under the conditions indicated in par. 2.2 above, verb-particle combinations tend to behave like single words in being syntactically more cohesive than ordinary syntactic strings consisting of a preposition or adverb and a verb.<sup>17</sup> Thus, for instance, Fraser (1965) points out that in English the verb and the particle cannot be separated if the verb has undergone action nominalization, as shown in (34).

- (34)(a) He looked up the information.  
(b) His looking up of the information surprized me.  
(c) He looked the information up.  
(d) \*His looking of the information up surprized me.

The particle cannot be conjoined, as is clear from (35).

- (35)(a) \*He looked up and over the information.  
(b) \*He looked the information up and over.

And the particle cannot be freely modified by an adverbial, as illustrated in (36).

- (36)(a) \*He looked right up the information.  
(b) ?He looked the information right up.  
(c) \*He looked part way up the information.  
(d) ?He looked the information part way up.

A further indication of the syntactic cohesiveness displayed by verb-particle combinations, mentioned in (Fraser 1976:3), is the fact that only the verb-particle combination as a whole, but no part of it, can be gapped.<sup>18</sup> This is evidenced by the well-formedness of (37a<sub>ii</sub>) and (37b<sub>ii</sub>) and the ill-formedness of (37c<sub>ii</sub>) and (37d<sub>ii</sub>).

- (37)(a) i. John looked up the information, and Mary looked up the figures.  
ii. John looked up the information, and Mary the figures.  
(b) i. John looked the information up, and Mary looked the figures up.  
ii. John looked the information up, and Mary the figures.  
(c) i. John looked up the information, and Mary looked over the figures  
ii. \*John looked up the information, and Mary over the figures.  
(d) i. John looked the information up, and Mary looked the figures over.  
ii. \*John looked the information up, and Mary the figures over.

Also, as Emonds (1972:554) has pointed out, particles often cannot be preposed under conditions which normally allow the preposing of directional adverbs. Thus we have the contrast in (38).

- (38)(a) Up he lifted the weight!  
(b) \*Up he looked the information!

Verb-particle combinations in Dutch too display the property of syntactic cohesiveness. This was already partly illustrated in (6) and (12) above where it was shown that particles can optionally be moved along with the verb by the rule of V-raising --- see (6) --- and appear adjacent to the verb in *aan het* + infinitive constructions --- see (12a). Note that ordinary intransitive prepositions and NP complements of the verb do not display similar behaviour. Thus the (i)-sentences of (39)(a) and (b), in which an intransitive preposition and a direct object-NP respectively have been moved along with the verb by V-raising, are unacceptable. Similarly the (i)-sentences in (40)(a) and (b), in which an intransitive preposition and a direct object-NP respectively appear adjacent to the verb in an *aan het* + infinitive construction, are unacceptable. The (ii)-sentences represent the well-formed counterparts of the respective (i)-sentences.<sup>19</sup>

- (39)(a) i. \**dat hij [mij e<sub>i</sub> e<sub>j</sub>] probeert [achter]<sub>i</sub>*  
that he me tries in the back  
*[te vinden]<sub>j</sub>.*  
to find
- ii. *dat hij [mij achter e<sub>i</sub>] probeert [te*  
that he me in the back tries to  
*vinden]<sub>i</sub>*  
find  
'that he tries to find me in the back'
- (b) i. \**dat Jan [PRO [e<sub>i</sub>]<sub>vp</sub>]<sub>S</sub> wil [een huis kopen]<sub>i</sub>*  
that John wants a house buy
- ii. *dat Jan [PRO [een huis e<sub>i</sub>]<sub>vp</sub>]<sub>S</sub> wil [kopen]<sub>i</sub>*  
that John a house wants buy  
'that John wants to buy a house'



- (40)(a) i. \**dat hij [aan het achter spitten] is*  
that he PROGRESSIVE in the back dig is
- ii. *dat hij achter [aan het spitten] is*  
that he in the back PROGRESSIVE dig is  
'that he is digging in the back'
- (b) i. \**Karel is [aan het de leraar plagen]*  
Charles is PROGRESSIVE the teacher tease
- ii. *Karel is de leraar [aan het plagen]*  
Charles is the teacher PROGRESSIVE tease  
'Charles is teasing the teacher.'

The syntactic cohesiveness of verb-particle combinations in Dutch is further indicated by the inability of the particle to undergo the rules of Topicalization and PP-over-V. Whereas ordinary intransitive prepositions can be moved to the topic position of a sentence by the rule of Topicalization, as shown in (41b), or to the right of the verb by PP-over-V, as shown in (42b), particles can undergo neither type of movement, as shown in the (a)-sentences of (41) and (42).<sup>20</sup>

- (41)(a) i. *Hij heeft mij op + gebeld.*  
he has me up rung  
'He rang me up.'
- ii. \**Op heeft hij mij gebeld.*  
up has he me rung
- (b) i. *dat ik beneden werk en (dat ik) boven slaap*  
that I below work and that I above sleep  
'that I work downstairs and sleep upstairs'
- ii. *Beneden werk ik en boven slaap ik.*  
below work I and above sleep I  
'Downstairs I work and upstairs I sleep.'

- (42)(a) i. *dat Jan achter + raakt*  
that John behind gets  
'that John falls behind'
- ii. \**dat Jan raakt achter*  
that John gets behind
- (b) i. *dat Jan achter niet op zijn gemak zit*  
that John in the back not at his ease sits  
'that John does not sit comfortably in the back'
- ii. *dat Jan niet op zijn gemak zit achter*  
that John not at his ease sits in the back

The question of the possibility of adverbial modification of the particle in Dutch is broached only by Baayen. According to him (1986:34) the sentences in (43) indicate that particles allow limited adverbial modification in Dutch.

- (43)(a) \**Jan belde me helemaal op.*  
John rings me completely up
- (b) *Jan at zijn eten helemaal op.*  
John ate his food completely up  
'John finished his food completely.'

Afrikaans verb-particle combinations appear to be even more cohesive syntactically than their Dutch counterparts, as was pointed out in par. 2.2 above. Thus, it was shown that the preferred position for the particle after application of the rule of V-raising in Afrikaans is the position adjacent to the verb --- see (7) above. According to Du Plessis (1972:27), the more "particle-like" (i.e. the less like an ordinary preposition or adverb) the lefthand constituent of a verb-particle combination, the less acceptable a sentence in which the lefthand constituent has been separated from the verb by V-raising. Thus, according to him (1972:27ff), the (i)-sentences in (44) in which the particles are separated from their verbs are acceptable to speakers of Afri-

kaans, but the (i)-sentences in (45) are not. Notice that, whereas the verb-particle combinations of the sentences in (44) are semantically compositional, those of the sentences in (45) are not.

- (44)(a) i. *Hy sal [n stertjie aan e] bly las.*  
he will a tail on keep add  
'He will keep on adding an interesting turn  
(to the story).'
- ii. *Hy sal [n stertjie e e] bly aan + las.*  
he will a tail keep on add
- (b) i. *Sy sal [weg e] bly kyk.*  
he will away keep look  
'She will keep on looking away.'
- ii. *Sy sal [e e] bly weg + kyk.*  
she will keep on away look
- (45)(a) i. *\*Die bende sal [ons aan e] bly rand.*  
the gang will us to/on keep ?
- ii. *Die bende sal [ons e e] bly aan + rand.*  
the gang will us keep on ?  
'The gang will keep on attacking us.'
- (b) i. *\*Die dorpsjapies sal [aan die afval weg e]  
the townsmen will to/on the tripe away  
bly lê.  
keep lay*
- ii. *Die dorpsjapies sal [aan die afval e e]  
the townsmen will to/on the tripe  
bly weg + lê.  
keep away lay  
'The townsmen will keep on tucking into the  
tripe.'*

With modal auxiliaries, instead of a verb such as bly, a similar difference in syntactic cohesiveness is exhibited

by semantically compositional (46a) and semantically non-compositional (46b) verb-particle combinations respectively. However, unlike the (i)-sentences in (45) above, Du Plessis does not consider (46bi) to be unacceptable. He (1972:15, 38) merely considers it to be "not normal usage".

(46)

(a) i. *Die inbreker sal [in die huis in e]  $\left\{ \begin{matrix} moet \\ kan \\ wil \end{matrix} \right\}$  kom.*

the burglar will in the house in  $\left\{ \begin{matrix} have \\ be able \\ want \end{matrix} \right\}$  come

'The burglar will  $\left\{ \begin{matrix} have \\ be able \\ want \end{matrix} \right\}$  to get into the house.'

ii. *Die inbreker sal [in die huis e e]  $\left\{ \begin{matrix} moet \\ kan \\ wil \end{matrix} \right\}$  in + kom.*

the burglar will in the house  $\left\{ \begin{matrix} have \\ be able \\ want \end{matrix} \right\}$  in come

(b) i. *?Die gemeente sal [die kerk in e]  $\left\{ \begin{matrix} moet \\ kan \\ wil \end{matrix} \right\}$  wv.*

the congregation will the church in  $\left\{ \begin{matrix} have \\ be able \\ want \end{matrix} \right\}$  consecrate

'The congregation will  $\left\{ \begin{matrix} have \\ be able \\ want \end{matrix} \right\}$  to consecrate the church.'

ii. *Die gemeente sal [die kerk e e]  $\left\{ \begin{matrix} moet \\ kan \\ wil \end{matrix} \right\}$  in + wv.*

the congregation will the church  $\left\{ \begin{matrix} have \\ be able \\ want \end{matrix} \right\}$  in consecrate

In *aan die* + infinitive constructions in Afrikaans, the particle often has to appear adjacent to the verb. Kempen (1984: 194-195) provides the following example:

- (47)(a) \*Op die veld is die spannetjie hom teen  
on the field is the team itself against  
aan die sit.  
PROGRESSIVE put
- (b) Op die veld is die spannetjie hom aan die  
on the field is the team itself PROGRESSIVE  
teen + sit.  
against put  
'On the field the team is offering opposition.'

However, particles which Du Plessis considers to be ordinary prepositions or adverbs rather than particles --- see (44) above --- can also appear separated from the verb in *aan die* + infinitive constructions in Afrikaans, as illustrated in (48), where *aan't* is a variant form of *aan die*.

- (48)(a) Hy was weg *aan't* hardloop toe hy skielik  
he was away PROGRESSIVE run when he suddenly  
*gly*.  
slip  
'He was running away when he suddenly slipped.'
- (b) Hy was *aan't* weg + hardloop toe hy skielik  
he was PROGRESSIVE away run when he suddenly  
*gly*.  
slip

With regard to the rules of Topicalization and PP-over-V, Afrikaans and Dutch verb-particle combinations appear to pattern alike. Thus, whereas ordinary intransitive prepositions can topicalize in Afrikaans, as shown in (49a), the particle constituent of a verb-particle combination cannot, as shown in (49b).

- (49)(a) i. Die son het buite *geskyn*.  
the sun has outside shone  
'The sun was shining outside.'

ii. Buite het die son geskyn.  
outside has the sun shone  
'Outside, the sun was shining.'

(b) i. Hy het my dikwels op + gebel.  
he has me often up rung  
'He often rang me up.'

ii. \*Op het hy my dikwels gebel.  
up has he me often rung

However, if the meaning of the verb-particle combination is fully compositional --- as in (50a) --- or at least highly transparent in the sense of par. 2.4 --- as in (50b) --- a sentence with the particle in the topicalized position is judged either completely acceptable (50aii) or not totally unacceptable (50bii) by speakers of Afrikaans.

(50)(a) i. Ek kon nie weg + kyk nie.  
I could not away look not  
'I could not look away.'

ii. Weg kon ek nie kyk nie.  
away could I not look not

(b) i. Hulle kan nie wil voor + loop nie!  
they can not want in front walk not  
'It cannot be true that they are leading (in the game)!'

ii.? Voor kan hulle nie wil loop nie!  
in front can they not want walk not

Although ordinary intransitive prepositions in Afrikaans can undergo the rule of PP-over-V, as illustrated in (51a), the particle constituent of a verb-particle combination can not, as shown in (51b).

- (51)(a) i. *dat Jan agter gemaklik sit*  
that John in the back comfortably sits  
'that John sits comfortably in the back'
- ii. *dat Jan gemaklik sit agter*  
that John comfortably sits in the back
- (b) i. *dat Jan vinnig agter + raak*  
that John fast behind gets  
'that John is falling behind fast'
- ii. \**dat Jan vinnig raak agter*  
that John fast gets behind

The degree of cohesiveness which a verb-particle combination exhibits with regard to the rule of gapping in Afrikaans appears to be related to the degree of semantic transparency of the combination as well. Thus, sentence (52a<sub>ii</sub>), in which a constituent of a semantically compositional, hence completely transparent, verb-particle combination is gapped, is acceptable to speakers of Afrikaans. Sentence (52b<sub>ii</sub>), in which a constituent of a semantically noncompositional but, arguably, still transparent verb-particle combination is gapped, is slightly less acceptable. By contrast, sentence (52c<sub>ii</sub>) in which a constituent of a noncompositional, semantically non-transparent verb-particle combination is gapped, is completely unacceptable.

- (52)(a) i. *Hy loop aan en sy loop terug.*  
he walks on and she walks back  
'He walks on and she walks back.'
- ii. *Hy loop aan en sy terug.*  
he walks on and she back
- (b) i. *Sy maak telkens uit en hy maak op.*  
she makes time and again out and he makes up  
'She breaks off the relationship time and again and he repairs it.'
- ii.? *Sy maak telkens uit en hy op.*  
she makes time and again out and he up

- (c) i. Piet gee oor en Jan gee om.  
Peter gives over and John gives about  
'Peter surrenders and John cares.'
- ii. \*Piet gee oor en Jan om.  
Peter gives over and John about

And, finally, the Afrikaans facts with regard to the possibility of modification of the particle constituent of verb-particle combinations are similar to the Dutch facts cited in (43) above. Thus, corresponding to (43a), we have (53a) and corresponding to (43b), we have (53b) in Afrikaans.

- (53)(a) \*Jan bel my heeltemal op.  
John rings me completely up
- (b) Jan ee sy kos heeltemal op.  
John eats his food completely up  
'John finishes all his food.'

Notice that the ability of the particle to be modified by an adverb in (53b), but not in (53a), once again correlates with the fact that *opeet* in (53b) is semantically compositional whereas *opbel* in (53a) is not. Thus, it is significant that if *op* in (53a) were to be interpreted as having the meaning 'finished', i.e. roughly the meaning of *op* in (53b), but in the figurative sense of 'exhausted', then (53a) would be more acceptable.

## 2.8 Phonological stress on the particle

The last property of verb-particle combinations to be mentioned here is a phonological one, viz. their characteristic stress pattern. In English, Dutch and Afrikaans, the particle carries the primary stress, as shown in (54). Primary stress is indicated with a "-".<sup>21</sup>



|         |                   |                           |
|---------|-------------------|---------------------------|
| (54)(a) | <u>English:</u>   |                           |
|         | to drop oút       | to put oút                |
|         | to break úp       | to take óff               |
| (b)     | <u>Dutch:</u>     |                           |
|         | meé + maken       | dóor + halen              |
|         | with make         | through haul              |
|         | 'to experience'   | 'to pull through'         |
|         |                   | 'to scratch out'          |
|         | óver + lopen      | toé + geven               |
|         | over walk         | to give                   |
|         | 'to overflow'     | 'to give more than is re- |
|         | 'to defect'       | quired'                   |
|         |                   | 'to admit'                |
| (c)     | <u>Afrikaans:</u> |                           |
|         | áan + gee         | óp + klim                 |
|         | to give           | up climb                  |
|         | 'to hand (to)'    | 'to climb up'             |
|         | uít + stel        | ín + staan                |
|         | out put           | in stand                  |
|         | 'to postpone'     | 'to stand in'             |

As has often been pointed out, the stress pattern of verb-particle combinations in Dutch and Afrikaans is the same as that of compounds, i.e. the primary stress typically falls on the lefthand, nonhead constituent.<sup>22</sup>

## 2.9 Summary

The following properties were shown above to be considered in the literature as characteristic properties of verb-particle combinations in English, Dutch, and Afrikaans:

- (55)(a) syntactic separability, i.e. the ability of the verb and the particle to be nonadjacent in syntactic structure (cf. par. 2.2);
- (b) internal inflection, i.e. the ability of verb-particle combinations to take inflectional affixes internally (cf. par. 2.3);
- (c) semantic noncompositionality, i.e. the tendency for verb-particle combinations to have meanings which are not entirely predictable from the literal meanings of their constituents and the relation between these constituents (cf. par. 2.4);
- (d) idiosyncratic subcategorization, i.e. the ability of verb-particle combinations to have subcategorization properties which differ from those associated with the verb on its own (cf. par. 2.5);
- (e) ability to serve as the bases of word formation rules such as rules of derivational affixation, compounding, and zero-derivation (cf. par. 2.6);
- (f) syntactic cohesiveness, i.e. the tendency of verb-particle combinations to behave like a single word with regard to syntactic rules of conjunction, gapping, topicalization, and PP-postposing, and also with regard to adverbial modification of the particle, and (in the case of Dutch and Afrikaans) in V-raising and *aan ... het/die* + infinitive constructions (par. 2.7);
- (g) phonological stress on the particle, i.e. the characteristic stress pattern of verb-particle combinations whereby the particle carries primary stress --- like compounds in the case of Dutch and Afrikaans (par. 2.8).

The list of properties in (55) must not be considered exhaustive. A number of properties other than those listed in (55) have been mentioned by various linguists in their discussions and analyses of verb-particle combinations. Some of these will be mentioned further on. As will become clear from the critical discussion in chapters 3 and 4 of a number of analyses of verb-particle combinations which have been proposed in the recent literature, the properties discussed in this chapter are particularly relevant to the question of whether verb-particle combinations should be assigned the status of words or of phrases.

Chapter 3

LEXICALIST ANALYSES OF VERB-PARTICLE COMBINATIONS

3.1 General

In this chapter we take a critical look at three analyses of verb-particle combinations which are presented within the framework of a lexicalist approach to word formation such as that outlined in chapter 1. The three analyses to be discussed are Simpson's (1983a, b) lexical  $\bar{V}$  analysis of verb-particle combinations in English (par. 3.2), Baayen's overlap analysis of verb-particle combinations in Dutch (par. 3.3), and Selkirk's (1982) dual structure analysis of verb-particle combinations in English (par. 3.5). Of the three analyses, those proposed by Simpson and Baayen to account for the properties of verb-particle combinations in English and Dutch, respectively are similar in that on both these analyses verb-particle combinations are assigned the status of phrases. A phrase, for purposes of the present discussion, will be taken to be any category that is higher in the  $\bar{X}$  hierarchy than the category  $X^0$ , hence a category of the level  $X^1$ . On Selkirk's analysis, by contrast, verb-particle combinations are claimed to be both words, i.e.  $X^0$  categories, and phrases, i.e.  $\bar{X}$  (or  $X^1$ ) categories.

The immediate aim of the discussion in this chapter is, on the one hand, to identify and analyze the shortcomings of the analyses in question and, on the other hand, to examine the major general linguistic assumptions underlying these analyses. The ultimate aim is to show that some of the shortcomings of the analyses must be taken to reflect negatively on the lexicalist construal of the relationship between syntax and morphology which was outlined in chapter 1.

The discussion will be organized as follows. First, in par. 3.2, the central claims made on Simpson's analysis, as well as the formal devices proposed to express these claims, will be outlined briefly. This will be followed by a discussion of the major shortcomings of her analysis. Next, in par. 3.3, we will consider the central claims made and formal devices proposed on Baayen's analysis, as well as the major shortcomings of this analysis. The general linguistic assumptions underlying Simpson's and Baayen's analyses will be examined in par. 3.4. In par. 3.5 we will briefly consider Selkirk's far less detailed analysis of verb-particle combinations in English. Once again, an outline of the central claims made and formal devices proposed will be followed by an attempt to identify both the major shortcomings of the analysis and the general linguistic assumptions on which it is based.

### 3.2 Simpson's lexical $\bar{V}$ analysis

#### 3.2.1 Claims and formal devices

Simpson (1983a:8) proposes that verb-particle combinations in English belong to the category  $\bar{V}$  which is, exceptionally, generated by a rule of morphology/word formation. Thus, both instances of a verb-particle combination such as *look up* in (1) are derived from the underlying structure shown in (2).

- (1)(a) look up the number  
(b) look the number up

- (2) [ [look]<sub>v</sub> [up]<sub>p</sub> ] $\bar{V}$

On the one hand, the category level of the verb-particle combination is claimed to be that of a syntactic verb phrase, i.e.  $\bar{V}$ . The structure (2) differs from that of a phrase, how-

ever, in that the nonhead constituent, i.e. the particle, is not a maximal projection of the lexical category P as required by  $\bar{X}$ -theory.<sup>1</sup> On the other hand, despite the phrasal category level of the structure as a whole, (2) resembles a compound verb structure and is in fact claimed to be generated by an (unformulated) word formation rule by Simpson. As all word formation rules apply in the lexicon on the general theory of word formation which Simpson accepts, I shall refer to her analysis of verb-particle combinations as the "lexical  $\bar{V}$  analysis".

By assuming that verb-particle combinations are generated in the word formation component of the grammar, Simpson (1983a:8) claims to be able to account for the fact that these constructions exhibit properties that are characteristically associated with words. According to Simpson, her analysis can explain why verb-particle combinations behave like words with regard to meaning, subcategorization and ability to serve as bases for other rules of the word formation component. Specifically, the fact that both continuous verb-particle combinations such as *look up* in (1a) and discontinuous verb-particle combinations such as *look ... up* in (1b) have the same noncompositional meaning and idiosyncratic subcategorization is accounted for by assigning them a single underlying structural representation, viz. (2) above.

In order to account for the properties which verb-particle combinations share with phrases, viz. their syntactic separability and their ability to take inflectional affixes internally, an additional assumption is needed within Simpson's general theory of word formation. She (1983a:8) assumes without argument that  $\bar{X}$  categories formed in the word formation component are analogous to syntactic  $\bar{X}$  categories in that their internal structure is visible, i.e. accessible, to all rules which may subsequently apply to these categories.<sup>2</sup> Thus, rules of inflectional affixation, which apply after rules of compounding on her theory, cannot normally attach an inflectional affix to a constituent of a compound,

only to the compound as a whole. Yet inflectional affixes can be attached to the verbal constituent of a verb-particle combination. Since, as a  $\bar{V}$  category, a verb-particle combination has a visible internal structure, the verbal constituent is available as a base for the application of the rule inserting the past tense suffix.

The separability of the verb and the particle too follows from the assumption that  $\bar{X}$  categories have a visible internal structure. Because of its visible internal structure, the constituents of a verb-particle combination can be inserted under the  $V$  and  $P$ (reposition) nodes dominated by  $\bar{V}$  in a syntactic structure according to Simpson (1983a:9).

As an independent constituent of  $\bar{V}$ , the particle can be moved to the post-direct object position, accounting for the discontinuity of the verb and the particle in (1b).

### 3.2.2 Shortcomings

#### 3.2.2.1 Lexically generated $\bar{X}$

A first set of problems with Simpson's lexical  $\bar{V}$  analysis concerns her assumption that  $\bar{X}$  categories can be generated by word formation rule. Given this assumption, it is predicted that other  $\bar{X}$  categories, apart from  $\bar{V}$ , may be generated in the word formation component as well. However, Simpson (1983a:10 n. 9) cites only one other instance in which it would, putatively, be necessary to assume that an  $\bar{X}$  category is generated in the word formation component, viz. the case of compound nouns such as *hanger on* which take plural affixes internally as in *hangers on*. According to Simpson, for the plural affix to appear internally a compound such as *hanger on* must have a visible internal structure, i.e. it must be an  $\bar{N}$ .

The fact that a form such as *hangers on* displays internal inflection can hardly be regarded as convincing evidence for the hypothesis that  $\bar{X}$  categories may be generated in the word formation component, however. First, the data concerning the internal inflection of *hangers on* fail to satisfy the requirement of evidential comprehensiveness, i.e. the requirement in terms of which the extent of the factual justification for a hypothesis is related to the size of the corpus of evidence for the hypothesis.<sup>3</sup> Second, the fact that Simpson provides no examples of  $\bar{A}$  (and  $\bar{P}$ ) categories generated by word formation rule in the lexicon may be construed as an indication that the hypothesis in question makes incorrect predictions. Whereas it is predicted that, apart from lexically generated  $\bar{V}$  categories, lexical  $\bar{N}$ ,  $\bar{A}$ , and  $\bar{P}$  categories should occur as well, only  $\bar{V}$  categories and a single instance of an  $\bar{N}$  category are apparently attested.

Third, the data concerning the internal inflection of *hangers on* fail to satisfy the requirement of evidential independence, i.e. the requirement in terms of which the extent of the factual justification which a given hypothesis derives from the evidence adduced for it is related to the degree of independence of the evidence.<sup>4</sup> Thus Selkirk (1982:128 n. 12) points out that agent nouns such as *hanger on* occur "only if the corresponding verb-particle construction does". The existence of compound nouns such as *hanger on* appears therefore to be closely related to the existence of the corresponding verb-particle combination, viz. *hang on*. But if the occurrence of compound nouns such as *hangers on* is thus closely related to that of the corresponding verb particle combinations, the occurrence of the former expressions can hardly be regarded as independent evidence for an assumption that is made in order to account for the properties of the latter constructions in English.

In order to justify the assumption that  $\bar{X}$  categories may be generated by word formation rule, Simpson would have



to cite additional evidence involving syntactically complex expressions, specifically nominal, adjectival and prepositional expressions, that are completely unrelated to verb-particle combinations. She would have to show that, in order to account for the properties of these expressions, it must be assumed that  $\bar{X}$  categories may be generated in the word formation component of the grammar. In the absence of such evidence, two conclusions must be drawn. First, the assumption that  $\bar{X}$  categories may be generated by word formation rule in the lexicon forms the basis of incorrect predictions regarding the occurrence of lexical  $\bar{A}$  and  $\bar{P}$  categories and therefore cannot be maintained in its full generality. Second, even a weaker version of the assumption, providing only for the generation of  $\bar{N}$  and  $\bar{V}$  categories in the word formation component of the grammar, cannot be maintained, as it forms the basis for wrong predictions about the occurrence of lexically generated  $\bar{V}$  and  $\bar{N}$  categories other than verb-particle combinations and expressions related to such combinations. Thus, the only version of the assumption that can be maintained, given the evidence provided by Simpson, may be formulated as follows:  $\bar{X}$  categories may be generated in the word formation component if these categories contain verb-particle combinations or expressions related (in a sense to be made precise) to verb-particle combinations. In other words, Simpson's assumption that  $\bar{X}$  categories may be generated in the word formation component is ad hoc in the sense that it can be motivated only with reference to verb-particle combinations, i.e. to the phenomena for the analysis of which this assumption is made in the first place.

Moreover, the assumption that  $\bar{X}$  categories may be generated in the word formation component entails the postulation of (a) word formation rule(s) which is/are identical in function to the syntactic phrase structure rule(s) generating syntactic  $\bar{X}$  categories. The postulation of rules generating  $\bar{X}$  categories in the word formation com-

ponent of the grammar thus constitutes a conceptual redundancy within the grammar. The fact that it entails conceptual redundancy also reflects negatively on Simpson's assumption that  $\bar{X}$  categories are generated by word formation rule.

### 3.2.2.2 Distinguishing between lexical and syntactic $\bar{V}$

A second problem with Simpson's lexical  $\bar{V}$  analysis concerns the fact that the analysis, as outlined above, incorrectly predicts that verb-particle combinations will display the same syntactic behaviour as phrases. If the syntactic separability of the verb and the particle is predicted by the hypothesis that verb-particle combinations are assigned the category level  $\bar{V}$ , then it must also follow from this hypothesis that the constituents of verb-particle combinations will exhibit other properties typically associated with the constituents of  $\bar{V}$ , i.e. with the constituents of phrasal categories. It was pointed out in par. 2.7 above that the constituents of verb-particle combinations do not behave like the constituents of syntactic phrases with regard to syntactic processes such as conjunction, modification, gapping and preposing. In order to explain why, apart from being separable by syntactic rule, verb-particle combinations are otherwise syntactically highly cohesive, a lexical  $\bar{V}$  analysis would have to include a mechanism for distinguishing between lexically and syntactically generated  $\bar{V}$ . Simpson (1983a:10-11 n. 11) recognizes this and suggests that the difference in syntactic behaviour between the constituents of lexically generated  $\bar{V}$  and those of syntactically generated  $\bar{V}$  may be ascribed to the fact that a lexically generated  $\bar{V}$  is "a single lexical item". That is, the fact that a  $\bar{V}$  consisting of a verb and a particle is generated in the lexicon must somehow be encoded on the relevant  $\bar{V}$  node in a syntactic structure in order to bar certain syntactic rules from applying to the constituents of that  $\bar{V}$ .

It could be argued that such an "encoding" device is independently required for idioms, i.e. syntactic phrases with a noncompositional meaning, the constituents of which exhibit varying degrees of inaccessibility to syntactic rules.<sup>5</sup> However, idioms are "lexical items" in the sense of being listed in the lexicon. Verb-particle combinations, according to Simpson, are "lexical items" by virtue of being generated by a, presumably productive, word formation rule operating in the lexicon. She (1983a:7) explicitly denies that verb-particle combinations are lexicalized phrases on a par with, e.g. *hit the bottle*. According to her, verb-particle combinations are only "sometimes lexicalized". The lexical origin of those verb-particle combinations that are not lexicalized, in the sense of listed in the lexicon, would thus have to be specified by some other device than that which is independently required for the specification of the lexical origin, and the accompanying syntactic cohesiveness, of idiomatic phrases.

Simpson makes no suggestion as to how the lexical origin of lexically generated  $\bar{V}$  is to be signalled by the grammar. Within the general framework which Simpson assumes, the distinction between lexically and syntactically generated complex expressions is conventionally signalled by a difference in category level:  $X^0$  in the former and  $X^{1<}$  in the latter case. But category level cannot draw the required distinction between lexically and syntactically generated V-P strings, given Simpson's lexical  $\bar{V}$  analysis of verb-particle combinations. Thus, the required distinction must be drawn by some other kind of device, the form and mode of application of which are unclear. In addition, the grammar would have to include a constraint stipulating that  $\bar{V}$  categories marked in this way as being lexical in origin may not be operated upon by syntactic rules such as rules of conjunction, gapping, and preposing and the rules responsible for generating adverbial modifiers. But such a constraint would represent a global constraint, i.e. a constraint governing an entire syntactic derivation by taking into account not only the structure to

which a given rule applies, but also the derivational history of this structure. Global rules and constraints that have been proposed in the literature have repeatedly been argued to represent an objectionable kind of theoretical device which has to be rejected because it is descriptively far too powerful and therefore has no explanatory power.<sup>6</sup> Moreover, the constraint in question would have to restrict an arbitrary subclass of syntactic rules from applying to lexically generated  $\bar{V}$  categories. Whereas the rules responsible for gapping, conjunction, preposing, and adverbial modification have to be prevented from applying to lexically generated  $\bar{V}$  categories, the rule of Particle Movement must not be so restricted. Simpson (1983a:10 n. 11) admits that the distinction between those rules that can and those that must not be allowed to apply to lexically generated  $\bar{V}$  categories cannot be drawn in a principled way within the framework of her analysis.

Thus, Simpson's lexical  $\bar{V}$  analysis may be criticized for either making incorrect predictions about the syntactic cohesiveness of verb-particle combinations in English, or requiring the postulation of (i) an obscure kind of device in order to distinguish between lexically and syntactically generated  $\bar{V}$  categories, and (ii) a global constraint restricting the applicability of an arbitrary subclass of syntactic rules to structures containing verb-particle combinations on the strength of the lexical origin of these structures. Simpson's lexical  $\bar{V}$  analysis requires the postulation of both the obscure kind of device referred to above and a constraint with the arbitrary nature and excessive power of a global constraint in order to prevent this analysis from making wrong predictions about the syntactic behaviour of verb-particle combinations in English. This fact reflects negatively on the lexical  $\bar{V}$  analysis.

### 3.2.2.3 Lexical insertion at nonterminal node level

A third problem with Simpson's lexical  $\bar{V}$  analysis concerns the view of lexical insertion expressed by Simpson's (1983a: 9) claim that

"The verb-particle ... combinations will enter the syntax with brackets intact. They will be lexically inserted as V and Preposition... .., under  $\bar{V}$ ."

Underlying this claim is the assumption that lexical insertion can occur at the level of nonterminal nodes in phrase structure. That is, it is assumed that lexical insertion can consist in the substitution of a nonterminal  $\bar{V}$  node in a syntactic structure by a  $\bar{V}$  category generated by morphological rule in the lexicon. This view of lexical insertion is at odds with the view of lexical insertion assumed both in the GB theory of grammar and in lexicalist variants of this theory, such as that within which Simpson couches her proposal. On both the Government-Binding (hence GB) theory and lexicalist versions of GB theory, lexical insertion is assumed to involve the substitution of lexical categories, i.e. categories of the type  $X^0$ , for terminal nodes in syntactic phrase structures.<sup>7</sup> Thus, Simpson's postulation of a lexical insertion device which operates at nonterminal node level may well be taken to represent an extension of the formal power of the grammar as conceived within a GB framework. The question is whether such an extension is warranted.

Let us consider first a potential objection which can not be considered to be a valid objection to Simpson's adoption of a device of lexical insertion at nonterminal node level. It might be objected that Simpson appears to operate with a notion of lexical insertion which is similar in some respects to the notion of lexical insertion assumed by the propounders of the theory of Generative Semantics in the late sixties and early seventies. Thus, McCawley (1968:72) proposed that

"each 'dictionary entry' could be regarded as a transformation, namely a transformation which replaces a portion of a tree that terminates in semantic material by a complex of syntactic and phonological material" [my emphasis --- CleR].

The similarity between McCawley's proposal and Simpson's notion of lexical insertion for verb-particle combinations is only superficial, however. The lexical and syntactic substructures that were to be matched on McCawley and other Generative Semanticists' account were essentially semantic structures, i.e. structured composites of semantic predicates and/or arguments. If a semantic substructure created in the "syntax" matched a semantic substructure in the lexicon, the phonological matrix associated with the lexical structure could replace the "syntactic" structure. However, as the structures to be matched on Simpson's account are not semantic structures, but rather structures created by different sets of "syntactic" rules, viz. word formation and phrase structure rules respectively, the criticisms levelled at the Generative Semanticists' notion of lexical insertion are irrelevant to Simpson's proposal and therefore do not constitute valid grounds for objecting to the proposal.

Simpson's adoption of a device of lexical insertion at non-terminal node level could be argued to be objectionable on other grounds, however. Thus, consider Simpson's failure to provide justification for the postulation of the device in question. The fact that Simpson provides no independent evidence for the adoption of such a device could be construed as an indication that her assumption that lexical insertion of verb-particle combinations can occur at nonterminal node level is ad hoc, its sole function being to enable her to uphold her lexical  $\bar{V}$  analysis of these constructions. Alternatively, her failure to provide the required justification could indicate that she regards the use of this device to have been so well argued in the literature that its well-foundedness may be assumed without further argument.

Similar proposals concerning lexical insertion at nonterminal node level have in fact been made within the framework of transformational grammar. Thus, Jackendoff (1975:662) proposed that idioms "must be inserted onto a complex of deep-structure nodes, in contrast to ordinary words which are inserted onto a single node". Fraser (1976:109) makes a similar proposal for idioms, and specifically mentions (1976:110 n. 7) that "the use of just the topmost complex symbol [i.e. the node dominating a verb and a particle --- CleR] in the process of lexical insertion is relevant for verb-particle combinations ...". More recently, Fabb (1984:240) has suggested that "idioms, and V-Prt pairs [i.e. verb-particle combinations --- CleR] ... may be lexical items which are paired with non-terminal nodes in the syntax".

However, not one of these proponents of lexical insertion at nonterminal node level considers the question of whether the extension of the descriptive apparatus of the general linguistic theory required by the proposal is justified. It may well turn out to be impossible to give an adequate account of idioms and/or verb-particle combinations without extending the descriptive power of the grammar. But then it is still the responsibility of those grammarians who consider such an extension to be required, to present convincing arguments showing, first, that an extension of the descriptive power of the grammar by the adoption of the device in question is inevitable and, second, that the analysis requiring such an extension has greater merit than alternative analyses which have been proposed to account for the phenomenon in question and which do not require the use of this device.<sup>8</sup>

Notably, neither kind of justification is provided by Simpson. In the absence of such justification, Simpson's adoption of a device of lexical insertion at nonterminal node level may be criticized on the grounds that no claims are made about either the formal properties or the descriptive power of the device and that it is therefore obscure in

nature. It may also be criticized on the grounds that she fails to provide independent justification for the use of this device. Given these criticisms, Simpson's assumption that lexical insertion may occur at nonterminal node level must be considered an ad hoc measure the sole purpose of which is to protect her lexical  $\bar{V}$  analysis.

#### 3.2.2.4 Summary

Simpson's lexical  $\bar{V}$  analysis of verb-particle combinations in English has been shown to have the following shortcomings:

- (3)(a) A lexical  $\bar{V}$  analysis entails the postulation of a morphological rule for generating  $\bar{X}$  categories which is (i) ad hoc and (ii) introduces conceptual redundancy into the grammar by duplicating the function of phrase structure rules.
- (b) A lexical  $\bar{V}$  analysis either makes incorrect predictions about the syntactic cohesiveness of verb-particle combinations, or it requires the postulation of (i) an obscure kind of device for signalling the lexical origin of certain  $\bar{V}$  categories and (ii) a global constraint on the applicability of an arbitrary subclass of syntactic rules to  $\bar{V}$  categories generated in the lexicon.
- (c) The device of lexical insertion at higher level nodes required by a lexical  $\bar{V}$  analysis (i) is obscure in that no claims are made regarding its formal properties and descriptive power and (ii) is assumed without proper justification.

This concludes our discussion of the claims, formal devices, and major shortcomings of Simpson's lexical  $\bar{V}$  analysis of verb-particle combinations in English. Before turning to a consideration of the general linguistic assumptions under-



lying Simpson's analysis, however, we shall first consider Baayen's analysis of verb-particle combinations in Dutch as well. The general linguistic assumptions underlying both analyses will be considered in par. 3.4.

### 3.3 Baayen's overlap analysis

#### 3.3.1 Claims and formal devices

Baayen (1986:41) proposes that verb-particle combinations in Dutch are formed in what he calls an optional "overlap area of lexicon and syntax". This overlap area, according to him (1986:62), is an area in which principles of both the lexical and syntactic components of a grammar "are equally valid". Verb-particle combinations constitute an overlap phenomenon by virtue of being analyzable simultaneously as morphologically complex verbs generated by the lexical word formation rule (4a) and as syntactic phrases generated by the syntactic rule (4b) according to Baayen (1986:41).

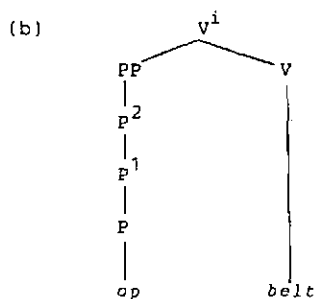
$$(4)(a) [{}_V X] \rightarrow [{}_V^i [{}_{PP} (P)] [{}_V X]]$$
$$(b) V^i \rightarrow (PP) V$$

As regards the use of the superscript "i" in (4), note that Baayen (1986:41) uses the superscript "i" to indicate the category level of the verb-particle combination in his formulation of the rules, but switches to the superscript "i" later on. I shall use the latter notation throughout to avoid confusion.

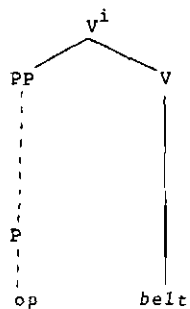
The category level  $V^i$ , according to Baayen (1986:44), is "a level intermediate between  $V^0$  and  $V^1$ ", i.e. between the word category level ( $V^0$ ) and the phrase category level ( $V^1$  or  $\bar{V}$ ).<sup>9</sup>

On Baayen's (1986:41) analysis, the verb-particle combination *opbeIt* in (5a) below has the structural representation (5b). The structural representation (5b) is derived as follows. The lexical structure (6a) is generated by the word formation rule (4a), whereas the syntactic configuration (6b) is generated independently by the syntactic rule (4b). At the level of lexical insertion the lexical structure (6a) is "matched" with the syntactic structure (6b) to yield (5b).

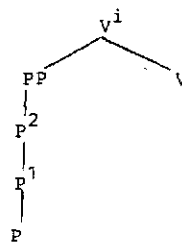
(5)(a) *dat Jan haar op + beIt*  
 that John her up rings  
 'that John rings her up'



(6)(a) lexical structure:



(b) syntactic structure:





Baayen (1986:42) claims that by assuming verb-particle combinations to be formed in the overlap area at the interface of the lexical and syntactic components, he can account for the fact that these constructions exhibit "a mixture of lexical and syntactic characteristics". On the one hand, according to Baayen (1986:42), an overlap analysis can explain why the constituents of verb-particle combinations in Dutch can be separated by syntactic rules such as V-second and V-raising as illustrated in par. 2.2 above. On Baayen's analysis, verb-particle combinations can have both the structural representation (6a) and (6b). The structure (6b) is a syntactic structure generated by the syntactic rule (4b). Syntactic rules such as V-second and V-raising can therefore move the verb out of the  $V^i$  category of which it is a (syntactically) independent constituent.

On the other hand, Baayen (1986:42) claims that an overlap analysis on which verb-particle combinations are simultaneously syntactic and lexical constructs, can account for the fact that verb-particle combinations in Dutch display properties that are typically associated with words. First, according to Baayen (1986:41), the assumption that the particle "can be prespecified lexically", i.e. combined with the verb in the lexicon before insertion into a syntactic structure, can account for the fact that a verb-particle combination may display subcategorization properties which differ from those of the verb alone. According to Baayen (1986:39), an alternative analysis on which particles are freely inserted under the P node in syntactic structures such as (6b) cannot account for the fact that, whereas a verb such as *lopen* is normally intransitive in Dutch, it becomes transitive when combined with a particle such as *af* or *in* in the sentences presented as (23) in par. 2.5 above and repeated here as (10).

- (10)(a) *Hij loopt de tentoonstelling af.*  
he walks the exhibition down  
'He visits the exhibition.'

- (b) *Hij loopt de schoenen in.*  
he walks the shoes in  
'He tries out the shoes.'

Thus, the idiosyncratic subcategorization properties of verb-particle combinations are accounted for by assuming that verb-particle combinations are formed by means of the lexical rule (4a) and, like the output of lexical rules generally, may be assigned an appropriate subcategorization.

Second, according to Baayen (1986:43-44), the typical compound stress contour exhibited by verb-particle combinations can be accounted for by his overlap analysis. The category  $V^i$ , being generated in the overlap area, is simultaneously a lexical and a syntactic node. As a lexical node,  $V^i$  would constitute a possible domain for the application of the phonological rules assigning stress to (lexical) compounds in Dutch.

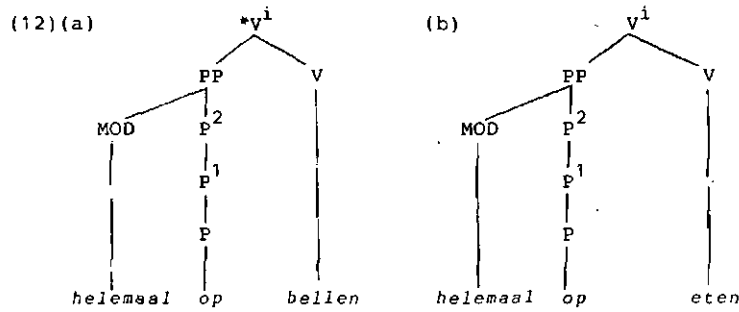
Third, Baayen's overlap analysis can also partly explain the syntactic cohesiveness of verb-particle combinations in Dutch. As was pointed out in par. 2.7 above, particles differ from ordinary intransitive prepositions in that particles allow only limited modification, as was illustrated in (43) in par. 2.7, repeated here as (11). In both (11a) and (11b) the particle *op* is modified by the adverb *helemaal*, but whereas (11b) is acceptable, (11a) is not.

- (11)(a) \**Jan beide me helemaal op.*  
John rang me completely up  
'\*John rang me up completely.'

- (b) *Jan at zijn eten helemaal op.*  
John ate his food completely up  
'John finished his meal completely.'

Baayen (1986:42) claims that the difference in acceptability between (11a) and (11b) can be accounted for by assuming that

the value of  $n$  in the lexical filter (7) may be subject to variation. Thus, given the value of  $n$  as specified in (7), where  $n \leq 2$ , the structure (12b) underlying the acceptable sentence (11b) above is not ruled out by the filter. The structure (12a), which is the structure underlying the unacceptable sentence (11a), is ruled out due to a "lexically determined strengthening" of the filter (7), with the value of  $n \leq 3$  instead of  $n \leq 2$ .



The fact that a particle such as *op* cannot be modified when it is a constituent of a verb-particle combination such as *opbellen*, is thus attributed to the lexical fixing of a parameter. The parameter in question is the value of  $n$  in the filter (7). On Baayen's analysis the filter is independently required to account for the fact that the NP object of P is never expanded syntactically if P dominates a particle, except in the case of idiomatic PPs such as that of (8) above.

Baayen's analysis can presumably account for the cohesiveness of verb-particle combination in V-raising and *aan het* + infinitive constructions as well. The fact that the verb can be raised along with the particle --- see (6) in par. 2.2 above --- could be explained by assuming that V-raising can apply to  $v^i$  as well as to  $v^0$ .<sup>10</sup> In the case of the *aan het* + infinitive construction, the assumption would have to be that progressive aspect may be "spelled out" (in some

sense to be made precise, depending on the analysis assumed for these constructions) at either the  $v^i$  level or the  $v^0$  level. Thus it may be concluded that Baayen's overlap analysis can account for the syntactic cohesiveness of verb-particle combinations in Dutch.

The remaining properties of verb-particle combinations mentioned in chapter 2 above could presumably be accounted for on Baayen's overlap analysis as well. Thus, their ability to take inflectional affixes internally would be consistent with the fact that, according to Baayen (1986:63, 66 n. 11), rules of inflection too are located in the overlap component of the grammar. And, given that constructions generated in the overlap component are "in the scope of the lexicon" as claimed by Baayen (1986:66 n. 11), an overlap analysis of verb-particle combinations would have no trouble accounting for the characteristic semantic noncompositionality of these combinations, or for the fact that they may serve as bases of word formation rules.

However, Baayen's overlap analysis of verb-particle combinations in Dutch also has serious shortcomings. Particularly, this analysis achieves the descriptive success outlined above at the cost of introducing into the grammar of Dutch a number of formal devices which will be shown in the next section to exhibit an array of problematic properties.

### 3.3.2 Shortcomings

#### 3.3.2.1 An overlap component in the grammar

Central to Baayen's analysis of verb-particle combinations in Dutch is the claim that the grammar of Dutch may optionally include a marked overlap component situated at the interface of the lexicon and syntax, where the lexicon is taken by Baayen to include the word formation component. Specifically, in proposing that verb-particle combinations

in Dutch are generated in an overlap component, Baayen claims that these constructions are derived both lexically and syntactically, i.e. that they are generated simultaneously by both a (lexical) word formation rule --- (4a) above --- and a syntactic phrase structure rule --- (4b) above.

A first question which arises in connection with Baayen's claim is whether the underlying assumption that the grammars of human languages may include an overlap component could be shown to be non-ad hoc. In order to answer this question, let us consider the evidence provided by Baayen for this assumption.

According to Baayen (1986:63), the postulation of an overlap component in the grammar is required in order to account for the properties of a number of different constructions in a variety of unrelated languages. He shows that the existence of an overlap component, initially proposed to account for the properties of the genitive construction in Akkadian, can also account for incorporation phenomena in Nahuatl and Greenlandic Eskimo, compounds in Finnish and Sanskrit, and posthead modification in Basque NPs. In addition, according to Baayen (1986:63), an overlap component is required in order to account for phenomena other than verb-particle combinations in Dutch, viz. idioms and (possibly) inflectional affixation. Baayen claims that the fact that the phenomena in question all exhibit a mixture of syntactic and lexical properties can be accounted for only if it is assumed that a degree of overlap occurs between the otherwise distinct syntactic and lexical components of the grammars in question.

The fact that the properties of a wide array of phenomena can be accounted for if the grammar is assumed to include an overlap component does not constitute sufficient grounds for concluding that the proposal is non-ad hoc, however. In order for the assumption in question to be judged non-ad hoc, it would not only have to be shown to be supported by extensive evidence, but it would also have to be shown to be independently motivated. Baayen, however, argues for the



postulation of an overlap component in the grammar on the basis of evidence relating exclusively to the mixture of syntactic and lexical properties displayed by the constructions concerned.

A striking fact about the phenomena for which an overlap analysis is proposed by Baayen is that these phenomena would otherwise require an account which would be inconsistent with what Baayen (1986:1) calls "a widely held version of the lexicalist hypothesis". This is the version outlined in chapter 1 above on which word formation rules are taken to be located in the lexicon and the possible interdependence of the lexicon and syntax is taken to be highly restricted by constraints such as the Lexical Integrity Hypothesis and the No Phrase Constraint. The phenomena cited by Baayen as evidence for the postulated existence of an overlap component in the grammar, like verb-particle combinations in Dutch, all exhibit a mixture of syntactic and lexical properties which cannot be adequately described given the relevant lexicalist view of the organization of the grammar. He does not relate the existence of such "overlap" phenomena in the languages concerned to some other property of these languages or to one or more general linguistic principles. His failure to do so entails that the postulation of an overlap component in the grammar is motivated solely by the existence of phenomena which appear to pose a challenge to the lexicalist construal of the relationship between the lexicon and syntax. But if the existence of apparent counterexamples to the relevant version of the lexicalist hypothesis were the only motivation for proposing an overlap component in the grammar, then Baayen's proposal could indeed be argued to be ad hoc. As a formal device the postulated overlap component would represent a mere protective mechanism: a convenient wastebasket for phenomena which cannot be accounted for given the relevant conception of the relationship between the lexicon qua word formation component on the one hand and syntax on the other hand.

It could be argued that Baayen's (1986:pp. 62ff) claim that the overlap component is a highly marked subsystem of the grammar relieves him of the obligation to show that the presence of an overlap component in the grammar of a given language is related to some other property of the language concerned. Such an argument is unsound, however, as it rests on the incorrect assumption that markedness claims represent an escape hatch whereby the linguist can evade the responsibility for adducing evidence in support of an analysis which requires an apparently ad hoc extension of the formal devices of a grammar. The opposite is true in fact: the claim that a particular grammatical option, such as the option of making use of an overlap component, is marked, is itself an empirical claim that has to be substantiated. Moreover, it has been argued that the kind of evidence that must be adduced in support of markedness claims has to differ from that which is presented for ordinary grammatical and general linguistic hypotheses.<sup>11</sup> Lightfoot (1979:77) states this requirement as follows:

"For specific proposals concerning marked values to entail testable claims, these claims will have to hold of an 'external' domain, a domain other than that of the distribution of morphemes or grammatical well-formedness."

In effect then, an analysis postulating a device by which a particular phenomenon is assigned the status of a marked phenomenon must not only be shown to be the most highly valued analysis available, it must also be shown to meet an additional requirement, viz. that of making correct predictions about external, i.e. extragrammatical, phenomena. That is, the claim that the property of including an overlap component is a marked property of some grammars increases, not decreases, the linguist's evidential responsibility.

A second question which arises in connection with the claim that the grammar of Dutch (as well as those of a number of

other languages) includes an overlap component concerns the refutability of the claim. In order for this claim to be refutable the content of the notion 'overlap component', which is central to the claim, has to be both clear and precise. It has to be clear, first of all, what kinds of rules and principles could overlap. Second, it has to be clear what the constraints on the extent of the overlap between the lexicon and syntax are. And, third, the nature and mode of application of and the constraints on formal devices that are unique to the overlap component, as well as the conditions on which such devices are allowed, have to be clearly specified. Unless these (minimal) requirements are met, any claim to the effect that a given construct X is generated in the overlap component, or that a given formal device Y applies in the overlap component, is irrefutable.

Baayen's explication of the content of the notion 'overlap component' clearly does not satisfy the requirements listed above. First, according to Baayen (1986:24, 62ff), the actual set of lexical and syntactic rules and/or principles which constitute the overlap component of the grammar may differ from one language to the next. Moreover, in the case of Dutch, the rules constituting the overlap component are neither an ordinary word formation rule in the case of (4a), nor an ordinary syntactic rule in the case of (4b). These rules, which are required only for generating verb-particle combinations, both refer to a category  $V^i$  which is apparently unique to the overlap component.

Second, there appears to be in principle no upper limit to the extent of overlap between the lexicon and syntax which may be allowed in a grammar. Baayen (1986:64) claims that the languages which he has found to make use of an overlap component each admits "only one type of productive word formation" in the overlap component. However, this may be merely an accidental fact about the languages which he happens to have investigated. It does not follow from any principled constraint on the overlap component. The possibi-

lity is therefore not excluded that a language could be found in which all word formation (or all of syntax for that matter) was located in the overlap component.

Third, as part of his analysis of verb-particle combinations in Dutch, Baayen proposes a filter --- see (7) above --- which apparently applies only in the overlap component. He does not indicate, however, whether filters are the only kind of formal device that can apply uniquely in the overlap component. Neither does he address the question of the relationship between devices, such as the rules (4a) and (4b), which are claimed to constitute the overlap component and devices, such as the filter (7), which are claimed to apply in the overlap component. The latter omission is even more damaging given that, as was pointed out above, even the rules (4a, b) which Baayen claims to constitute the overlap area between the lexicon and syntax of Dutch are unique to the overlap component in that they appear not to be required independently in the lexicon and the syntax respectively.

It must be concluded that Baayen fails to explicate the notion 'overlap component' and that, as a result of this failure, the claim that verb-particle combinations in Dutch are generated in the overlap component is irrefutable.

In conclusion: it has been argued that the claim that verb-particle combinations in Dutch are generated in an overlap component of the grammar is problematic because (i) the underlying assumption that the grammars of human languages may include an overlap component is ad hoc, and (ii) the claim is irrefutable by virtue of its being presented in terms of an obscure notion 'overlap component'.

In addition to the problems outlined above, it will be argued in the following sections that the claim that verb-particle combinations are generated in an overlap component of the grammar can be maintained only at the cost of postulating additional formal devices such as a category level  $V^i$ , a lexical filter and a device of lexical matching at higher

level nodes in the grammar of Dutch. The latter fact reflects negatively on the claim that verb-particle combinations in Dutch are generated in an overlap component of the grammar for two reasons. First, it will be shown that the sole function of these additional devices is to protect Baayen's overlap hypothesis from potentially disconfirming evidence. This seriously detracts from the refutability of the latter hypothesis. Second, these mechanisms themselves will be shown to have various problematic properties which render them undesirable as grammatical mechanisms. The fact that these mechanisms can be argued to have problematic properties reflects negatively on the merit of the overlap hypothesis which necessitates their postulation.

#### 3.3.2.2 A category level $V^i$

We turn next to the second formal device proposed by Baayen, viz. a category level  $V^i$ . Baayen (1986:44) claims that verb-particle combinations belong to the category level  $V^i$ , "a new level in the projection line of V". Baayen argues for the postulation of an additional  $\bar{X}$  level for verbs by showing that verb-particle combinations can be assigned neither to the category level  $V^0$ , nor to the category level  $V^1$ .

On the one hand, assigning verb-particle combinations to the category level  $V^0$  would have two unacceptable consequences. First, verb-particle combinations would be structurally nondistinct from prefixed verbs which, being generated by rules of the word formation component, are dominated by the lexical category  $V^0$ . If both verb-particle combinations such as (13a) and prefixed verbs such as (13b) were assigned to the category  $V^0$ , it would be impossible to explain why the former, but not the latter, are separable in the syntax according to Baayen (1986:42).

- (13)(a) *Jan weegt de brief over.*  
John weighs the letter over  
'John weighs the letter again.'
- (b) *Jan over + weegt het voorstel.*  
John over weighs the proposal  
'John considers the proposal.'

Second, assignment of verb-particle combinations to the category level  $V^0$  would entail an analysis on which the particle was Chomsky-adjoined to the verb. That is, verb-particle combinations such as *opbellen* would have the structural representation  $[[op]_{pp} [bellen]_{V^0}]_{V^0}$ . According to Baayen (1986:44), extraction of the verb *bellen* from such a structure would violate the A-over-A Principle.<sup>12</sup>

On the other hand, assigning verb-particle combinations to the category level  $V^1$ , i.e. one level higher in the  $\bar{X}$  hierarchy than  $V^0$ , would have unacceptable consequences as well. First, on such an analysis verb-particle combinations would be structurally nondistinct from sequences consisting of an intransitive PP and a verb according to Baayen (1986:42). In the absence of a structural distinction between the two types of constructions, no explanation would be available for the differences in their syntactic behaviour illustrated in (39)-(42) in par. 2.7 above.

Second, assigning verb-particle combinations to the category level  $V^1$  would make it impossible to differentiate structurally between verb-particle combinations and what Baayen (1986:45ff) calls "idiomatic groupings", or idioms. Failure to differentiate structurally between verb-particle combinations such as (14a) and idioms such as (14b) below would make it impossible to explain why the former are productively formed and "can be understood without problems", whereas the latter are "typically isolated and unsystematic" and "have to be explained before they are understood", according to Baayen (1986:46-47).<sup>13</sup>

(14)(a) [ $V^i$  [ $PP$  *op*] [ $V^0$  *bellen*]]

(b) [ $V^1$  [ $PP$  *de dood voor ogen*] [ $V^0$  *hebben*]]  
the death before eyes to have  
'to face the prospect of certain death'

According to Baayen (1986:47), the unproductivity and unsystematic nature of (completely noncompositional) idioms, as opposed to the productivity and "regularity" of the semicompositional verb-particle combinations, is explained by assigning idioms to the category level  $V^1$  and verb-particle combinations to the category level  $V^i$ . Baayen argues that because  $V^1$  structures, i.e. ordinary verb phrases, are characteristically compositional in meaning, it is predicted that noncompositional  $V^1$  structures will be "isolated and unsystematic". By assigning verb-particle combinations to the same category level as idioms, the former constructions would be wrongly predicted to be as unproductive and to display as high a degree of semantic noncompositionality as idioms. We shall consider the assumptions underlying Baayen's argument in par. 3.4 below.

On the strength of considerations such as those mentioned above, Baayen (1986:44) concludes that verb-particle combinations can be assigned neither to the category level  $V^0$ , nor to the category level  $V^1$ . The only alternative, according to him, is to create a new category level, viz.  $V^i$ . The question is whether the claim that verb-particle combinations belong to a category level  $V^i$  is not made merely to protect Baayen's overlap analysis from disconfirming evidence. For recall that, on an overlap analysis of verb-particle combinations in Dutch, these constructions are predicted to exhibit all the properties of verbs ( $V^0$ ) by virtue of being generated by the (lexical) word formation rule (4a) above and to exhibit all the properties of syntactic PP-V sequences by virtue of being generated by the syntactic rule (4b) above. But, of course, this prediction is incorrect.

On the one hand, verb-particle combinations exhibit at least one property that is not typically associated with  $V^0$  categories within the general framework which Baayen adopts: viz. the property of separability by syntactic rule. On the other hand, verb-particle combinations exhibit properties which Baayen claims not to be typically associated with  $V^1$  categories: e.g., properties such as noncompositional meaning, idiosyncratic subcategorization and syntactic cohesiveness. It is to protect his overlap analysis of verb-particle combinations from the negative impact of counter-evidence such as this, that Baayen is forced to propose the creation of the category level  $V^1$ . If verb-particle combinations belong to the category level  $V^1$ , none of the facts listed above pose a threat to the overlap hypothesis.

Such protection would be nonobjectionable only if it could be shown that there was independent evidence (i) for the postulation of a category level  $V^1$  in the grammar of Dutch and (ii) for the claim that verb-particle combinations should be assigned to the category level  $V^1$ . In the absence of such independent evidence, the proposal could be argued to be essentially ad hoc.

Baayen attempts to justify the postulation of a category level  $V^1$  in the grammar of Dutch with reference to two pieces of evidence. His first piece of evidence concerns postpositions in Dutch. He argues that the creation of a category level  $V^1$  allows for a descriptively adequate treatment of the phenomenon of postposition incorporation. Whereas postpositional phrases behave just like prepositional phrases with respect to syntactic rules such as PP-over-V, Topicalization, and the *aan het* + infinitive construction in Dutch, postpositions, unlike prepositions, can optionally behave like particles with respect to V-raising and the *aan het* + infinitive construction. Baayen (1986:42f) illustrates this point with reference to the sentences in (15a) and (15b).



- (15)(a) *dat hij* [<sub>PP</sub>*het water e<sub>i</sub>*] *snel e<sub>i</sub> e<sub>j</sub>*] *probeert*  
that he the water quickly tries  
*in<sub>i</sub> te springen<sub>j</sub>*  
in to jump  
'that he tries to jump quickly into the water'
- (b) *dat hij* [<sub>PP</sub>*de berg e<sub>i</sub>*] *aan het af<sub>i</sub> +*  
that he the mountain PROGRESSIVE down  
*rijden is*  
drive is  
'that he is driving down the mountain'

According to Baayen (1986:42-43) the particle-like behaviour of postpositions such as *in* and *af* in (15) above can be accounted for by assuming that they may be moved into the particle position in a syntactic structure, i.e. to the PP position within  $v^i$ . On such an analysis the movement, or incorporation (as Baayen calls it), of a postposition is predicted to be possible only if the PP position within  $v^i$  is empty, i.e. if it is not occupied by a particle. This prediction is correct according to Baayen (1986:43). Moreover, because the incorporation is accomplished by a syntactic movement rule and not by matching of lexically and syntactically generated structures in the overlap component, it is predicted that after incorporation of a postposition the verb will have the same meaning and subcategorization that it had before application of the incorporation rule. This prediction too is correct according to Baayen.

Thus, according to Baayen, the postulation of a category level  $v^i$  also makes it possible to account for the incorporation of postpositions in Dutch, which is a purely syntactic phenomenon and not, like the formation of verb-particle combinations, an overlap phenomenon which is partly lexical, partly syntactic. The fact that it can account for the incorporation of postpositions would constitute independent evidence for the postulation of a category level  $v^i$  if it could be shown that a  $v^i$  account had more merit than alter-

native accounts of the behaviour of postpositions in Dutch. Baayen offers no evidence for assuming that the category dominating a verb and an incorporated postposition should be  $V^i$  rather than  $V^0$  or  $V^1$ . Notice, however, that the only arguments that Baayen would be able to adduce in favour of  $V^i$  rather than  $V^0$  category status for the node dominating the incorporated postposition, would be the very arguments that were used to justify the postulation of the category level  $V^i$  for the analysis of verb-particle combinations in the first place. It could be argued, therefore, that the data concerning postposition incorporation which Baayen adduces to justify the postulation of a category level  $V^i$  in Dutch fail to meet the requirement of evidential independence.

The second piece of evidence for the postulation of a category level  $V^i$  concerns the putative explanatory success of an analysis on which  $V^i$  category status is assigned to Dutch verb-particle combinations. According to him (1986:44f), such an analysis can explain why the suffix *-baar*, which is normally stress-neutral as shown in (16a), becomes stress-shifting when it is sister to a verb-particle combination, as shown in (16b).

- |         |   |   |  |
|---------|---|---|--|
| (16)(a) | <i>beántwoord</i><br>to answer            | - | <i>beántwoordBAAR</i><br>answerable                  |
| (b)     | <i>ómkoop</i><br>around buy<br>'to bribe' | - | <i>omkóopBAAR</i><br>around buy -able<br>'bribeable' |

According to Baayen (1986:45), the difference in the stress behaviour of the suffix *-baar* illustrated in (16a) and (16b) can be explained by relating the difference in stress behaviour to a difference in the category level of the constituent to which *-baar* is affixed, viz.  $V^0$  in the case of (16a) and  $V^i$  in the case of (16b).

There may be an alternative explanation for the phenomenon in question however. If the stress-shifting behaviour of *-baar* in (16b) were to be linked to the  $V^i$  category status of *omkoop*, we would expect other suffixes to display similar variation in their stress-shifting properties when their sister constituent is a verb-particle combination. It appears, however, that it is only adjective-forming suffixes and never noun-forming suffixes which, when added to verb-particle combinations, attract stress in the way that *-baar* does. Thus we find the pattern of (17).

(17)(a) Adjective-forming suffixes:

- |     |                  |                       |
|-----|------------------|-----------------------|
| i.  | <i>úitdagen</i>  | <i>uitdágEND</i>      |
|     | out challenge    | out challenge -ing    |
|     | 'to challenge'   | 'challenging'         |
| ii. | <i>eánsteken</i> | <i>aansték(E)LIJK</i> |
|     | on stick         | on stick -y           |
|     | 'to infect'      | 'infectious'          |

(b) Noun-forming suffixes:

- |      |                   |                    |
|------|-------------------|--------------------|
| i.   | <i>úitgeven</i>   | <i>úitgevER</i>    |
|      | out give          | out give -er       |
|      | 'to publish'      | 'publisher'        |
| ii.  | <i>úitsluiten</i> | <i>úitsluitING</i> |
|      | out lock          | out lock -ing      |
|      | 'to lock out'     | 'locking out'      |
| iii. | <i>úitsteken</i>  | <i>úitsteekSEL</i> |
|      | out stick         | out stick -ment    |
|      | 'to stick out'    | 'protrusion'       |

Note that, whereas the suffix *-(e)lijk* is always stress-shifting, the behaviour of *-end* is exactly parallel to that of *-baar*: it attracts stress when its base is a verb-particle combination, but not in other cases, as illustrated in (18).

|      |                    |                     |
|------|--------------------|---------------------|
| (18) | <i>veróordelen</i> | <i>veróordeleND</i> |
|      | 'to condemn'       | 'condemnatory'      |

The fact that it is apparently only adjective-forming suffixes that become stress-shifting when affixed to verb-particle combinations, and never noun-forming suffixes, suggests that the phenomenon in question may be linked to some property of the affixes themselves and not to the category level of the sister constituents of the affixes. Booij (1977:par. 2.2.1.3) in fact mentions the problematic status of a number of adjective-forming suffixes in Dutch whose stress-shifting behaviour is inconsistent with other properties which these affixes have in common with stress-neutral affixes. Though a much better understanding of the stress properties of Dutch affixes is required, it should be clear from these quite general observations that there may conceivably be an alternative account of the stress behaviour of *-baar*. The possibility of an alternative account reduces the power of Baayen's argument for the postulation of a category level  $V^i$  in that it places a question mark over the relevance of the evidence on which the argument is based.

It appears then that neither of the two pieces of evidence for the postulation of a  $V^i$  category level which Baayen presents can be considered convincing, because neither piece of evidence satisfies the applicable evidential requirements. First, it has been shown that the data concerning postposition incorporation in Dutch fail to meet the requirement of evidential independence. Second, it has been argued that an alternative account of the data concerning the stress behaviour of the Dutch suffix *-baar* may conceivably be given, in which case the data in question would fail to satisfy the criterion of evidential relevance. Given the lack of convincing independent evidence for the postulation of a category level  $V^i$  for the analysis of verb-particle combinations in Dutch, it must be concluded that the proposal is essentially ad hoc.

Thus, on the one hand, the claim that verb-particle combinations in Dutch belong to the category level  $V^i$  can be argued to be ad hoc. On the other hand, serious questions also arise about the well-foundedness of the underlying assumption that the grammar of Dutch provides for a category level  $V^i$ . For, given that constituents of the category level  $V^i$  are claimed to be both lexical and syntactic categories but, at the same time, neither fully lexical, nor fully syntactic, it may be asked what typical differences are predicted to obtain between a  $V^i$  constituent and  $V^0$  constituents on the one hand, and between a  $V^i$  constituent and  $V^1$  constituents on the other hand. Baayen fails to provide answers to questions such as these. In the absence of answers to such questions, on the one hand, it cannot be explained why constituents such as verb-particle combinations which are claimed to belong to the category  $V^i$  should exhibit the particular combination of lexical and syntactic properties which they do, rather than some other arbitrary set of properties. On the other hand, it is unclear what kind(s) of evidence would count as disconfirming evidence for the claim that a class of constituents X, e.g. verb-particle combinations, should be assigned the category level  $V^i$ . Thus, not only is the assumption concerning the inclusion of a category level  $V^i$  in the grammar of Dutch without any explanatory force, but it can also be accorded little merit in terms of the criterion of refutability.

In addition to the serious criticisms that have been levelled at Baayen's claim that verb-particle combinations in Dutch belong to the category level  $V^i$  in the discussion above, questions concerning the general linguistic import of the proposal arise as well. Thus it may be asked whether languages other than Dutch require the postulation of a  $V^i$  category level. Baayen (1986:53) provides only one other example of a language which makes use of the category level  $V^i$ , viz. Greenlandic Eskimo. In addition, it may be asked whether it is only the category Verb that requires an additional level in its projection line. Baayen provides no

examples of  $N^i$ ,  $A^i$ , or  $P^i$  categories and offers no explanation of this omission. Neither does he indicate what implications the creation of a new level in the projection line of the category Verb has for  $\bar{X}$  theory. This question would become even more pertinent if it should appear that no corresponding projection level is required for the other lexical categories, or that the relevant projection level is not required in the grammars of human languages other than Dutch and Greenlandic Eskimo. Questions such as these would have to be answered before the proposal could be considered as a serious proposal about the structure of the Dutch grammar.

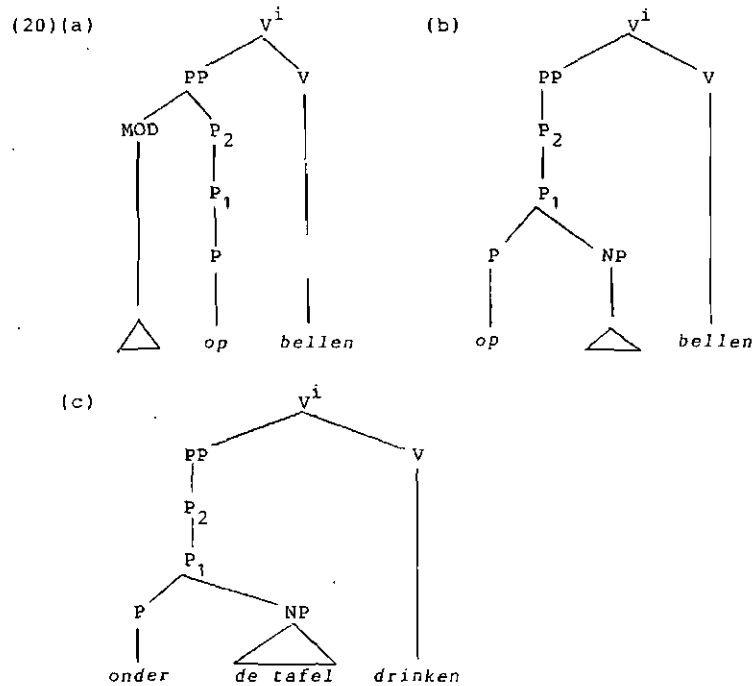
In conclusion: it has been argued that the postulation of a  $V^i$  category level is a protective measure which has the sole function of protecting Baayen's overlap analysis of verb-particle combinations in Dutch from potentially disconfirming evidence. As a protective grammatical device, the  $V^i$  hypothesis is problematic because it is both ad hoc and apparently irrefutable. Moreover, its relation to other rules and principles of the general linguistic theory within the framework of which it is postulated is unclear. It must be concluded, then, that the postulation of a  $V^i$  category level in the grammar of Dutch is unwarranted.

### 3.3.2.3 A lexical filter

A third formal device required in the grammar of Dutch on Baayen's overlap analysis of verb-particle combinations in that language is the lexical filter presented as (7) above. Recall that Baayen (1986:41) proposes the filter in order to account for the fact that prepositions which function as particles, i.e. form part of a  $V^i$  constituent, can take neither non-lexically specified  $N\bar{P}$  complements, nor prehead modifiers (subject to lexical variation). The filter (7) is repeated as (19) below for ease of reference.

(19)  $*\{XP_e, P^n\} \quad n \leq 2$

A first problem with the filter (19) concerns the implications which its adoption has for the organization of the grammar. According to Baayen (1986:42), the filter (19) has to rule out structures such as (20a) and (20b), i.e. structures that result from the matching of a lexically generated  $V^i$  structure with a syntactic  $V^i$  structure in which the PP node dominates another node apart from the lexically specified P node. At the same time, the filter (19) must allow structures such as (20c) in which the NP node dominated by PP contains a lexically specified NP.



In order to account for the well-formedness of (20c) and the ill-formedness of (20a, b), it would have to be assumed that there are two kinds of lexical insertion, the output of only one of which is subject to the filter (19). On the one hand,

there is the process by which lexically specified material associated with a lexically generated structure is mapped onto the structure resulting from the matching of such a lexical structure with a syntactically generated structure. On the other hand, there is ordinary lexical insertion, i.e. the insertion of non-lexically specified material into configurations generated by the phrase structure rules.

In order to rule out the structures (20a, b), the filter (19) must presumably be assumed to apply to the structures resulting from lexical matching. Crucially, however, the filter (19) must be assumed not to apply to structures which have been fully expanded lexically by the application of ordinary lexical insertion rules. For, once the MOD and NP nodes in (20a) and (20b) have been lexically expanded by ordinary lexical insertion, the structures containing them would no longer satisfy the structural description of the filter (19) and would, wrongly, be ruled well-formed by the filter. Thus, for the filter (19) to have the desired effect, it would have to be assumed, crucially, that lexical matching and ordinary lexical insertion represent distinct kinds of lexical insertion operations and that only the output of the former kind of operation is subject to the filter (19). This, of course, would create problems for the theory of lexical insertion. We shall return to this point in par. 3.3.2.4 below.

A second problem with the filter (19) concerns Baayen's (1986:46) proposal that the filter (19) should also apply at the level of S-structure, i.e. after application of all movement rules. According to Baayen, viewing the filter as applying at the level of S-structure as well makes it possible to account for the fact that movement from the PP in (20c), as well as movement out of the nonverbal constituent of idioms such as those of (21), is generally prohibited.



- (21)(a) [<sub>V</sub><sup>1</sup> [<sub>NP</sub> een bok] [<sub>V</sub><sup>0</sup> schieten]]  
a goat to shoot  
'to blunder'
- (b) [<sub>V</sub><sup>1</sup> [<sub>AP</sub> het goed] [<sub>V</sub><sup>0</sup> hebben ]]  
it good to have  
'to be well off'
- (c) [<sub>V</sub><sup>1</sup> [<sub>PP</sub> de dood voor ogen] [<sub>V</sub><sup>0</sup> hebben]]  
the death before eyes to have  
'to be faced with the prospect of certain death'

As was pointed out in par. 3.3.2.2 above, idioms are  $V^1$  structures generated in the overlap component according to Baayen (1986:46). As overlap phenomena they are subject to the filter (19), as reformulated by Baayen to provide for the fact that the sister constituent of  $V^0$  may be an NP, an AP, or a PP.

On the assumption that the filter (19) applies to the structures created by lexical matching as discussed above, the fact that constituents of idioms cannot be syntactically modified can be ascribed to the unavailability of empty nodes into which modifiers may be inserted at the level of representation at which ordinary lexical insertion takes place. On the further assumption that the filter (19) applies at the level of S-structure, movement from the PP in (20b), and from the NP, AP, and PP in (21), is prohibited as well. Movement would leave a trace, which is an empty category. And empty categories are prohibited as sister constituents of P, N, and A in structures generated in the overlap component by the filter (19).

Thus, if lexical matching and lexical insertion take place at D-structure --- and Baayen makes no claim to the contrary --- then the filter (19) has to apply twice: once at the level of D-structure to filter out matched structures containing unexpanded nodes, and once at the level of S-structure to

filter out structures in which a constituent has been moved out of a  $V^i$  or idiom  $V^1$  node. To avoid having to propose that the filter (19) be stated twice, once as a well-formedness condition on D-structure representations and once as a well-formedness condition on S-structure representations, Baayen (1986:46) proposes that the filter (19) should be regarded "as one of the lexical requirements which has to be satisfied at all representational levels" in terms of a widely accepted principle of generative grammar, viz. the Projection Principle.<sup>14</sup> The latter principle may be informally formulated as follows:

(22) Projection Principle

The subcategorization properties of lexical items must be satisfied at every level of syntactic structure, viz. D-structure, S-structure, and LF.

That is, the filter (19) is proposed to be on a par with lexical requirements such as the subcategorization properties of a verb which are specified in the lexical entry of the verb and which, by the Projection Principle, have to be met at every level of syntactic representation --- i.e. at the levels of D-structure, S-structure and LF representation --- of any expression in which the verb may appear. A first problematic aspect of this proposal is that the filter (19) is not a lexical property of individual lexical items as are subcategorization properties. The filter (19) applies to all items formed by means of the productive lexical rule (4a). It is thus not strictly a lexical requirement in the same sense as that in which subcategorization properties are lexical requirements. Therefore, it is not at all obvious that the requirement imposed by the filter (19) falls naturally within the class of lexical requirements which have to be satisfied at all representational levels in terms of the Projection Principle (22).

A second problematic aspect of the proposal that the filter (19) be regarded as a lexical requirement to be satisfied at all levels of representation is that Baayen fails to consider the question of whether the filter (19) holds at the level of LF as well, as is implied by the formulation of his proposal. It is by no means evident that the filter should hold at the level of LF. And if it does not, Baayen has no grounds for claiming that the filter (19) holds at all levels of syntactic representation and that its applicability at both D-structure and S-structure follows from the Projection Principle.

In the absence of evidence for the proposal that the requirement expressed by the filter (19) is stated only once in the lexicon whence it is projected onto all levels of representation, the filter (19) would have to be stated twice in the grammar: once at the level of D-structure and once at the level of S-structure. The need to state the same condition twice is a clear indication that a generalization is being missed. If the relevant condition has to be stated as two separate filters, it appears to be merely accidental that both the impossibility of movement from the nonverbal constituent of verb-particle combinations and idioms, and the failure (in most cases) of particles and constituents of idioms to take modifiers or complements, follow from a prohibition on the occurrence of empty categories within the nonverbal constituent of idioms and verb-particle combinations in Dutch. Thus, the adoption of a lexical filter such as (19) could be argued to entail loss of generalization.

A third problem with the filter (19) is that it is not clear how the filter is to be restricted in a non-ad hoc manner from applying to structures not generated in the overlap component of the grammar. If, as Baayen claims, the filter is stated only once in the lexicon, there would be no means of identifying the filter as a mechanism relevant only to the description of overlap phenomena, as is the case with the rule generating  $V^i$  categories. The latter rule is identified as a mechanism of the overlap component by virtue of being

stated twice: once in the lexicon and once in the syntax. The filter (19) would have to be constrained in some way so as to ensure that it applies only to  $V^1$  structures (and to  $V^1$  structures only in case the latter are idioms). Such a constraint would have to be imposed if the filter were to rule out as ill-formed only a structure such as (23a) underlying the unacceptable expression (23b), and not a well-formed structure such as (24a) which is claimed by Van Riemsdijk and Williams (1986:297) to be the structure underlying the acceptable expression (24b) below.<sup>15</sup>

(23)(a) [ $V^1$  [ $NP$  *een* [ $N^1$  [ $AP$  *e*] [ $N^0$  *bok*]]] *schieten*]

(b) \**een wilde bok schieten*  
a wild goat to shoot  
'to blunder'

(24)(a) *dat ik niet* [ $V^1$  [ $PP$  *er\_i* *op e\_i*] *vuur*]

(b) *dat ik niet erop vuur*  
that I not it at fire  
'that I do not fire at it'

It is not clear how the problem of restricting the filter (19) from ruling out structures such as (24a) above as ill-formed can be solved by any means other than mere stipulation.

In conclusion: it has been argued that the filter (19) has serious shortcomings. Its adoption has been shown, first, to presuppose a problematic distinction between two kinds of lexical insertion and, second, to entail loss of generalization. Third, it was shown that the filter would have to be restricted in an apparently *ad hoc* manner from applying to structures other than those generated in the overlap component.

The filter (19) is indispensable to Baayen's overlap analysis of verb-particle combinations in Dutch, however. It is clear that, without the filter, Baayen's overlap analysis would make incorrect predictions about the properties of verb-particle combinations. Particularly, Baayen's overlap analysis predicts that verb-particle combinations will display all the properties typically displayed by words, on the one hand, and all the properties typically displayed by phrases, on the other hand. This prediction has already been shown to be false. We have seen that, unlike ordinary PP-V sequences, the PP in a verb-particle combination cannot be freely expanded: specifically the head P cannot take a non-lexically specified complement and in most cases cannot be modified either. The sole function of the filter (19) is to draw the required distinction between verb-particle combinations on the one hand and ordinary syntactic phrases on the other hand. The filter serves no other purpose than to account for the differences in behaviour between the former and the latter construction, which the structural representations assigned to these constructions on Baayen's overlap analysis fail to predict.

As was indicated above, Baayen fails to argue convincingly that the lexical filter (19) can also account for the impossibility of movement out of the nonverbal constituent of  $V^i$  and  $V^1$  structures generated in the overlap component. The failure of Baayen's argument entails that he is unable to present convincing independent evidence for the adoption of the filter (19). Moreover, he makes no attempt to show that the need for such a filter follows from any other property of the grammar of Dutch or from a general linguistic principle. It must be concluded then that the filter (19) represents an ad hoc protective mechanism whose sole function it is to protect Baayen's overlap hypothesis from potential refutation.

Given, therefore, that the only function of the filter (19) is to protect Baayen's overlap analysis of verb-particle combinations in Dutch from the negative impact of counterevidence

such as that mentioned above, and given also that, as such a protection device, the filter has the shortcomings mentioned above, its adoption has to be considered problematic.

#### 3.3.2.4 Lexical insertion at nonterminal node level

A fourth formal device required by Baayen's overlap analysis of verb-particle combinations in Dutch is the device of lexical matching to which reference was made in par. 3.3.2.3 above. The device of lexical matching is a lexical insertion mechanism which entails the matching of constituents at a nonterminal node level. Recall that on Baayen's analysis the structural representation of a verb-particle combination is a product of the matching of a  $V^i$  structure generated by a lexical rule with a  $V^i$  structure generated by a syntactic rule --- see (4) and (6) above. Thus, whereas lexical insertion is implicitly or explicitly assumed by the majority of both GB theorists and lexical grammarians to involve the matching of lexical items and terminal category nodes in syntactic structures, Baayen's proposal requires matching of a lexical item (in the sense of a unit generated by a lexical rule) with a nonterminal category node in a syntactic structure, viz. the node  $V^i$ .<sup>16</sup>

Baayen's proposal concerning lexical matching at the level of  $V^i$  is analogous to Simpson's proposal regarding lexical insertion at the category level  $\bar{V}$ . The criticisms levelled at Simpson's device of lexical insertion at a higher node level in par. 3.2.2.3 above therefore apply to Baayen's device of lexical matching at nonterminal category level as well. Recall that the lexical insertion device adopted by Simpson was criticized on the grounds that it is obscure, i.e. that no claims are made regarding its formal properties and descriptive power and, moreover, that it is assumed without proper justification. Baayen's proposal fares no better. Baayen too fails to make any claim at all regarding the properties, mode of application and, particularly, the restric-

tions on the proposed device of lexical matching. Moreover, Baayen provides no independent motivation for the proposed mechanism of matching at higher node level. It apparently applies only to structures generated in the overlap component, i.e. verb-particle combinations and idioms. It may thus be argued to be merely another ad hoc mechanism adopted by Baayen for the protection of his overlap analysis.

An additional point of criticism may be raised in connection with Baayen's mechanism of lexical matching. This criticism concerns the relationship between the mechanism of lexical matching and the filter (19), and the bearing which this has on assumptions about the relationship between the mechanisms of lexical matching and lexical insertion. It was shown in par. 3.3.2.3 that in order for the filter (19) to have the desired effect, it has to apply to the structures created by lexical matching but not to those resulting from ordinary lexical insertion. It will be argued that the assumption about the relationship between lexical matching and ordinary lexical insertion, which is implicit in a claim such as the one which the adoption of the filter (19) entails, is in conflict with the assumption about this relationship which is implicit in Baayen's discussion of lexical insertion. Moreover, it will be shown that the former assumption, which Baayen would be forced to make if application of the filter (19) were to yield the correct results, has some highly problematic aspects.

Baayen does not directly address the question of the relationship between the mechanisms of lexical matching at non-terminal node level and ordinary lexical insertion. However, it is clear from the few brief comments which he does make about lexical insertion, that he implicitly assumes lexical matching to be essentially nondistinct from lexical insertion. In a note he (1986:67 n. 16) observes that

"it is only natural for lexical insertion to belong to the overlap area. Lexical structures generated in the overlap area are matched with their syntactic equivalents...  
... . In fact .... the same can be said of the output of the core lexicon, .... here matching takes place with terminal nodes  
.... ."

In Baayen's view, the only difference between lexical insertion and lexical matching, apparently, is the fact that in the case of the former matching takes place at the level of terminal nodes, whereas in the latter case matching takes place at nonterminal node level.

But this trivial difference between lexical insertion and lexical matching would not constitute a valid basis for the proposed differential application of the filter (19) to which reference was made in par.3.3.2.3. Recall that in order for the filter (19) to apply correctly it would have to apply to the structures generated by lexical matching, but not to those generated by ordinary lexical insertion rules. But then Baayen would have to assume that lexical matching and (ordinary) lexical insertion are, in a nontrivial sense, distinct kinds of mechanisms. Only by making this assumption would Baayen be able to account for the fact that the output of lexical matching, and not that of lexical insertion, is subject to the well-formedness condition imposed by the filter (19).

The assumption that lexical matching and lexical insertion represent distinct kinds of mechanisms is problematic, however. First, in the absence of independent evidence for such an assumption, the assumption could be argued to represent an ad hoc protective measure, the adoption of which has only one purpose, viz. to ensure the correct application of the filter (19) and thereby safeguard Baayen's overlap analysis from counterevidence. Second, acceptance of the assumption that lexical matching and lexical insertion are distinct kinds of mechanisms would introduce conceptual redundancy in-



to the grammar and, thus, result in loss of generalization. The fact that conceptual redundancy arises as a result of the adoption of the filter (19) could be adduced as the basis for an additional argument against the adoption of the filter.

In conclusion: it has been argued that the proposed mechanism of lexical matching at higher node levels has several problematic aspects. Like the analogous mechanism proposed by Simpson, Baayen's lexical matching device is obscure as regards its properties and mode of application, and is adopted without justification. Moreover, the interaction between the device of lexical matching at higher node level and the filter (19) has been shown to presuppose a problematic assumption about the relationship between lexical matching and (ordinary) lexical insertion, viz. the assumption that these mechanisms are distinct in a nontrivial sense. This assumption is problematic because it is no more than an ad hoc protective measure and introduces conceptual redundancy into the grammar.

#### 3.3.2.5 Summary

Baayen's overlap analysis of verb-particle combinations in Dutch has been shown to exhibit the following shortcomings:

- (25)(a) The claim that verb-particle combinations in Dutch are generated in an overlap component of the grammar is problematic because
- i. the underlying assumption that the grammars of human languages may include an overlap component is ad hoc;
  - ii. the claim is irrefutable by virtue of its being presented in terms of an obscure notion 'overlap component'; and

- iii. the claim can be maintained only with the aid of protective devices with the problematic properties shown in (b)-(d) below.
- (b) The proposal of a new category level  $V^i$  in the grammar of Dutch is problematic because
- i. in the absence of convincing independent evidence for a  $V^i$  category level, it represents an ad hoc mechanism whose sole function it is to protect Baayen's overlap analysis from potential disconfirmation;
  - ii. it fails to meet the requirement of refutability; and
  - iii. its general linguistic import is unclear.
- (c) The proposal that the grammar of Dutch include the lexical filter (19) is problematic because
- i. the adoption of the filter (19) presupposes a problematic distinction between two kinds of lexical insertion;
  - ii. its adoption entails loss of generalization;
  - iii. the filter would have to be restricted in an apparently ad hoc manner from applying to structures other than those generated in the overlap component; and
  - iv. the filter is an ad hoc device whose sole function it is to protect Baayen's overlap analysis from counterevidence.
- (d) The proposal of a mechanism of lexical insertion at a higher level node in the grammar of Dutch is problematic because
- i. the mechanism is obscure as regards its formal properties and mode of application and is adopted without proper justification;

- . ii. the nature of its relationship with the filter (19) presupposes a nontrivial distinction between lexical matching and lexical insertion which introduces conceptual redundancy into the grammar and is ad hoc in that the sole function of the distinction is to ensure correct application of the filter (19).

#### 3.4 General linguistic assumptions underlying Simpson's and Baayen's analyses

The individual shortcomings of the analyses proposed by Simpson and Baayen to account for the properties of verb-particle combinations in English and Dutch respectively were discussed in detail in the preceding paragraphs. In this paragraph, I wish to consider the general theoretical assumptions underlying the claims expressed by these analyses with a view to, ultimately, broaching the question of the general theoretical import of the shortcomings of the mechanisms required to express these claims. Simpson's and Baayen's analyses express essentially the same fundamental claims about verb-particle combinations in English and Dutch respectively. These claims are presented in (26).

- (26)(a) Verb-particle combinations are generated by lexical rule.
- (b) Verb-particle combinations are assigned a phrasal category level.

On Simpson's account, verb-particle combinations in English are generated by a word formation rule in the lexicon. Hence they are lexical in origin. However, they are assigned a phrasal category level, viz.  $\bar{V}$ . The  $\bar{V}$  node dominating a verb-particle combination has to be matched with a syntacti-

cally generated  $\bar{V}$  node whenever the verb-particle combination is inserted into a sentential structure. On Baayen's account too, Dutch verb-particle combinations are generated by lexical rule but assigned a phrasal category level, viz.  $V^i$ . The  $V^i$  node dominating a verb-particle combination is matched with a  $V^i$  node generated in the syntax. Hence these constructions are called "overlap phenomena" by Baayen: an explicit assertion of both claims (26a) and (26b).

Let us consider the assumptions in terms of which the properties of verb-particle combinations discussed in chapter 2 are brought to bear on the claims (26a, b) by Simpson and Baayen. First, in the discussion of Simpson's and Baayen's analyses in the preceding sections, it became clear that the fact that verb-particle combinations are syntactically separable --- see par. 2.2 --- is considered by both linguists to constitute evidence in favour of analyzing verb-particle combinations as non-word categories, i.e. as evidence for the claim (26b). In both cases verb-particle combinations are assigned a phrasal category, crucially, to account for the syntactic separability of the constituents of verb-particle combinations. The assumption in terms of which this property of verb-particle combinations constitutes evidence for the claim that verb-particle combinations in English and Dutch should be analyzed as phrases may be formulated as follows:

- (27)     The constituents of (syntactically complex) words cannot be separated by syntactic rule.

Thus, Simpson and Baayen explicitly argue that if the constituents of word, or  $X^0$ , categories are syntactically inseparable, then it follows that verb-particle combinations cannot be words since their constituents can be separated in the syntax. Hence they must be phrases, or  $X^0$  categories given the familiar assumptions of  $\bar{X}$  theory. The assumption (27), of course, is merely a reflex of the Lexical Integrity Hypothesis presented as (6) in chapter 1 above and repeated here as (28).

- (28) Lexical Integrity Hypothesis (strong version)  
Syntactic rules can neither analyze nor change  
word structure.

That this is so is explicitly acknowledged by both Simpson (1983a:1ff) and Baayen (1986:38).

Second, only Simpson explicitly adduces the fact that verb-particle combinations take inflectional affixes internally as evidence for assigning these expressions a phrasal structure. The assumption in terms of which the occurrence of inflectional affixes within verb-particle combinations could be taken to constitute evidence for the assignment of a phrasal category to these constructions may be formulated as follows:

- (29) Inflectional affixes cannot be attached to  
the constituents of (syntactically complex)  
words.

Given (29), the fact that inflectional affixes are attached to the verbal constituent of a verb-particle combination argues against analyzing these combinations as (syntactically complex) words. Rather, the assumption (29) necessitates an analysis in terms of which verb-particle combinations are phrases.

If rules of inflectional affixation were taken to be syntactic rules, the assumption (29) too would be a mere corollary of the Lexical Integrity Hypothesis (28). However, within the general theoretical framework assumed by Simpson (1983a: 1, 9), rules of inflection are taken to apply in the lexicon after all rules of derivation and compounding have applied. Given that inflection takes place in the lexicon, the assumption (29) cannot be inferred from the Lexical Integrity Hypothesis, which prevents only syntactic processes from having access to the internal structure of complex words. The assumption (29) can, however, be inferred from another princi-

ple which forms part of the general theoretical framework which Simpson adopts, viz. the Bracket Erasure Convention. The Bracket Erasure Convention, which ensures that all internal brackets of a word created at a given level in the lexicon are erased once this word forms the input to rules applying at a higher level, --- see also n. 2 above --- is formulated as follows by Simpson (1983a:2):

(30) Bracket Erasure Convention

The internal categorial brackets of words which are created by affixation or compounding, are erased at the end of every level, thus making the boundaries invisible to rules operating at the next level.

If the internal brackets of words formed by rules of derivation and compounding are erased after these rules have applied, it follows that inflectional affixes cannot be attached to constituents of these words, since these constituents are no longer visible as constituents. Thus, the assumption (29) follows from the Bracket Erasure Convention (30).

The Bracket Erasure Convention (30), in turn, formally expresses a general constraint on word formation rules which is formulated as follows by Botha (1980:111):<sup>17</sup>

(31) Morphological Island Constraint

The individual constituents of the complex words formed by means of WFRs [= word formation rules --- CleR] lose the ability to interact with inflectional, derivational and syntactic processes.

The Morphological Island Constraint as presented in (31) in fact subsumes the Lexical Integrity Hypothesis (28) as well. However, for purposes of the present discussion, we are inte-

rested in the consequences which the Morphological Island, Constraint has for the accessibility of the constituents of complex words, not to syntactic rules, but to rules of inflection (and derivation).

Baayen has nothing to say about the way in which the occurrence of inflectional affixes within verb-particle combinations in Dutch bears on the analysis of these constructions. Neither does he present a general theory of inflection or a specific theory of inflectional affixation for Dutch. It is therefore not possible to state the assumption(s) in terms of which the inflectional properties of verb-particle combinations in Dutch might be explained and hence serve as evidence for either of the claims in (26) on Baayen's account.

Each of the remaining properties of verb-particle combinations, i.e. those presented in paragraphs 2.4-2.8 above, is considered by at least one of the linguists concerned to constitute evidence for the claim (26a) that verb-particle combinations are lexical in origin, if not in category. Thus consider, in the third place, the semantic noncompositionality of (a significant subset of) verb-particle combinations --- see par. 2.4. This property is considered explicitly by both Simpson (1983a:7) and Baayen (1986:46f) to constitute evidence in favour of deriving these combinations by means of a productive (lexical) word formation rule which just happens to assign a nonlexical category to its output:  $\bar{V}$  (or  $V^1$ ) in the case of Simpson and  $V^i$  in the case of Baayen.

Both consider a putative difference in degree of noncompositionality between idioms and verb-particle combinations to argue against assigning these combinations an analysis in terms of which they are ordinary, syntactically generated phrases. They argue that if verb-particle combinations were to be analyzed as ordinary, syntactically generated verb phrases ( $\bar{V}$ ) with noncompositional meanings that are listed in the lexicon, these expressions would be indistinguishable from idioms. And, if no distinction were drawn between verb-particle combinations and idioms in the grammar, such a grammar

would be unable to account for certain differences which they claim to exist between the former and the latter type of expression. These differences are formulated as shown in (32a) by Simpson (1983a:7) and as in (32b) by Baayen (1986:46-47).

(32)(a) "... while verb-particle constructions are sometimes lexicalized, they are still nowhere near as idiosyncratic as idioms."

(b) "Idioms are typically isolated and unsystematic phrasal expressions .... In contrast --- separable verbal compounds [i.e. verb-particle combinations --- CleR] ... may be called idiomatic groupings, but they can be productively formed and the regularity of their appearance is in sharp contrast with that of idioms. New or unknown idioms have to be explained before they are understood. A newly formed separable verbal compound can be understood without problems."

The quoted remarks by Simpson and Baayen are singularly lacking in clarity and explicitness, with the result that it is almost impossible to ascertain exactly what is being claimed. The use of vague qualifications such as "sometimes" and "nowhere near" by Simpson in (32a) and Baayen's use of undefined expressions such as "isolated" and "unsystematic", "idiomatic grouping", "productively formed" and "regularity of appearance" in (32b) serve to obscure rather than illuminate the putative differences that are claimed to exist between verb-particle combinations and idioms. The lack of evidence for these claims further detracts from their merit.

Simpson appears to be claiming that verb-particle combinations and idioms differ as regards the degree of their semantic idiosyncrasy, whereas Baayen is apparently claiming that verb-particle combinations and idioms differ both in degree of semantic idiosyncrasy and in productivity. I shall assume that this interpretation of the remarks quoted in (32) is correct. The question, then, is what the assumption is in terms of which the putative differences between verb-particle combi-



nations and idioms are brought to bear on the analyses assigned to verb-particle combinations by Simpson and Baayen. In order to adduce the alleged differences between verb-particles and idioms as evidence for the claim that verb-particle combinations are generated by a lexical word formation rule, both Simpson and Baayen must assume the following:

- (33) Noncompositional meanings associated with the structures generated by syntactic rules are less transparent than noncompositional meanings associated with the structures generated by lexical rules.

Given (33), the putative fact that verb-particle combinations are characteristically noncompositional in meaning, yet more readily interpretable than idioms, dictates an analysis whereby verb-particle combinations are products of a lexical rather than a syntactic rule. That is, they must be formed by means of a word formation rule in the lexicon in terms of the general theoretical framework assumed by Simpson and Baayen.

Neither Simpson nor Baayen presents factual evidence bearing on the validity of the assumption (33). Baayen (1986:46f) attempts to relate the assumption (33) to a view which is held by, amongst others, Aronoff (1980:64f) and which may be formulated as in (34).<sup>18</sup>

- (34) Semantic noncompositionality is a characteristic property of structures generated by lexical rules, but not of structures generated by syntactic rules.

Thus, consider Aronoff's (1980:64f) remarks in connection with the phenomenon that verbs derived from nouns by zero-derivation are more likely to acquire noncompositional meanings than syntactic phrases containing the nouns in question:

"The verbs are a product of word formation, while the phrases are syntactic in origin. They therefore differ in their *lexicalization*, the degree to which their interpretation is fixed. It is well-known that words desire permanence, a place in the lexicon, while phrases shun such status. ... [n. 10] This is not to say that phrases never lexicalize, but rather that they are much less likely to do so than words. Words normally lexicalize, phrases only exceptionally."

Baayen (1986:46f) implicitly claims that there is some kind of relationship between (34) and (33). According to him, the fact that "new or unknown idioms have to be explained before they are understood" is related to the fact that "only a small number of all possible  $V^1$  structures is idiomatic in character". In other words, the assumption (34), viz. that the structures generated by syntactic rules are not normally assigned noncompositional meanings, entails the following, according to Baayen. It entails that, whenever the structures generated by syntactic rules are, exceptionally, assigned noncompositional meanings, these meanings will be less transparent than would the meanings of the structures generated by lexical rules, which are characteristically nontransparent. But, in order for the entailment to hold, it has to be assumed that there is a relationship between the typicalness or frequency with which a given type of structure is associated with a noncompositional meaning on the one hand and degree of semantic transparency on the other hand. This assumption, like the assumption (33), is not necessarily correct. There appears to be consensus amongst linguists who have trodden the treacherous terrain of semantic noncompositionality that both words and phrases may exhibit various degrees of semantic noncompositionality, ranging from highly transparent to completely nontransparent meanings.<sup>19</sup> Factual evidence that semantically noncompositional phrases are typically less transparent than semantically noncompositional words would be hard to come by.

Given, therefore, that the assumption on which the entailment rests is probably incorrect, Baayen's attempt to relate (33) to (34) is highly suspect. This of course reflects negatively on the assumption (33) as well. Thus, not only do Simpson and Baayen fail to provide factual evidence in support of the claims expressed by (33), but they are also unable to relate this assumption to the more general assumption (34).

It may be argued that Baayen's view is consonant with another assumption that is commonly made by generative grammarians, viz. that there is a relationship between (un)productivity and semantic (non)compositionality.<sup>20</sup> Thus Aronoff (1976:39), following Zimmer, observes that

"As far as I can tell, there is a direct link between semantic coherence and productivity."

And again (1976:45):

".... productivity goes hand in hand with semantic coherence."

The putative link between (un)productivity and semantic (non)compositionality ties in with the Aronovian view that items that are listed in the lexicon tend to acquire noncompositional meanings. Given that, in the words of Sproat (1985:493), "unproductive formations must be listed under anybody's theory", such "unproductive formations" may be assumed to be in the lexicon and are therefore expected to have noncompositional meanings. Hence the correlation between unproductivity and noncompositional meaning. The output of fully productive rules, by contrast, is not listed in the lexicon and must therefore also be semantically compositional in order to be interpretable.

Note, however, that it does not follow from the (putative) existence of a link between (un)productivity and semantic (non)compositionality that there will necessarily be a link between (un)productivity and degree of semantic (non)compositionality as Baayen presupposes. It is in any event not clear what content Baayen gives to the notion 'productive'. He (1986:46f) describes idioms as being

"typically isolated and unsystematic phrasal expressions [my underlining --- CleR]".

Verb-particle combinations, by contrast,

"can be productively formed and the regularity of their appearance is in sharp contrast with that of idioms [my underlining --- CleR]".

This difference he (1946:46) calls a difference in productivity. However, structurally, idioms are syntactic phrases, according to Baayen. Therefore they must be generable by the fully productive syntactic PS-rules. If "isolated" is taken to mean 'unproductive', as is implied by the contrast with "productively formed" in the quotations above, then the notion 'productive' as used by Baayen must be understood to have the content 'frequently occurring with a noncompositional meaning'. This is not the content that the notion 'productive' has for most generative grammarians.<sup>21</sup> Thus consider Wood's (1986:6) informal account of the various uses of the term "productivity" by generative grammarians. 'Lexical' productivity, the converse of 'lexical frozenness' is defined as follows:

"Productivity of form of an expression is used, as in morphology, to denote the ability to form new combinations freely. A complex expression is productive if substitutions in one or more of its constituents produce other acceptable complex expressions".

'Lexical' productivity must be distinguished from 'syntactic' productivity, viz.

"the ability to undergo transformations."

The converse of the latter notion of productivity is 'transformational deficiency' according to Wood. The two meanings of "productivity" mentioned above must in turn be distinguished from the meaning which this term has when used to denote a property of syntactic rules. The latter notion of productivity is explicated as follows by Botha (1968:150):

"A set of syntactic rules is fully productive when it is formulated in terms of non-ad hoc concepts only and generates grammatical forms only. It is restrictedly productive when in its unrestricted form, it generates both grammatical and ungrammatical forms, and if the generation of the ungrammatical ones has to be prevented by the introduction of ad hoc theoretical devices."

Although the above definitions of 'productivity' vary in clarity and explicitness, it is clear that generative grammarians do not define this notion in the same way as it appears to be defined by Baayen.

Fourth, the fact that verb-particle combinations may display idiosyncratic subcategorization -- see par. 2.5 -- is explicitly considered by Simpson (1983a:7) and by Baayen (1986:38f, 42) to argue in favour of an analysis in terms of which verb-particle combinations are products of lexical rather than syntactic rules. According to them, the fact that the subcategorization of a verb-particle combination may differ from that of the verb which is the head of the combination, can be explained only if these combinations are assumed to be generated by lexical rule.

But, idiosyncratic subcategorization can be considered to constitute evidence in favour of a lexical analysis only if the following assumption is made:

- (35) Lexical, but not syntactic, rules can affect the subcategorization of a word.

Given (35), it follows that verb-particle combinations, by virtue of the fact that they may display idiosyncratic subcategorization, must be generated by lexical rule.

According to Simpson (1983b:9), the assumption (35) follows from the Projection Principle which was presented as (22) in par. 3.3.2.3 above. In terms of this principle the subcategorization properties of lexical items are to be observed at all syntactic levels of representation. It follows that a syntactic rule which created complex expressions which differed in subcategorization from their heads would violate the Projection Principle. Subcategorization changes could only be effected by rules which applied in the lexicon, whence the "new" subcategorization properties would be projected onto the relevant syntactic levels of representation.

Fifth, the ability of verb-particle combinations to serve as bases of word formation rules --- see par. 2.6 --- is implicitly or explicitly considered by both Simpson and Baayen to be compatible only with an analysis on which verb-particle combinations in English and Dutch, respectively, are nonsyntactic in origin. Simpson (1983a:7-8) explicitly cites the ability of verb-particle combinations to "form passives which are used as adjectives", to "undergo zero-derivation to form nominals" and to "have derivational suffixes attached" as evidence that these combinations are created by a word formation rule in the lexicon. According to Baayen (1986:66 n. 10), one of the advantages of a  $V^i$  analysis of verbs with predicative complements in Dutch is that "Derivation is possible because ... the small clause [i.e., the verb and its complement ---  $Cl_eR$ ] is part of a structure in the overlap area and thus lexical". Implicit in this claim is the assumption (36).

- (36) Lexically, but not syntactically, generated structures can serve as bases for word formation rules.

Given the assumption (36), it follows that if verb-particle combinations can serve as the bases of (lexical) word formation rules, they must themselves be generated in the lexicon. The assumption (36) is a reflex of the so-called No Phrase Constraint which was presented as (7) in chapter 1, and which is repeated here for ease of reference.

- (37) No Phrase Constraint  
Morphologically complex words cannot be formed (by WFRs [= word formation rules --- CleR]) on the basis of syntactic phrases.

Sixth, the syntactic cohesiveness of verb-particle combinations --- see par. 2.7 --- is taken by Simpson and Baayen to be an indication that verb-particle combinations are lexical in origin. Thus, Simpson (1983a:11 n. 11) observes that "gapping in these structures [i.e. verb-particle combinations --- CleR] is prohibited because the Verb and Particle form a single lexical item". Baayen (1986:42, 46, 48) cites the resistance to prehead modifiers of verb-particle combinations, as well as their resistance to movement rules such as Topicalization and PP-over-V, as evidence for not analyzing verb-particle combinations as purely syntactic in origin but rather as constructs generated in the overlap area. Because he (1986:66 n. 11) assumes the overlap area to be "within the scope of the lexicon", verb-particle combinations are expected to be more "rigid", i.e. cohesive, syntactically than ordinary syntactic phrases.

Implicit in Simpson's and Baayen's reference to the syntactic cohesiveness of verb-particle combinations as evidence for considering these expressions to be "lexical items"

(Simpson) or generated "within the scope of the lexicon" (Baayen) is an assumption that may be formulated as in (38).

(38) Expressions generated in the lexicon are syntactically cohesive.

The assumption (38), clearly, is merely a variant of the assumption formulated as (27) above. As such, (38) too follows from the Lexical Integrity Hypothesis.

Seventh, and lastly, the characteristic compound stress pattern of verb-particle combinations in Dutch is considered by Baayen to constitute evidence for generating verb-particle combinations by lexical rule. According to him (1986:44), generating verb-particle combinations in the overlap area ensures that the  $V^i$  node dominating these expressions "is available as a lexical node and can be argued to constitute the domain for the lexical rules of compound stress". In order to adduce the compound stress pattern of verb-particle combinations as evidence for the lexical origin of these expressions, Baayen has to make the assumption (39).

(39) Lexically, but not syntactically, generated structures can serve as bases for word-level stress assignment rules.

The assumption (39) is a basic tenet of lexicalist phonologists/morphologists who hold that all phonological rules which are sensitive to the internal structure of words apply in the lexicon along with the word formation rules and that, as a result, syntactically generated complex expressions are not available as bases for word-level phonological rules.<sup>22</sup> The assumption (39) in fact represents an extension of the No Phrase Constraint which was presented as (37) above. Whereas the No Phrase Constraint, as formulated above, prohibits only word formation rules from applying to syntactic phrases, (39) also prohibits word-level phonologi-



cal rules from applying to syntactically generated bases. This extension of the domain of the No Phrase Constraint follows naturally given a theory of grammar on which both word formation rules and word-level phonological rules apply within the lexicon. The Extended No Phrase Constraint may be formulated as follows:

(40) The Extended No Phrase Constraint

Syntactic phrases can serve as bases neither for word formation rules nor for word-level phonological rules.

The stress pattern of verb-particle combinations in English is not mentioned by Simpson in the motivation of her analysis of these constructions. The reason for this is probably that the stress properties of verb-particle combinations in English do not constitute strong evidence in support of either a lexical or a syntactic analysis of these expressions. On the one hand, the fact that verb-particle combinations in English display a typical phrasal stress pattern could be argued to constitute evidence for an analysis on which these expressions are ordinary, syntactically generated phrases. On the other hand, the fact that the primary stress is on the nonhead constituent of verb-particle combinations in English, as is typical of compounds, could be used to argue for an analysis on which verb-particle combinations are generated in the lexicon. They could then be argued to receive primary stress in the same way as ordinary compounds, viz. on the nonhead constituent, which just happens to be the righthand constituent in the case of verb-particle combinations. However, in view of the fact that Simpson chooses not to indicate how the stress pattern of verb-particle combinations in English bears on the analysis of these expressions, any attempt to state the assumptions in terms of which the property in question might be explained by and, hence, serve as evidence for the claims in (26) would be mere speculation.

To summarize: it has appeared that in order to argue for the claims (26a) and (26b) on the basis of evidence relating to the properties of verb-particle combinations, Simpson and/or Baayen make the following assumptions:

- (41)(a) The constituents of (syntactically complex) words are not separable by syntactic rule [= (27)].
- (b) Inflectional affixes cannot be attached to the constituents of (syntactically complex) words [= (29)].
- (c) Noncompositional meanings associated with the structures generated by syntactic rules are less transparent than noncompositional meanings associated with the structures generated by lexical rules [= (33)].
- (d) Lexical, but not syntactic, rules can affect the subcategorization of a word [= (35)].
- (e) Lexically, but not syntactically, generated structures can serve as bases for word formation rules [= (36)].
- (f) Expressions generated in the lexicon are syntactically cohesive [= (38)].
- (g) Lexically, but not syntactically, generated structures can serve as bases for word-level stress assignment rules [= (39)].

In addition, the assumptions of (41) have been either argued by Simpson and/or Baayen, or shown in the foregoing discussion, to follow from the following general theoretical assumptions:

- (42)(a) The assumptions (41a) and (41f) follow from the Lexical Integrity Hypothesis as formulated in (28).

- (b) The assumption (41b) follows from the Morphological Island Constraint as formulated in (31).
- (c) The assumption (41c) is argued (although not convincingly) to follow from the Aronovian view of noncompositionality as formulated in (34).
- (d) The assumption (41d) follows from the Projection Principle as formulated in (22).
- (e) The assumptions (41e) and (41g) follow from the Extended No Phrase Constraint as formulated in (40).

In addition to the general theoretical assumptions of (42), both Simpson and Baayen subscribe to the following hypothesis about the organization of a grammar:

- (43) All word formation rules (as well as word-level phonological rules) apply in a separate component of the grammar, viz. the lexicon.

In the case of Simpson, (1983a:1f) the hypothesis (43) is assumed as part of the theoretical framework which she adopts, viz. the Lexical Phonology and Morphology framework of Kiparsky (1982). Baayen's adoption of the hypothesis (43) is implicit in his (1986:22ff) proposals concerning the way in which the putative "overlap" component fits into the general model of a generative grammar.

Jointly, the assumptions of (42) and (43) constitute the general theoretical framework within which Simpson's and Baayen's analyses of verb-particle combinations are couched. Assumptions such as the Lexical Integrity Hypothesis, the No Phrase Constraint and the assumption (43) about the loca-

tion of word formation rules in the lexicon were shown in chapter 1 to be constitutive of the lexicalist construal of the organization of a grammar. These assumptions are also accepted by Selkirk to whose analysis of verb-particle combinations in English we now turn.

### 3.5 Selkirk's dual structure analysis

#### 3.5.1 Claims and formal devices

Selkirk (1982) does not present a detailed analysis of verb-particle combinations in English. Her proposal, sketchy as it may be, deserves some attention, however, because of interesting similarities between her analysis and Van Riemsdijk's analysis which will be discussed in par. 4.2 below. Like the latter analysis, Selkirk's analysis expresses the fundamental claim that verb-particle combinations are assigned both a word structure and a phrase structure. The only significant difference between the two analyses lies in the nature of the formal device that is proposed to relate the two structures. In Van Riemsdijk's case, the formal device proposed to relate the two structural representations of a verb-particle combination is a syntactic rule. In Selkirk's case, the rule in question is a lexical rule, as we shall see directly below. The difference in formal devices proposed to express essentially the same claim reflects a difference in the general theoretical framework adopted by Selkirk and Van Riemsdijk respectively. Whereas Selkirk explicitly accepts the basic tenets of lexicalist morphology as set out in chapter 1, Van Riemsdijk does not. This difference between the two affords an invaluable basis for comparing and assessing the relative merit of lexicalist and nonlexicalist approaches to word formation.

Selkirk (1982:27-28) proposes that continuous verb-particle combinations such as *look up* in (44a) and discontinuous verb-particle combinations such as *look ... up* in (44b) should be assigned different structural representations.

- (44)(a) look up the number  
(b) look the number up

According to her, *look up* in (44a) is a compound verb with the structure  $[V P]_V$  as shown in (45a), whereas *look* and *up* in (44b) are constituents of a syntactic verb phrase with the structure  $[V \dots PP]_{VP}$  as shown in (45b). The symbols *P* and *PP* stand for "preposition" (not "particle") and "prepositional phrase" respectively.

- (45)(a)  $[[[look]_V [up]_P]_V [the\ number]_{NP}]_{VP}$   
(b)  $[[look]_V [the\ number]_{NP} [[up]_P]_{PP}]_{VP}$

The relation between (45a) and (45b) is established via a "lexical rule", the precise nature of which Selkirk fails to spell out.

Given that the notion 'lexical rule' could be made precise and could be shown to be nonobjectionable, the fact that verb-particle combinations display both properties characteristically associated with words and properties that are considered to be phrasal properties would follow from a dual structure analysis in a straightforward way. On the one hand, as regards the word-like properties of verb-particle combinations, Selkirk (1982:27) points out, first, that a compound verb analysis can account for the fact that verb-particle combinations can serve as bases for the morphological rule of zero-derivation which is responsible for the formation of nouns such as *worn out*, *laid off* and *tuned in*. If verb-particle combinations are compound verbs, they are words and, as such, are available as bases of word formation rules --- see par. 2.6 above.

Second, an analysis on which verb-particle combinations are assigned the status of compound verbs, can account for the syntactic cohesiveness of the verb and the particle --- see par. 2.7 above. Selkirk (1982:28) mentions the fact that

a particle must be deleted along with the verb by the syntactic rule of Gapping which deletes a verb under identity with another verb in the sentence.<sup>23</sup> She does not provide any details, but the argument presumably runs along the following lines. If the particle *up* is assumed to be part of the compound verb *looked up* in (46a), it is correctly predicted that (46b) in which the particle is deleted along with the verb will be grammatical, whereas (46c) in which only *looked* has been deleted will be ungrammatical. If *up* did not form a compound verb with *looked* the facts would be different, as illustrated by (47) in which *up* is part of a prepositional phrase *up the chimney* and therefore cannot form a compound verb with *looked*. In this case *up* cannot be deleted along with the verb, as evidenced by the ungrammaticality of (47b) and the grammaticality of (47c).

- (46)(a) He looked up the information and she looked up the results.  
(b) He looked up the information and she \_\_\_\_\_ the results.  
(c) \*He looked up the information and she \_\_\_\_\_ up the results.
- (47)(a) He looked up the drain-pipe and she looked up the chimney.  
(b) \*He looked up the drain-pipe and she \_\_\_\_\_ the chimney.  
(c) He looked up the drain-pipe and she \_\_\_\_\_ up the chimney.

Thus, according to Selkirk, at least two word-like properties of verb-particle combinations in English can be accounted for by assigning them the status of compound verbs, viz. their ability to serve as bases of word formation rules and their cohesiveness with respect to the Gapping rule.

On the other hand, the fact that *look* and *up* can be discontinuous in a sentence such as (44b) can be accounted for by assigning (44b) the structural representation (45b) in which *look* and *up* are generated independently as constituents of the verb phrase by the base rules. That is, the fact that verb-particle combinations display properties typically associated with phrases is accounted for as well on a dual structure analysis such as that proposed by Selkirk.

Despite the obvious advantages of assigning different structural representations to continuous and discontinuous verb-particle combinations, however, a dual structure analysis also has serious drawbacks, as evidenced by a number of shortcomings exhibited by Selkirk's analysis.

### 3.5.2 Shortcomings

#### 3.5.2.1 The lexical rule

A first shortcoming of Selkirk's dual structure analysis concerns the formal device proposed by her to relate the two structural representations assigned to a given verb-particle combination in English.

The assignment of distinct structural representations such as (45a) and (45b) to a continuous verb-particle combination such as *look up* in (44a) and the corresponding discontinuous combination *look ... up* in (44b) respectively, expresses the claim that the former and the latter instances of the verb-particle combination *look up* are totally unrelated. More specifically, such an analysis cannot explain why *look up* in (44a) and *look ... up* in (44b) (i) have exactly the same noncompositional meaning (in the sense of par. 2.4 above), and (ii) display subcategorization properties which differ from those of the simple verb *look* in exactly the same, unpredictable, way. The latter property is illustrated in (48) and (49).

- (48)(a) He looked ill.  
(b) \*He looked up ill.  
(c) \*He looked ill up.

- (49)(a) i. \*He looked the information in the library.  
ii. He looked in the library.  
(b) i. He looked up the information in the library.  
ii. \*He looked up in the library.  
(c) i. He looked the information up in the library.  
ii. \*He looked up in the library.

It is clear from (48) that, whereas *look* subcategorizes for a predicative adjective complement, neither *looked up* in (48b), nor *looked ... up* in (48c) can occur with a predicative adjective, where *look up* is a verb-particle combination with the meaning 'search for'. By contrast, whereas the verb *look* can never take a direct object-NP, as shown in (49a), both the continuous verb-particle combination *looked up* in (49b) and the discontinuous combination *looked ... up* in (49c) obligatorily take a direct object-NP. That the co-occurrence of *look* and *up* in the relevant verb-particle combination has an unpredictable effect on subcategorization is clearly illustrated by the fact that the cooccurrence of *look* and *up* (meaning 'lift one's gaze') in (50) does not result in the same subcategorization change as does the cooccurrence of *look* and *up* (meaning 'search for') in (44) above.

- (50)(a) He looked up (from his work).  
(b) \*He looked up the information from his work.

The fact that the two instances of *look up* in (44) have the same noncompositional meaning and idiosyncratic subcategorization would receive a natural account on an analysis by which (44a) and (44b) are derived from a single underlying structure containing the verb *look up*, the conventional way of accounting for the fact that two expressions with dis-



tinct surface structures are synonymous and that their structures satisfy the (projected) subcategorization properties of one and the same verb. However, Selkirk maintains that (44a) and (44b) are derived from distinct underlying structures. To account for facts such as the similarity in meaning and subcategorization between (44a) and (44b), she proposes that the structures underlying the two occurrences of *look up* be related by lexical rule. Selkirk does not explicate the notion 'lexical rule', but the lexical rule which she envisages would clearly have to be some kind of a redundancy rule. In order to establish the required relationship, the rule would have to stipulate that for every compound verb of the form  $[V P]_V$  generated by the word formation rules of the grammar, there exists a corresponding syntactic phrase of the form  $\{V (NP) PP\}_{VP}$  generated by the syntactic base rules. The syntactic phrase would be predicted by this rule to have exactly the same meaning and subcategorization properties as the compound verb to which it is related.

Notice, however, that a lexical rule with the power to establish the kind of relationship which Selkirk envisages would represent a unique kind of device within generative grammar.<sup>24</sup> She presents no evidence which would indicate that there is an independent need for a rule stipulating that a (syntactically complex) verb can also, redundantly, be a syntactic phrase. If no such evidence can be adduced, the postulation of such a rule for the grammar of English must be assumed to be ad hoc. The ad hocness of the putative rule is further evident from the fact that the rule would have to be stated so as to apply only to an arbitrary subset of all possible types of complex words in English, viz. complex verbs. And, moreover, it would have to be restricted from applying to all but those complex verbs with the structure  $[V P]_V$ . Selkirk offers no reason to believe that the postulated lexical rule would not have to be thus arbitrarily restricted.

Thus, it appears that Selkirk's dual structure analysis of verb-particle combinations in English can account for the idiosyncratic meaning and/or subcategorization properties exhibited by verb-particle combinations only by assuming the existence of an ad hoc device, viz. a lexical rule relating complex verbs and syntactic verb phrases in some, unexplicated, way.

#### 3.5.2.2 Compound status of continuous verb-particle combinations

A second shortcoming of Selkirk's dual structure analysis has to do with the claim expressed by such an analysis that (continuous) verb-particle combinations are compound verbs. This claim entails that verb-particle combinations represent the only left-headed compound type in English, as pointed out by Selkirk herself (1982:19). This gives rise to two problems.

The first is that, whereas the left-headedness of verb-particle combinations in English would follow from a phrasal analysis of such constructions in a straightforward way, it is inconsistent with a compound analysis given the Righthand Head Rule proposed by Williams (1981:248). The latter rule, according to Selkirk (1982:19), expresses the language-specific generalization that "For the most part, ... English compounds are right-headed endocentric constructions".

However, Selkirk (1982:20) argues that the left-headedness of verb-particle combinations in English is explained by her revised version of Williams's Righthand Head Rule. The revised version of Williams's rule is informally formulated as follows by Selkirk (1982:21):

(51) Righthand Head Rule (revised)

The rightmost category in  $X^n$  with the feature complex  $X$  will be the head.

Thus, in verb-particle combinations with the structure [V P]<sub>v</sub> the verb is designated as the head by virtue not of its being the rightmost constituent of the compound, but by virtue of its being the rightmost category with the same feature complex as the dominating category, V.

However, the reformulated Righthand Head Rule says little more than that a complex word is right-headed when the head is on the right and left-headed when the head is on the left. It describes the facts of English without offering an answer to the question why verb-particle combinations should differ from other compounds in English by being left-headed. For it is clear from Selkirk's (1982:ch. 2) discussion of compounds in English that all endocentric compounds, except verb-particle combinations, obey Williams's Righthand Head Rule which states that the head of a morphologically complex word is defined as the righthand constituent of that word.

Thus, any attempt to account for the left-headedness of verb-particle combinations on the basis of the revised Righthand Head Rule (51), amounts to no more than a mere stipulation of the exceptionality of verb-particle combinations in this regard.

The second problem with the claim that verb-particle combinations in English are left-headed compounds is that such an analysis would require an additional ad hoc stipulation in the grammar in order to be able to account for the inflectional properties of verb-particle combinations in English. In order to see why this is so, let us consider, first, how the ability of verb-particle combinations to take inflectional affixes internally could be accounted for given Selkirk's dual structure analysis.

On the general theory of morphology within which Selkirk's analysis of verb-particle combinations is couched, inflectional affixes are added in the word formation component of the grammar and not in the syntax. According to Selkirk

(1982:53), inflectional affixes are subcategorized in the lexicon for sister constituents of the category level Word ( $X^0$ ). As both a compound and its constituents belong to the category level Word by hypothesis, an inflectional affix may be attached either to a compound as a whole or to one of its constituents, given that the relevant constituent satisfies the subcategorization requirement of the affix concerned, e.g. is a verb in the case of the past tense suffix *-ed*. Given these assumptions, the appearance of the past tense affix *-ed* as part of the lefthand constituent of a verb such as *cleaned out* in (52a) would be no more unexpected than its appearance on the verb *cleaned* in (52b).

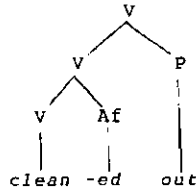
- (52)(a) John cleaned out his room.  
(b) John cleaned his room out.

The fact that *cleaned* in (52a) would be analyzed as part of a compound verb and *cleaned* in (52b) as a single verb on Selkirk's account, would make no difference to its ability to serve as a base for the relevant inflectional affixation rule.<sup>25</sup>

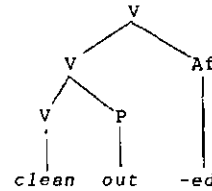
There is an aspect of the inflectional properties of verb-particle combinations that remains unexplained on this account, however. If, by virtue of their subcategorization, inflectional affixes are free to attach either to a constituent of a compound or to the compound as a whole, then it is wrongly predicted that both (53a i) in which the suffix *-ed* is attached to the verbal constituent of the compound *clean out* and (53a ii) in which the suffix is attached to the compound as a whole should be well-formed. The structures corresponding to (53a i) and (53a ii) are presented in (53b i) and (53b ii) respectively.<sup>26</sup>

- (53)(a) i. *cleaned out*  
ii. \**clean outed*

(b) i.



ii.



In order to prevent \**clean outed* from being generated, it would have to be stipulated in the grammar that, in the case of left-headed compounds, inflectional affixes must be attached to the head of the compound and not to the compound as a whole. Unless it could be shown that the property in question follows from some general property of left-headed compounds, or some property of rules of inflectional affixation in general, such a stipulation would be ad hoc.

Alternatively, it would have to be assumed that inflectional affixes always attach to the head of a compound. Apart from making incorrect predictions about the (semantic) scope of the affix in the case of many right-headed compounds, this would have far-reaching implications for Selkirk's theory of inflection. It would mean that she would either have to give up the assumption that a compound and its constituents both belong to the same category level, or she would have to assume that rules of inflection are ordered before rules of compounding. Both the latter assumptions would be problematic given her general theory of word structure and her particular theories of compounding and affixation in English. Selkirk (1982:50ff), for instance, explicitly argues against drawing a distinction between the category level of a compound and the category level of its constituents, on the grounds that such a distinction would make incorrect predictions about the distribution of inflectional affixes in English. As regards the possibility of ordering compounding rules after inflectional rules, Selkirk herself (1982:93) points out that "in a context-free rewriting system (such as the one which she assumes for the characterization of word

structure in English --- CleR], there is strictly speaking no ordering of rules".

It therefore appears that, given Selkirk's dual structure analysis of verb-particle combinations, it must be accepted that the grammar of English would have to include an ad hoc stipulation to the effect that inflectional affixes must attach to the head of a compound just in case this compound is left-headed.

It has to be concluded that a dual structure analysis on which (continuous) verb-particle combinations are claimed to be left-headed compounds has two undesirable consequences. First, the fact that verb-particle combinations are exceptions to the Righthand Head Rule, as formulated by Williams, has to be stipulated in the grammar. Second, the grammar of English would have to include an ad hoc stipulation to ensure that inflectional affixes attach to the head constituent of left-headed compounds.

### 3.5.2.3 Empirical problems

Let us briefly consider some of the empirical consequences of the assumption that, whereas *look up* in (44a) is a compound verb, *look ... up* in (44b) is a syntactic phrase. Such a dual structure analysis predicts that *look up* in (44a) will behave syntactically as a single verb, whereas *look ... up* in (44b) will display the syntactic behaviour of a phrase. A review of the sentences presented in (35)-(38) in par. 2.7 above will show that the prediction is incorrect. Whereas one would expect a particle which is part of a compound and one which is not to behave differently with regard to syntactic processes such as conjunction, modification, gapping and preposing, it is clear from the data presented in par. 2.7 that they do not. That the particle cannot be conjoined with another particle, modified by a manner adverbial, gapped, or preposed is to be expected if the particle is part

of a compound verb given a constraint such as the Lexical Integrity Hypothesis which, on the strong version (28) above, prevents syntactic rules from changing or referring to part of a (complex) word. But a PP which is an independent constituent of a syntactic phrase is not expected to be similarly restricted. Thus we would expect the (ii)-sentences in (54) to be grammatical on an analysis such as Selkirk's in terms of which the particle *up* is assigned the same categorial status as the underlined expressions in the corresponding (i)-sentences, viz. the status of a PP:

- (54)(a) i. *He threw the ball up and over the wall.*  
ii. \**He looked the information up and over.*
- (b) i. *He pushed the card quickly up his sleeve.*  
ii. \**He looked the information quickly up.*
- (c) i. *John threw a stone up the drainpipe and Mary a wire over the edge of the gutter.*  
ii. \**John looked the information up and Mary the figures over.*
- (d) i. *Up the garden path he ran!*  
ii. \**Up he looked the information!*

As is clear from (54), Selkirk's assumption that a discontinuous verb-particle combination such as *look ... up* in (44b) is a syntactic verb phrase makes incorrect predictions about its syntactic behaviour.<sup>27</sup> Verb-particle combinations in which the verb and the particle are discontinuous are no less cohesive syntactically than the corresponding combinations in which the verb and the particle are adjacent.

The converse appears to be true as well: verb-particle combinations in which the verb and particle are adjacent are no more cohesive syntactically than the corresponding combinations in which the verb and the particle are discontinuous. Thus, for instance, Kroch (1979:223) cites the sentence (55a), in which the verbal constituent of the discontinuous

verb-particle combination *called (the tanks) in* has been gapped, as acceptable. But (55b), in which *called* has been gapped as well, is equally acceptable although in this case *called* and *in* are adjacent.

- (55)(a) The general called the artillery off and \_\_\_\_\_  
the tanks in.
- (b) The general called off the artillery and \_\_\_\_\_  
in the tanks.

On Selkirk's dual structure analysis, a contrast in acceptability between (55a) and (55b) is predicted. Whereas (55a) in which part of a verb phrase has been gapped is predicted to be acceptable, (55b) in which part of a complex verb has been gapped is predicted to be unacceptable.

Similarly, adverbial modification of a particle is possible in some cases, regardless of whether the particle is discontinuous from its associated verb or not. Thus, Kroch (1979: 222) cites (56a), in which the discontinuous particle *up* is modified by the adverbial phrase *part way*, as acceptable. But, given a suitably "heavy" direct object-NP to counterbalance (prosodically) the "heaviness" of the adverbially modified particle, a sentence such as (56b), in which the modified particle is adjacent to the verb, is as acceptable as its counterpart (56c) in which the modified particle is nonadjacent to the verb.<sup>28</sup>

- (56)(a) The attendant filled the tank PART WAY up.
- (b) The attendant filled ONLY PART WAY up the tank  
of which the top had been damaged by a stone.
- (c) The attendant filled the tank of which the top  
had been damaged by a stone ONLY PART WAY up.



Once again, Selkirk's dual structure analysis wrongly predicts that (56b), in which a constituent of a complex verb is adverbially modified, should be unacceptable, in contrast to (56c) in which, on her analysis, the modified constituent is not part of a complex verb.

In response to such criticism Selkirk could argue that *filled up* is a discontinuous verb-particle combination in both (56b) and (56c) and that its adjacency to the verb in (56b) is merely the result of the application of a rule of Heavy NP Shift, a rule which moves "heavy" NPs --- see n. 28 above --- to the end of the sentence. However, the assumption of a rule of Heavy NP Shift would have unwelcome consequences for Selkirk. The fact that a particle always follows a pronominal direct object-NP has been argued by, e.g. Bolinger (1971:50ff) and Hoffman (1978:342ff) to be the result of the heaviness of the particle in relation to pronouns. If the sentence-final position of heavy constituents were to be taken to be the result of the application of a movement rule, the unacceptability of (57a) and the acceptability of (57b) below would have to be accounted for in terms of such a movement rule.

- (57)(a) \*The attendant filled up it.  
(b) The attendant filled it up.

Specifically, it would have to be assumed that the unacceptability of (57a) is the result of nonapplication of the rule moving heavy constituents (the particle in this case) to the sentence-final position. Such a solution, however, would presuppose that the particle can be moved, which would be embarrassing to Selkirk's dual structure analysis on which the particle in sentences such as (57a) is part of a complex verb and hence inaccessible to syntactic movement rules.

Hoffman (1978:342) proposes that the obligatory sentence-final position of particles when the direct object-NP is a pronoun, as well as heavy-NP-shift phenomena, may be accounted for by adopting the following surface filter:

(58) \*PP NP unless NP is heavier than PP.

Given a filter such as (58) (suitably modified so as to apply to sentences such as (57a) as well), the unacceptability of (57a) could be accounted for without the embarrassing consequences for a dual structure analysis that an account in terms of movement would have. Sentences such as (57a) would be generated by the grammar, as predicted by Selkirk's dual structure analysis but would be ruled ill-formed by the filter (58) which is part of the PF component according to Hoffman, and therefore presumably not subject to syntactic constraints such as the Lexical Integrity Hypothesis.

Thus, it appears that an account of the facts of (57) above in terms of a filter such as (58) would be consistent with Selkirk's dual structure analysis of verb-particle combinations, but not an account in terms of a movement rule. If this is so, however, Selkirk could not argue that the acceptability of (56b) above is the result of the application of a rule of Heavy NP Shift. The acceptability of this sentence would be the result of the fact that the NP *the tank of which . . .* for purposes of the filter (58), is not judged to be heavier in the appropriate sense than the modified particle *only part way up*. Hence, the criticism that Selkirk's dual structure analysis wrongly predicts a contrast in acceptability between (56b) and (56c) above would stand.

It must be concluded, then, that in assigning distinct structural representations to continuous and discontinuous verb-particle combinations respectively, Selkirk's dual structure analysis makes incorrect predictions about the syntactic behaviour of these constructions.

3.5.2.4 Summary

Selkirk's dual structure analysis of verb-particle combinations in English has been shown to have the following shortcomings:

- (59)(a) In order to account for the fact that continuous and discontinuous verb-particle combinations have the same (often idiosyncratic) meaning and subcategorization properties, a dual structure analysis entails the postulation of a unique kind of device, viz. a lexical rule, the properties of which are unclear.
- (b) A dual structure analysis entails that verb-particle combinations are analyzed as left-headed compounds. Without additional ad hoc stipulations in the grammar such an analysis
  - (i) is counter to the Righthand Head Rule as formulated by Williams, and
  - (ii) forms the basis of incorrect predictions regarding the position of the inflectional past tense affix.
- (c) A dual structure analysis incorrectly predicts
  - (i) that the constituents of discontinuous verb-particle combinations will be more accessible to syntactic rules than the constituents of the corresponding continuous verb-particle combinations, and
  - (ii) that the constituents of continuous verb-particle combinations will be less accessible to syntactic rules than the constituents of the corresponding discontinuous combinations.

### 3.5.3 General linguistic assumptions

Let us turn now to the general linguistic assumptions underlying the central claims expressed by Selkirk's dual structure analysis of verb-particle combinations in English. The central claims expressed by Selkirk's dual structure analysis have been shown to be the following:

- (60)(a) Continuous verb-particle combinations are compound verbs.
- (b) Discontinuous verb-particle combinations are syntactic phrases.
- (c) Continuous and discontinuous verb-particle combinations are related by lexical rule.

Consider, first, the claim (60a). Selkirk is forced to hypothesize that verb-particle combinations are compound verbs in English because, as we saw in par. 3.5.1 above, she (1982: 27) wants to be able to argue that apparently exocentric nominal and adjectival compounds such as *sit-in*, *runaway*, *worn out*, *laid off*, etc. are not exocentric at all. She claims that they are zero-derived from the corresponding verb-particle combinations instead. However, the latter claim would hold just in case verb-particle combinations themselves were compound verbs rather than syntactic phrases, since Selkirk (1982:8) accepts the following general constraint on the input to word formation rules:

- (61) Major constituents of the syntax do not appear within morphological structures generated by the word structure rules.

The assumption (61), clearly, is nondistinct from the No Phrase Constraint presented as (37) above. Thus, given (61), and given also that Selkirk wishes to maintain that verb-par-

ticle combinations can serve as bases for the rules of zero-derivation responsible for generating the relevant nominal and adjectival compounds, it follows that verb-particle combinations cannot be syntactic phrases, but must themselves be (complex) words as claimed in (60a).

Consider next the claim (60b). Given that Selkirk has independent reasons for maintaining that (continuous) verb-particle combinations must be analyzed as compound verbs, as shown above, there are in principle two possible analyses of discontinuous verb-particle combinations available to her. The first is an analysis on which discontinuous verb-particle combinations are derived from the same underlying structure as the corresponding continuous combinations. The second is an analysis on which continuous and discontinuous verb-particle combinations are derived from distinct underlying structures.

Now, with regard to the first possibility, the crucial question would be what kind of formal device is available for deriving discontinuous verb-particle combinations from an underlying compound structure given the general theoretical framework adopted by Selkirk. Selkirk (1982:19) explicitly denies that lexical transformations play a role in the grammar of English. Nor does she provide for discontinuous lexical insertion. Therefore, neither of these formal mechanisms is available for the derivation of the structure underlying a discontinuous verb-particle combination from the (compound) structure underlying the corresponding continuous combination. The only device available within Selkirk's framework is a syntactic movement rule. But the rule deriving the discontinuous verb-particle combination from the structure underlying the corresponding continuous combination would have the effect of changing the structure of a (complex) word. And this is impossible since Selkirk (1982:70) accepts the following general condition on syntactic rules:

- (62) No deletion or movement transformation may involve categories of both word structure and phrase structure.

The condition (62) is merely a reflex of the Lexical Integrity Hypothesis (28) above and was in fact presented as the weaker version of the latter hypothesis in (5) in chapter 1 above. Given (62), a discontinuous verb-particle combination cannot be derived from a (complex) word structure, such as that underlying the corresponding continuous combination, by means of a syntactic movement rule.

As there is no formal device available for relating a discontinuous verb-particle combination to an underlying word structure, given Selkirk's general theoretical framework, she has to adopt the alternative analysis on which continuous and discontinuous verb-particle combinations are claimed to be derived from distinct underlying structures. Moreover, having ruled out the possibility of deriving a discontinuous verb-particle combination from an underlying (complex) word structure, it follows that such combinations must be generated as syntactic phrases at the level of D-structure, as claimed in (60b).

The third claim, (60c), was shown in par. 3.5.2.1 above to form the basis of a potential explanation for the fact that corresponding continuous and discontinuous verb-particle combinations share the same (often noncompositional) meaning and the same subcategorization properties. The latter property of verb-particle combinations could be brought to bear on the claim (60c) only if Selkirk accepted a version of the Projection Principle (22) above. That is, given the Projection Principle, the fact that the subcategorization properties of corresponding continuous and discontinuous verb-particle combinations differed from those of their verbal head in exactly the same way could be accounted for only if the relevant subcategorization properties were projected from

the same subcategorization frame in the lexicon. On an analysis such as Selkirk's, within the framework of which the two combinations are assigned distinct structural representations, the Projection Principle would be satisfied only if the two structural representations were related in the lexicon, i.e. by a lexical rule. Such a lexical rule could presumably express the generalization that whatever the lexical properties, e.g. noncompositional meaning and idiosyncratic subcategorization, that are associated with a verb-particle combination which is assigned a compound verb structure by the relevant word formation rule, these lexical properties are associated with the related structure generated independently by the phrase structure rules as well. Although Selkirk does not explicitly present the argument outlined above, her acceptance of the Projection Principle is implicit in her (1982:40, 62) acceptance of a general tenet of Lexical Functional Grammar, viz. the assumption (63).<sup>29</sup>

- (63) Operations which involve changes in the subcategorization properties of words, should be viewed as lexical operations.

Recall, next, that Selkirk does not explicitly argue for any of the claims of (60) on the basis of the inflectional properties of verb-particle combinations in English. However, it was shown in par. 3.5.2.2 above that, given an additional stipulation in the grammar, her dual structure analysis is consistent with the following assumption which forms part of her theory of inflection in English:

- (64) An inflectional affix can be attached to any constituent of the category level Word ( $X^0$ ), regardless of whether this constituent is syntactically complex, noncomplex, or a constituent of a (syntactically complex) word.

Notice that the assumption (64) is incompatible with the Morphological Island Constraint presented as (31) above. As was shown in par. 3.5.2.2 above, the rule introducing the past tense suffix *-ed* into verb-particle combinations assigned a compound word structure has to be assumed to be sensitive to the internal structure of complex words. If not, it would be impossible to explain why the past tense suffix was always attached to the verbal head of the compound, never to the compound as a whole.

Finally, it is impossible to state the general linguistic assumptions in terms of which the remaining properties of verb-particle combinations discussed in chapter 2 could be brought to bear on the claims of (60), as Selkirk does not argue for any of these claims on the basis of the properties concerned. The relevant properties are the syntactic cohesiveness of verb-particle combinations --- see par. 2.7 above --- and the stress pattern of these combinations --- see par. 2.8 above. Recall too that Selkirk's failure to consider the former property, the syntactic cohesiveness of verb-particle combinations, was shown in par. 3.5.2.3 above to cause problems for her dual structure analysis.

To summarize: underlying the claims (60 a-c) expressed by Selkirk's dual structure analysis of verb-particle combinations in English are the following assumptions:

- (65)(a) Major constituents of the syntax do not appear within morphological structures generated by the word structure rules [= (61)].
- (b) No deletion or movement transformation may involve categories of both word structure and phrase structure [= (62)].
- (c) Operations which involve changes in the sub-categorization properties of words, should be viewed as lexical operations [= (63)].



The assumptions of (65) have been argued to be nondistinct from, or to follow from, the following general linguistic assumptions:

- (66)(a) The assumption (65a) is nondistinct from the No Phrase Constraint presented as (37) above.
- (b) The assumption (65b) follows from the Lexical Integrity Hypothesis presented in (28) above.
- (c) The assumption (65c) follows from the Projection Principle (22) above.

In addition, Selkirk's dual structure analysis was shown to be inconsistent with the Morphological Island Constraint presented as (31) above by virtue of including the assumption (64), viz. that an inflectional affix can be attached to any constituent of the category level Word ( $X^0$ ), regardless of whether this constituent is syntactically complex, noncomplex, or a constituent of a (syntactically complex) word.

In conclusion, Selkirk's dual structure analysis is consistent with a view of the place of word formation rules in the grammar which is expressed as follows by her (1982:10):

- (67) Word formation rules form part of an entirely distinct component of the grammar, viz. the lexical component, or the lexicon.

She (1982:10) stresses, however, that a model of grammar on which word formation rules formed part of the system of base rules of the syntactic component would be equally consistent with her general theory of word structure. Whatever the exact "location" of the lexicon within the grammar, it is clear that Selkirk accepts that the structures generated in the lexicon, or word structure component in Selkirk's terminology, are inserted into syntactic deep structures and are

treated as units by rules of syntax.

This concludes our discussion of three analyses of verb-particle combinations which are presented within the framework of various versions of the theory of lexicalist morphology. We considered the major general linguistic assumptions underlying the analyses in question, as well as some of the shortcomings of these analyses. These shortcomings must ultimately bear negatively on the general theoretical framework in which the analyses are couched. The exact import of these shortcomings will be assessed in chapter 5 after we have considered two alternative analyses: analyses which differ from those considered in the present chapter in that they are not presented within an explicit lexicalist framework.

NONLEXICALIST ANALYSES OF VERB-PARTICLE COMBINATIONS

4.1 General

This chapter will be devoted to a critical appraisal of two analyses of verb-particle combinations which are not couched in an explicit lexicalist general theoretical framework.

The analyses to be discussed are Van Riemsdijk's (1978) analysis of verb-particle combinations in Dutch (par. 4.2) and Stowell's (1981) analysis of verb-particle combinations in both English and Dutch (par. 4.3). Whereas on Stowell's analysis verb-particle combinations are assigned the single category label  $X^0$ , Van Riemsdijk, like Selkirk, claims that verb-particle combinations belong to both the category  $X^0$  and the category  $\bar{X}$ , i.e. that they are both words and phrases.

The immediate aim of the discussion in this as in the previous chapter is, on the one hand, to identify and analyze shortcomings of (different kinds of) proposals that have been made for the analysis of verb-particle combinations in English and Dutch, and, on the other hand, to identify the major general linguistic assumptions underlying these analyses. The ultimate aim is to establish a basis for assessing the adequacy of the lexicalist construal of the relationship between syntax and word formation as outlined in chapter 1.

The discussion of each analysis will be organized as follows. First a brief outline will be given of the central claims embodied in the analysis and the formal devices proposed to express these claims. This will be followed by a discussion of the major shortcomings of the analysis. And, finally, an attempt will be made to identify the major general linguistic assumptions underlying the analysis.

## 4.2 Van Riemsdijk's P-shift analysis

### 4.2.1 Claims and formal devices

In a discussion of the syntax of Dutch prepositional phrases Van Riemsdijk (1978:ch. 3), following Emonds (1972), proposes that particles in Dutch should be analyzed as belonging to the same category as prepositions.<sup>1</sup> Thus, like ordinary prepositions and postpositions, particles in Dutch are generated in the P<sup>'''</sup> position immediately to the left of the verb by the base rule (1) according to Van Riemsdijk (1978:33, 54).

$$(1) \quad v^1 \rightarrow \left\{ \begin{array}{c} N''' \\ V''' \end{array} \right\} - \left\{ \begin{array}{c} P''' \\ A''' \end{array} \right\} - X''' - p''' - v$$

Particles can optionally undergo a syntactic rule which Van Riemsdijk (1978:108) calls P-shift and which has the effect of incorporating the particle in the verb. That is, the particle is moved into, or substituted for, an empty position within the constituent dominated by the adjacent V-node. The P-shift rule is shown in (2).

$$(2) \quad \begin{array}{c} \text{P-shift} \\ X - P - Y - V - Z \\ 1 \quad 2 \quad 3 \quad 4 \quad 5 \\ \Rightarrow 1 \quad e \quad 2 \quad 4 \quad 5 \end{array}$$

The structure of the verb after application of P-shift is that of a complex verb, as shown in (3).

$$(3) \quad [{}_V P - V]_V$$

According to Van Riemsdijk (1978:107), the (empty) slot represented by Y in the structural description of the P-shift rule (2) is generated by an independently needed word

formation rule, which he formulates as in (4).

$$(4) \quad [{}_V X]_V \rightarrow [{}_V [{}_P (Y)]_P [{}_V X]_V]_V$$

The word formation rule (4) is independently needed in the grammar of Dutch to account for the occurrence of verbs with inseparable prefixes according to Van Riemsdijk.<sup>2</sup>

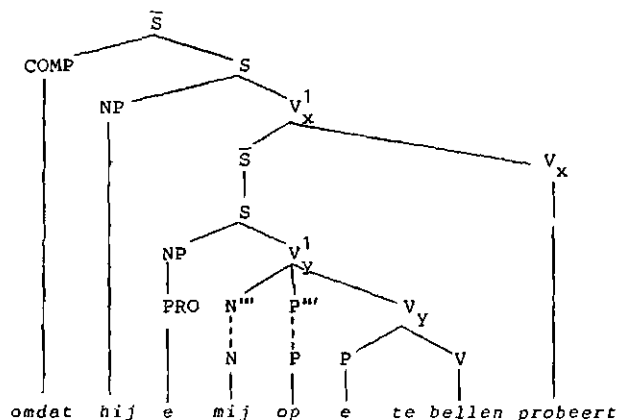
By assuming that particles are independent constituents at D-structure but may optionally become part of the verb as a result of the application of P-shift, Van Riemsdijk claims to be able to account for the ambiguous syntactic behaviour of verb-particle combinations with respect to syntactic rules such as V-raising. Thus, on Van Riemsdijk's analysis, the difference between (5a), in which the particle *op* is separated from the verb *te bellen* after application of V-raising, and (5b), in which *op* moves along with the verb, is accounted for by deriving both sentences from the underlying structure (6).

(5)(a) *omdat hij [mij op e] probeert te bellen*  
because he me up tries to call  
'because he tries to call me up'

(b) *omdat hij [mij e] probeert op te bellen*  
because he me tries up to call  
'because he tries to call me up'

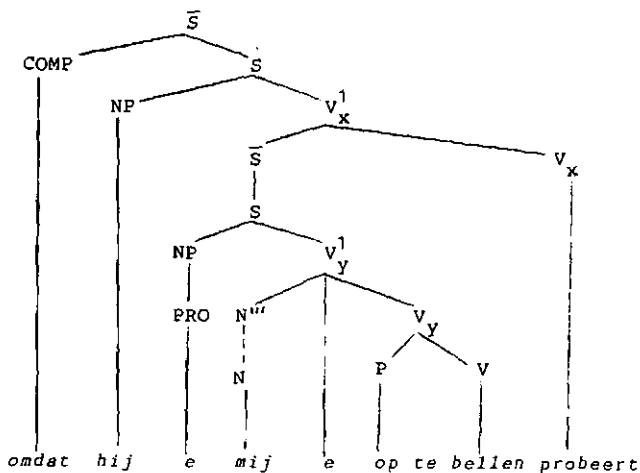
The structures of the  $V^1$  nodes in (6) below are specified by the base rule (1) and the structure of the  $V_Y$  node is specified by the word formation rule (4).

(6)



If P-shift does not apply to (6), the particle *op* remains in the P''' position and the rule of V-raising moves only the bare embedded verb *te bellen* to the final position in the VP ( $V_x^1$ ) of the matrix clause. Thus (5a) is derived. To derive (5b), P-shift is assumed first to apply to (6) giving the structure (7).

(7)



When V-raising subsequently applies to move the embedded verb ( $V_y$ ), the incorporated particle is moved along with the verb.

#### 4.2.2 Shortcomings

Recall that by postulating the rule of P-shift presented in (2) above Van Riemsdijk can explain why a particle and a verb can optionally behave like a single verb with respect to a syntactic rule such as V-raising, as illustrated in (5). The rule of P-shift has the effect of creating a complex verb by incorporating the particle in an empty slot in the substructure of the verb. After application of P-shift, the verb-particle combination is treated as a single verb by the relevant syntactic rules. Van Riemsdijk's proposal that a verb-particle combination created by the application of P-shift is a verb, i.e. a lexical category, thus has the merit of being able to account for the fact that these combinations display properties which are characteristically associated with words. At the same time, by assuming that particles and verbs are independent constituents at D-structure, he has a potential explanation for the fact that particles are not moved along with the verb by the rule of V-second and that inflectional affixes attach to the verb alone and not to the verb-particle combination as a whole. That is, the fact that verb-particle combinations exhibit properties typically associated with phrases would follow from the hypothesis that they are phrases at D-structure.

Van Riemsdijk's analysis exhibits a number of systematic and empirical shortcomings, however. We first consider the systematic shortcomings.

#### 4.2.2.1 Problems of a systematic nature

A first systematic shortcoming of Van Riemsdijk's analysis concerns the claim that the rule of P-shift presented in (2) above is a syntactic substitution rule which inserts a lexical item into an empty structural position already present in the verbal substructure. At least three nontrivial objections may be raised to this claim. First, Van Riemsdijk's claim is based on the assumption that empty positions generated within complex word structures by the rules of word formation are available as receptacles for constituents moved by syntactic rules. The principle of structure-preservation to which he (1978:107) appeals to warrant this assumption, however, is irrelevant to the issue at hand, as is clear from the way in which the principle is defined by Van Riemsdijk and Williams (1986:47):

- (8) "Universal Grammar specifies that certain transformations must be structure preserving. This implies that positions generated by the phrase structure rules (my emphasis --- Cler) need not be filled by lexical insertion but may be filled at a later stage of the derivation by a movement rule."

The principle of structure preservation, as formulated, does not refer to positions generated by word formation rules. This principle can therefore not be considered to warrant the assumption made by Van Riemsdijk.

Second, apart from being based on an unwarranted assumption, the claim that P-shift is a substitution rule in the intended sense entails that P-shift apparently represents a unique kind of mechanism in the grammar of Dutch. On the one hand, if the grammar of Dutch is to include a rule which allows a syntactic constituent to be moved into an empty position in a complex verb structure, then surely it is to be expected that the grammar of Dutch will also con-



tain rules for moving syntactic constituents into empty positions within the substructures of other productively formed complex lexical categories, such as compound nouns and adjectives. Yet Van Riemsdijk provides no evidence to indicate that the P-shift rule generalizes to other categories. Nor does he provide reasons why the operation described by the rule of P-shift should be limited to verbs.

Third, given that Van Riemsdijk's claim entails that the relevant empty position in the structure of the verb is accessible to at least one syntactic rule, viz. the rule of P-shift, it may be expected that this position will be accessible to other rules and principles applying at the various levels of syntactic structure as well. Van Riemsdijk fails to indicate how the syntactically accessible, empty nonhead constituent in the verbal substructure interacts with syntactic rules and principles other than the rule of P-shift. This interaction may prove to be nontrivial insofar as nouns too may be substituted for this position, as noted by Van Riemsdijk (1978:102) and illustrated in (9) below. In (9) the noun *auto* has been incorporated into the verb, as is indicated by the fact that it can be moved along with the verb by the rule of V-raising.

(9)(a) *omdat hij [auto e<sub>i</sub>] kan [rijden]<sub>i</sub>*  
because he car can drive  
'because he can drive a car'

(b) *omdat hij [ e<sub>i</sub> ] kan [auto rijden]<sub>i</sub>*  
because he can car drive

If the empty nonhead position in a complex verbal structure is available as a receptacle for a moved constituent, particularly for a noun, then it is legitimate to ask what the implications of the presence of such an empty position are as regards the principles of government, binding, Case assignment,  $\theta$ -role assignment and the Empty Category Principle. Van Riemsdijk fails to address this question, however.<sup>3</sup> For this reason his claim that P-shift is a substitution rule must be considered problematic.

It must be concluded, then, that Van Riemsdijk's claim that P-shift is a syntactic substitution rule is problematic because (i) it is based on an unwarranted assumption, (ii) the rule apparently represents a unique kind of mechanism in the grammar of Dutch, and (iii) it is unclear how the rule interacts with principles such as the principles of government, binding, Case assignment,  $\theta$ -role assignment and the Empty Category Principle.

A second problem of a systematic nature with Van Riemsdijk's analysis relates to the fact that many verb-particle combinations display idiosyncratic subcategorization properties. This property of verb-particle combinations in Dutch was illustrated in par. 2.5 above. Recall that, by the Projection Principle which was presented as (22) in par. 3.3.2.3 above, the subcategorization properties of a lexical item are projected from the lexicon and must be satisfied at every level of structure, i.e. at (syntactic) D-structure, (syntactic) S-structure, and the level of Logical Form.<sup>4</sup> Given the Projection Principle, the subcategorization properties of a verb as stipulated in the lexicon must be satisfied at every level of structure, notably, for purposes of the present discussion, at D-struct-

ture. Hence, if *af* and *loopt* in (23a) of par. 2.5, repeated here as (10), are analyzed as a  $P''' - V$  sequence, i.e. a syntactic phrase, at D-structure, the D-structure of (10) must be considered to be a projection of the lexical properties of the verb *lopen* and not of the complex verb *aflopen*.

- (10) *Hij loopt de tentoonstelling af.*  
he walks the exhibition down  
'He visits the exhibition.'

However, as Baayen (1986:38f) notes, *lopen* is an intransitive verb, the subcategorization properties of which cannot be satisfied by a structure such as that of (10) which contains an object NP. The verb-particle combination *aflopen*, by contrast, is transitive.<sup>5</sup> Therefore the structure of (10) must be assumed to be projected from the subcategorization properties of the complex verb *aflopen*, although this verb does not occur in the D-structure of (10) on Van Riemsdijk's analysis. It could be argued that a syntactic phrase such as *af...lopen* behaves like an idiomatic phrase in this respect. Idiomatic phrases may have subcategorizational properties that differ from those of the verb which is the head of the phrase. Such idiosyncratic subcategorizational properties must be listed in the lexicon as part of the lexical entry of the idiomatic phrase in question. But this would result in the subcategorization properties of *af...lopen* being specified twice: once as part of the lexical entry for the putative idiomatic phrase  $[[af]_{P'''} [lopen]_V]_{VP}$  appearing at D-structure in the derivation of (10), and once as part of the lexical entry for the complex verb  $[[af]_P [lopen]_V]_V$  created by P-shift in the derivation of (11) below. P-shift is assumed to have applied in (11) to account for the fact that *af* has been moved along with the verb by the rule of V-raising.

- (11)     *dat hij [de tentoonstelling e] wil kunnen*  
          that he    the exhibition               wants can  
  
          [*af + lopen*]  
          down    walk  
          'that he wants to be able to visit the exhibition'

Moreover, in addition to its idiosyncratic subcategorization properties, *af...lopen* 'to visit' also has a meaning which cannot be predicted on the basis of the meanings of *af* and *lopen* respectively. This noncompositional meaning too would have to be specified twice in the lexicon: once for the phrase and once for the complex verb. Thus, Van Riemsdijk's analysis is unable to express the generalization that the phrase *af...lopen* and the complex verb *af-lopen* have exactly the same meaning and subcategorization properties. For every complex verb that is created by the rule of P-shift and which has to be listed in the lexicon by virtue of having some or other idiosyncratic property, the corresponding phrase with its identical properties will, quite redundantly, have to be listed in the lexicon as well.

A third point of systematic criticism that may be raised in connection with Van Riemsdijk's analysis concerns his claim that particles and intransitive prepositions are syntactically indistinguishable and that they can both appear in the P''' slot immediately to the left of the verb in base structures generated by the rewrite rule (1). If this claim is correct, it is predicted that ordinary intransitive prepositions, like particles, will be able to undergo the rule of P-shift. In fact, as noted by Van Riemsdijk (1978:54), intransitive prepositions cannot be incorporated into the verb. This is evident from the ill-formedness of (12b) which is derived from (12a) by application of P-shift and subsequent movement of the entire complex verb *boven te wonen* 'to live upstairs' by the rule of V-raising. By contrast, (12c) in which the preposition *boven* remains in its original position, is well-formed.

- (12)(a) *omdat hij [tegenwoordig boven te wonen] schijnt*  
because he nowadays above to live seems  
'because he seems to live upstairs nowadays'
- (b) \**omdat hij [tegenwoordig  $e_i$ ] schijnt [boven te*  
because he nowadays seems above to  
wonen]<sub>i</sub>  
live
- (c) *omdat hij [tegenwoordig boven  $e_i$ ] schijnt [te*  
because he nowadays above seems to  
wonen]<sub>i</sub>  
live

As was shown in (40)-(42) in par. 2.7 above, particles and intransitive prepositions also behave differently with regard to the *aan het* + infinitive construction, and with regard to the rules of Topicalization and PP-over-V in Dutch. In order to ensure that only particles but not ordinary intransitive prepositions are incorporated in the verb, the rule of P-shift must be able to distinguish between these two instances of the category P. Van Riemsdijk (1978: 102) tentatively suggests that particle incorporation must be assumed to be "a lexically governed process" or, as he (1978:56f) puts it somewhat differently, "the lexical properties of the particle-verb combinations" must be assumed to be responsible for their ability to undergo P-shift.

Van Riemsdijk's remarks are not very illuminating. Is he suggesting that verb-particle combinations are listed as such in the lexicon and that it is this fact that is responsible for the syntactic incorporability of particles? If they are listed, are they listed as (complex) words ( $V^0$ ) or as phrases ( $V^1$ )? If they are lexicalized phrases, how are they to be distinguished from true idiomatic phrases which, according to Baayen (1986:46f), differ from verb-particle combinations both in productivity and in degree of semantic

noncompositionality? How is the fact of having a listed counterpart encoded on a syntactic (sub)string? Unless questions such as these can be answered in a satisfactory way, the notion 'lexical government', which Van Riemsdijk claims to be the key notion in terms of which the syntactic behaviour of particles vis à vis that of intransitive prepositions is to be explained, is an obscure notion. Any claims made in terms of such an obscure notion are of course untestable.

In addition to the three systematic shortcomings of Van Riemsdijk's analysis indicated above, the analysis has empirical shortcomings as well. We turn to these immediately.

#### 4.2.2.2 Problems of an empirical nature

In this section we shall be concerned with two predictions made by Van Riemsdijk's analysis of verb-particle combinations in Dutch. The first prediction is derived from the claim that the P-shift rule is an optional rule. The rule has to be optional to account, amongst other things, for the fact that particles are only optionally raised along with the verb by the rule of V-raising, as shown in (5) above. But if P-shift is optional, then we would expect both (13a), in which P-shift has not applied, and (13b), in which both P-shift and V-second have applied, to be well-formed. This is not the case, however.

(13)(a) *Hij beide het meisje op.*  
he rang the girl up  
'He rang up the girl.'

(b) \**Hij op + beide het meisje .*  
he up rang the girl

Similarly, we would expect the (b)-sentences in (14), in which P-shift is assumed not to have applied, thereby leaving the particle free to undergo the rules of Topicalization and PP-over-V respectively, to be just as acceptable as the corresponding (a)-sentences.

(14)(a) i. *Hij heeft mij op + gebeld.*  
he has me up rung  
'He rang me up.'

ii. *dat Jan achter + raakt*  
that John behind gets  
'that John falls behind'

(b) i. \**Op heeft hij mij gebeld.*  
up has he me rung  
'He rang me up.'

ii. \**dat Jan raakt.achter*  
that John gets behind  
'that John gets behind'

Once again, the prediction is wrong. It appears, then, that the claim that P-shift is optional makes incorrect predictions about the syntactic behaviour of particles. In order to account for the judgments in (13) and (14) it would have to be assumed that P-shift can never apply to incorporate a particle into a verb which is subject to V-second, on the one hand, and, on the other hand, that P-shift must apply in order to prevent rules such as Topicalization and PP-over-V from separating the particle from the verb. This, clearly, is a contradictory state of affairs. It must be concluded that Van Riemsdijk's claim that P-shift is an optional rule is incorrect because it makes wrong predictions about the accessibility of particles to syntactic rules. At the same time it is not at all clear how the rule of P-shift is to be constrained in a nonarbitrary manner from making these incorrect predictions.

A second prediction made by Van Riemsdijk's analysis of verb-particle combinations in Dutch is that particles that have undergone P-shift and those that have not will behave differently with regard to syntactic rules. Recall that on Van Riemsdijk's analysis verb-particle combinations are syntactic P" - V strings. After the application of P-shift, however, the verb-particle combination is a complex verb, i.e. a word. It is to be expected, therefore, that verb-particle combinations that have not undergone P-shift will be more amenable to manipulation by syntactic rules than verb-particle combinations that have undergone P-shift. P-shift is claimed to create words, and parts of words cannot be manipulated by syntactic rules, given the Lexical Integrity Hypothesis, a weak version of which Van Riemsdijk appears to accept implicitly, as will be shown in par. 4.2.3 below. The prediction is difficult to test, because the surface order of the particle with respect to the verb is exactly the same whether the combination is analyzed as a phrase or as a complex verb. There are some indications that the prediction is wrong, however. First, we have already pointed out that movement of the particle by application of the rules of Topicalization and PP-over-V is impossible, regardless of whether the optional P-shift rule has applied or not, i.e. regardless of whether the particle and the verb are taken to constitute a syntactic string or a complex word --- see (14) above.

Second, the rule of Gapping appears not to differentiate between constructions such as (15a), in which the particle is left behind by V-raising, thus indicating that P-shift has not applied, and constructions such as (15b), in which the particle is raised along with the verb, an indication that P-shift has applied.<sup>6</sup>

- (15)(a) *omdat Jan in wil lopen en Marie uit wil*  
because John in wants walk and Mary out ~~wants~~  
wants  
walk  
'because John wants to walk in and Mary out'



(b) *omdat Jan wil in+lopen en Marie wil uit +  
because John wants in walk and Mary ~~walks~~ out  
loopt  
~~walk~~*

It is clear that the verb *lopen* can be deleted by the rule of Gapping regardless of whether or not P-shift has applied. If *uitlopen* was a syntactic P<sup>W</sup> - V string in (15a), but a complex verb in (15b), as claimed by Van Riemsdijk, the Lexical Integrity Hypothesis would have predicted (15b) to be unacceptable.<sup>7</sup>

It must be concluded, then, that Van Riemsdijk's analysis, in terms of which verb-particle combinations are claimed to be ordinary syntactic strings before the application of P-shift, and complex verbs after P-shift has applied, makes incorrect predictions about the syntactic behaviour of verb-particle combinations in Dutch. Verb-particle combinations which are assumed to be ordinary syntactic strings by virtue of not having undergone P-shift on Van Riemsdijk's analysis are no less cohesive syntactically than those that are analyzed as complex verbs, i.e. those that have undergone P-shift. Neither are combinations that have undergone P-shift syntactically more cohesive than those that have not.

#### 4.2.2.3 Summary

Van Riemsdijk's P-shift analysis of verb-particle combinations in Dutch has been shown to have the following shortcomings:

- (16)(a) The claim that P-shift is a substitution rule is problematic because
- i. it is based on the unwarranted assumption that a syntactic rule can move a constituent into an empty position in a complex word structure;
  - ii. as a substitution rule in the intended sense, P-shift would represent a unique kind of mechanism in the grammar of Dutch; and
  - iii. no indication is given as to the way in which the relevant empty structural position interacts with syntactic principles such as the principles of government, binding, Case assignment,  $\theta$ -role assignment and the Empty Category Principle.
- (b) A P-shift analysis necessitates the duplication of lexical entries to account for the fact that verb-particle combinations display the same idiosyncratic meaning and subcategorization properties, regardless of whether they are base-generated phrases or words created by P-shift.
- (c) The notion 'lexical government' in terms of which the rule of P-shift is claimed to distinguish between (incorporable) particles and (nonincorporable) intransitive prepositions is unexplicated and, thus, obscure.
- (d) A P-shift analysis makes incorrect predictions about
- i. the syntactic behaviour of verb-particle combinations; and

- ii. the differential syntactic behaviour of particles that have undergone P-shift vis à vis those that have not.

#### 4.2.3 General linguistic assumptions

In this section we shall consider the general linguistic assumptions underlying Van Riemsdijk's P-shift analysis of verb-particle combinations in Dutch. The assumptions with which we will be concerned are those that are explicitly or implicitly made or would have to be made by Van Riemsdijk in arguing for the well-foundedness of the claims expressed by his P-shift analysis on the basis of evidence relating to the properties of verb-particle combinations as set out in chapter 2 above. The central claims expressed by Van Riemsdijk's P-shift analysis may be represented as in (17a, b) below.

- (17)(a) *Verb-particle combinations are nondistinct from ordinary PP-V sequences at the level of D-structure.*
- (b) *Verb-particle combinations are nondistinct from (syntactically complex) words after the rule of P-shift has applied.*

Turning now to the assumptions in terms of which the properties of verb-particle combinations in Dutch are brought to bear on the claims in (17), let us consider, first, the separability of the verb and the particle as illustrated in par. 2.2 above. This property of verb-particle combinations in Dutch is adduced by Van Riemsdijk (1978:103) as evidence for the claim (17a), viz. that verb-particle combinations are syntactic phrases at the level of D-structure. The fact that the verb can be separated from the particle by the application of the rule of V-raising is adduced by

Van Riemsdijk (1978:103) as evidence against the alternative claim that verb-particle combinations are syntactically complex words at the level of D-structure. In order to bring the separability of the verb and the particle by the rule of V-raising to bear on the claim that verb-particle combinations are phrases rather than words at the level of D-structure, Van Riemsdijk makes the following assumption:

- (18) A syntactic rule which refers ambiguously to V in the structure  $[_V P - V]_V$  must be taken to refer to the higher (or outer) V-node and not to the lower (or inner) V-node.

The assumption (18) is a reflex of a general linguistic principle known as the A-over-A Principle. This principle is formulated as follows by Van Riemsdijk and Williams (1986:20):

- (19) A-over-A Principle  
In a structure  $\dots[_A \dots [_A \dots]_A \dots]_A \dots$ , if a structural description refers to A ambiguously, then that structural description can only analyze the higher, more inclusive, node A.

Given the assumption (18), a reflex of the more general A-over-A Principle (19), extraction of the inner V constituent of a complex verb with the structure  $[_V P - V]_V$  by V-raising is prohibited. Thus, he argues, a verb-particle combination cannot have the structure of a complex verb at the level of structure at which the rule of V-raising applies because, in order for the rule to have the desired effect, it would have to be able to refer to the lower (or inner) V-node within the structure of the complex verb in violation of the A-over-A Principle. Hence, verb-particle combinations must be phrases, at least at the level of D-structure.

Notice, however, that by appealing to the A-over-A Principle to rule out a complex verb structure for verb-particle combinations at the level of D-structure, Van Riemsdijk is implicitly making the assumption (20).

(20) Syntactic rules can analyze the internal structure of words.

Only if the assumption (20) is made, does it become necessary to adduce a principle such as the A-over-A Principle as the premiss of an argument against the assignment of a complex verb structure to verb-particle combinations at the level of structure at which V-raising applies.

Van Riemsdijk's implicit acceptance of (20) would appear to indicate that he rejects at least the strong version of the Lexical Integrity Hypothesis, presented as (6) in chapter 1 above, which prevents syntactic rules from either analyzing or changing word structure. In another context Van Riemsdijk (1978:107) does in fact explicitly admit that his analysis "is at odds with the idea that parts of words may never be analyzed by transformations", i.e. the strong version of the Lexical Integrity Hypothesis.

Second, verb-particle combinations in Dutch were shown in par. 2.3 to exhibit the property of internal inflectional affixation. However, Van Riemsdijk has nothing to say about the way in which the ability of verb-particle combinations to take inflectional affixes internally is to be accounted for by his P-shift analysis. Neither does he present a general theory of inflection or a specific theory of inflectional affixation for Dutch. It is therefore not possible to state the assumption(s) in terms of which the inflectional properties of verb-particle combinations might be explained and hence serve as evidence for this analysis.

Third, the tendency of verb-particle combinations to have noncompositional meanings --- see par. 2.4 above --- is implicitly adduced as evidence for the claim (17b) by Van Riemsdijk. That is, the semantic noncompositionality of verb-particle combinations is implicitly argued to support the claim that, unlike ordinary PP-V sequences, verb-particle combinations may be assigned the status of complex verbs by application of the rule of P-shift. According to him, (1978:54) the "more idiomatic reading" of verb-particle combinations vis à vis the "semantically more predictable reading" of intransitive prepositions constitutes a significant difference between particles and intransitive prepositions. It is one of the differences on the strength of which he (1978:101ff) proposes that particles, but not intransitive prepositions, can be syntactically incorporated into a complex verb structure generated by the word formation rules of the grammar.

Thus, the tendency of verb-particle combinations to have noncompositional readings, as opposed to the "more predictable" readings of intransitive preposition-and-verb sequences, is considered by Van Riemsdijk to be one of the facts that are explained by an analysis on which particles, but not intransitive prepositions, are incorporable into complex verb structures generated by the word formation rules. However, if Van Riemsdijk's P-shift analysis of verb-particle combinations were to be claimed to serve as a basis for explaining the characteristic semantic noncompositionality of these expressions, the following assumption would have to be made:

- (21) (Syntactically complex) strings which are semantically noncompositional must be assigned a word structure.

Van Riemsdijk does not explicitly make the assumption (21). However, it has to be made if the semantic noncompositionality of verb-particle combinations are to be brought to

bear on the well-foundedness of the claim (17b), as is implied by him.

The assumption (21) is representative of the Aronovian view of semantic noncompositionality which was presented as (34) in par. 3.4 above. The version of the Aronovian view which is implicitly assumed by Van Riemsdijk may be formulated as in (22).

(22) Semantic noncompositionality is a characteristic property of words, but not of phrases.

Fourth, the ability of verb-particle combinations to differ in subcategorization from the verbs which are the heads of such combinations --- see par. 2.5 above --- is not considered by Van Riemsdijk to support either of the claims in (17) above. He mentions the question of idiosyncratic subcategorization within the context of a discussion of similarities and differences between verb-particle combinations and motional postpositions. The details of the discussion do not concern us here. What is important, though, is that it is clear from the statement of the subcategorization properties of the verb *lopen* proposed by him (1978:94) that he makes the assumption (23).

(23) The subcategorization properties of lexical items are projected onto syntactic representations from the lexicon.

Thus, the subcategorization frame which he proposes for *lopen* provides for the fact that although *lopen*, as an intransitive verb, cannot take a direct object NP, as shown in (24a), it can take such an object NP when occurring with the particle *in*, as shown in (24b).<sup>8</sup>

(24)(a) \**omdat hij het bos loopt*  
because he the wood walks

- (b) *omdat hij het bos in loopt*  
because he the wood in walks  
'because he walks into the wood'

The assumption (23), however, is merely a reflex of the Projection Principle which was presented as (22) in par. 3.3.2.3 above.

Thus, Van Riemsdijk appears implicitly to accept the Projection Principle. But he fails to consider the question of how the subcategorization changes which may take place when a verb is combined with a particle other than a motional postposition bear on the claims of (17), given the Projection Principle. This omission was shown in par. 4.2.2.1 above to constitute a shortcoming of his P-shift analysis.

Fifth, Van Riemsdijk does not bring the ability of verb-particle combinations to serve as the bases of word formation rules --- see par. 2.6 above --- to bear on either of the claims expressed by his P-shift analysis. Notice that, given his claim that verb-particle combinations belong to the category  $V^0$  after application of the rule of P-shift, verb-particle combinations could serve as the bases of word formation rules without violating the general constraint on word formation rules known as the No Phrase Constraint. This constraint was presented as (37) in par. 3.4 above. If verb-particle combinations are complex words after application of P-shift, then they can presumably serve as the bases of word formation rules without violating the No Phrase Constraint. It does not follow, however, that Van Riemsdijk implicitly accepts the No Phrase Constraint. On the contrary, there is evidence that he does not accept this constraint as a general linguistic constraint on word formation rules.

Thus, recall that Van Riemsdijk considers particles to be nondistinct from intransitive prepositions and proposes that they be generated as constituents of the category  $P'''$ , a phrasal category, at the level of D-structure, as shown in par. 4.2.1 above. Although the particle which is incorporated into the substructure of the verb by application of



the rule of P-shift is a bare preposition (i.e.  $P^0$ ) in the majority of cases, this need not be so. Baayen (1986:39f) provides the following example of a sentence in which an entire prepositional phrase (PP) must be assumed to have been incorporated into the verb, as evidenced by the fact that the phrase as a whole is moved along with the verb by the rule of V-raising.

(25)(a) *dat hij [hem e<sub>i</sub> e<sub>j</sub>] probeert [pp onder de tafel]<sub>i</sub> [te drinken]<sub>j</sub>*  
 that he him tries under the table to drink  
 'that he tries to make him hopelessly drunk'

(b) *dat hij [[het bos e<sub>i</sub>] e<sub>j</sub>] probeert [pp verder in]<sub>i</sub> [te lopen]<sub>j</sub>*  
 that he the wood tries further in to walk  
 'that he tries to walk further into the wood'

In both (25a) and (25b) V-raising has moved more than just a bare particle or postposition along with the verb: a full prepositional phrase in (25a) and a postposition with its modifying adverb in (25b). If the ability of some constituent to be moved along with the verb by V-raising is taken to be an indication that such a constituent has been incorporated into the verb by the rule of P-shift, then it is clear that PPs must be able to occur in the nonhead (Y) position of the complex verbs generated by the word formation rule (4) in par. 4.2.1 above.

The facts of (25) may be argued to follow from Van Riemsdijk's P-shift analysis, in particular from the claim (17b), only if the following assumption is made:

(26) Major syntactic constituents can appear within word structures generated by the word formation rules.

The assumption (26), of course, is the exact opposite of the No Phrase Constraint.

Sixth, consider the property discussed in par. 2.7 above, viz. the syntactic cohesiveness of verb-particle combinations. Van Riemsdijk (1978:54-55) mentions the fact that, unlike ordinary intransitive prepositions, particles can be moved along with the verb by the V-raising rule and can be neither topicalized nor postposed by, what he calls, the P'' extraposition rule (referred to as the rule of PP-over-V in par. 2.7 above). He does not indicate explicitly which of the claims (17a) and (17b) could serve as the basis for explaining the difference in syntactic cohesiveness between verb-particle combinations and ordinary PP-V sequences. Note, however, that by claim (17a) particles and intransitive prepositions are indistinguishable at the level of D-structure. Their differential behaviour with regard to rules such as V-raising, Topicalization and P'' extraposition/PP-over-V can therefore not be explained on the basis of the claim (17a).

The only difference between intransitive prepositions and particles on Van Riemsdijk's analysis is that, whereas the latter may be incorporated into the verb by application of the rule of P-shift, the former cannot undergo P-shift and, thus, remain independent constituents of the verb phrase. The syntactic cohesiveness of verb-particle combinations vis à vis the noncohesiveness of ordinary PP-V sequences could therefore only follow from the claim (17b), viz. that the former, but not the latter, constructions are assigned the status of lexical categories, or words, after application of the rule of P-shift.

The question, then, is what the assumption is in terms of which the syntactic cohesiveness of verb-particle combinations may be argued to follow from the claim (17b). In the case of V-raising, the A-over-A Principle (19) could be assumed to explain the cohesiveness of the particle and the

verb after incorporation of the particle into the verb to form a complex verb with the structure  $[_V P - V]_V$ . It would not be possible to move the verbal constituent from a structure such as this without violating the A-over-A Principle. However, the A-over-A Principle cannot be argued to prevent the rules of Topicalization and  $P'''$  extraposition/PP-over-V from extracting the particle from a verb-particle combination. In the latter cases the A-over-A Principle is inapplicable as the particle differs in category from the category of the complex verb of which it is a constituent.

Thus, the A-over-A Principle cannot be adduced as the premiss of an argument in terms of which the syntactic cohesiveness of verb-particle combinations with regard to the rules of Topicalization and  $P'''$  extraposition/PP-over-V is shown to follow from the claim (17b) expressed by Van Riemsdijk's P-shift analysis. However, the relevant property of verb-particle combinations could be argued to follow from the claim that these constructions are words after application of P-shift, if the following assumption is made:

- (27) The constituents of (syntactically complex) words cannot be separated by syntactic rule.

Given (27), it would follow that the constituents of verb-particle combinations cannot be separated by the application of rules such as Topicalization and  $P'''$  extraposition/PP-over-V once they have been assigned a word structure by the rule of P-shift.

The assumption (27) represents a weaker version of the Lexical Integrity Hypothesis, such as the one which was presented in chapter 1 above and which is repeated here as (28).

- (28) Lexical Integrity Hypothesis (weaker version)  
No deletion or movement transformation may involve categories of both word structure and sentence structure.

Thus, although Van Riemsdijk has been shown to reject the strong version (21) of the Lexical Integrity Hypothesis, it appears that he implicitly accepts the weaker version (28) of this hypothesis.

Seventh, and lastly, the typical compound stress pattern exhibited by verb-particle combinations in Dutch --- see par. 2.8 above --- is not considered by Van Riemsdijk and it is therefore impossible to state the assumption(s) in terms of which the property in question might be explained by and, hence, serve as evidence for the claims (17a, b) expressed by a P-shift analysis of verb-particle combinations.

To summarize: it has been shown that in order to argue for the claims (17a) and (17b) on the basis of evidence relating to various properties of verb-particle combinations in Dutch, Van Riemsdijk implicitly or explicitly makes, or would have to make, the following assumptions:

- (29)(a) A syntactic rule which refers ambiguously to V in the structure  $[_V P - V]_V$  must be taken to refer to the higher (or outer) V-node and not to the lower (or inner) V-node [= (18)].
- (b) Syntactic rules can analyze the internal structure of words [= (20)].
- (c) (Syntactically complex) strings which are semantically noncompositional must be assigned a word structure [= (21)].
- (d) The subcategorization properties of lexical items are projected onto syntactic representations from the lexicon [= (23)].

- (e) Major syntactic constituents can appear within word structures generated by the word formation rules [= (26)].
- (f) The constituents of syntactically complex words cannot be separated by syntactic rule [= (27)].

The assumptions in (29) have been shown in the foregoing discussion either to be consistent with or to follow from the following general linguistic assumptions:

- (30)(a) The assumption (29a) follows from the A-over-A Principle (19) above.
- (b) The assumptions (29b) and (29f) follow from a weaker version of the Lexical Integrity Hypothesis presented in (28) above.
- (c) The assumption (29c) is consistent with the Aronovian view of semantic noncompositionality presented as (34) in par. 3.4 above.
- (d) The assumption (29d) follows from the Projection Principle presented as (22) in par. 3.3.2.3 above.

For purposes of our study it is also significant that Van Riemsdijk's implicit acceptance of the assumption (29e) would imply that he rejects the No Phrase Constraint presented as (37) in par. 3.4 above.

It has been claimed that Van Riemsdijk accepts the weaker version of the Lexical Integrity Hypothesis presented as (28) above. It may be asked, however, whether Van Riemsdijk's rule of P-shift, which incorporates a syntactic constituent into the substructure of a word, is not inconsistent with even this weaker version of the Lexical Integrity Hypothesis. Van Riemsdijk (1978:107) points out that the rule of P-shift is a substitution rule, not an adjunc-

tion rule. That is, P-shift does not change the structure of the verb, but merely inserts a lexical item into an empty structural position already present in the verbal substructure. He rules out an adjunction analysis, because, as he (1978:107) puts it:

"under such an analysis the incorporation rule is allowed to build word structures, a function normally reserved for word formation rules."

The latter statement explicitly indicates that Van Riemsdijk accepts that word structure is described by word formation rules and cannot be changed by rules of syntax.

Note, in conclusion, that the statement quoted above also appears to indicate that Van Riemsdijk accepts that word formation rules form part of a word structure, or morphological, component of the grammar, which is distinct from the syntactic component. Thus, he emphasizes that the P-shift rule, as a syntactic rule, cannot build word structure. The structure of the complex word resulting from application of P-shift is determined by a rule of the word formation component and not by a rule of syntax. Van Riemsdijk has nothing to say about the place of word formation rules in the grammar, however.

#### 4.3 Stowell's incorporation analysis

##### 4.3.1 Claims and formal devices

###### 4.3.1.1 Proposal for English

Stowell (1981:ch. 5) is concerned with providing an analysis of verb-particle combinations in English consistent with his proposal that category-specific phrase structure rules should be eliminated from the theory of grammar.<sup>9</sup> According to Stowell (1981:301, 303), *turned on the light* in (31a) and *turned the light on* in (31b) have the structures shown in (32a) and (32b) respectively.

- (31)(a) *Kevin turned on the light.*  
(b) *Kevin turned the light on.*

- (32)(a) [<sub>V</sub> [<sub>V</sub> turned] [<sub>PRT</sub> on]] [<sub>NP</sub> the light]  
(b) [<sub>V</sub> [<sub>V</sub> [<sub>V</sub> turned] [<sub>NP</sub> the light]] [<sub>PRT</sub> on]]

The structure (32a) is generated by a rule of Particle Incorporation, whereas the structure (32b) is derived by application of a rule of NP Incorporation prior to the application of the Particle Incorporation rule responsible for generating (31a). According to Stowell (1981:301), the rule of NP Incorporation is required independently to account for double object-NP constructions, such as (33) which has roughly the structure shown in (34).

- (33) *Wayne sent Robert a telegram.*  
(34) *Wayne [<sub>V</sub> [<sub>V</sub> sent - Robert] [<sub>NP</sub> a telegram]]*

The NP *Robert* must be assumed to be incorporated into the verb as shown in (34) so as to enable the (complex) verb to assign Case to the NP *a telegram*. If NP Incorporation did not apply, the NP *a telegram* would not be adjacent to the verb *sent* and could not be assigned Case, given the strict adjacency condition on Case assignment proposed by Stowell (1981:113). The adjacency condition on Case assignment stipulates that an NP cannot be assigned Case unless it is strictly adjacent to its governing verb.<sup>10</sup>

Stowell (1981:302) claims that the rules of NP Incorporation and Particle Incorporation form part of "a component of extended word formation rules". These rules differ from "rules of morphology", i.e. ordinary word formation rules, in their ability to form "syntactic words", i.e. words that are not phonologically interpreted as single words. Thus Stowell distinguishes between X<sup>0</sup> categories that are syn-

tactically and phonologically interpreted as single words and  $X^0$  categories that are syntactically, but not phonologically, interpreted as single words. On the one hand, a syntactically complex word which is formed by an ordinary word formation rule, or rule of morphology, is assigned a single pair of external word boundaries on the strength of which the complex as a whole is interpreted as a single phonological word. A syntactically complex word which is formed by an extended word formation rule, on the other hand, presumably retains its internal word boundaries and, hence, is interpreted as consisting of more than one phonological word.

An analysis on which verb-particle combinations in English are considered to be complex verbs formed by means of (extended) word formation rules has a number of potential advantages according to Stowell (1981:302ff). First, by claiming that a V-(NP)-Prt sequence is a complex V rather than a syntactic string at the level of D-structure, Stowell obviates the need for positing a category-specific phrase structure rule for VP in English. The latter option is not available to Stowell, given his (1981:359) claim that the theory of grammar does not allow for category-specific rules of phrase structure.

Second, by postulating the rule of Particle Incorporation, Stowell can explain why, in a string of the form V-Prt-NP, the NP is assigned Case in apparent violation of the adjacency condition on Case assignment. Given that the particle forms a complex V with the verb after application of Particle Incorporation, the NP is indeed adjacent to its governing verb and Case assigner as required.

Third, by claiming that both continuous verb-particle combinations, such as that of (31a), and the corresponding discontinuous combinations, such as that of (31b), are generated by the same extended word formation rule, viz. the rule of Particle Incorporation, there is no need to relate the two



structures by means of a syntactic movement rule. This is an advantage, according to Stowell (1981:302), in that the movement rule in question would have to apply to part of a word, thereby violating the Lexical Integrity Hypothesis. On Stowell's account, the discontinuity of the verb and the particle in sentences such as (31b) is claimed to follow from the extrinsic ordering of the two extended word formation rules proposed by him, viz. NP Incorporation and Particle Incorporation. The discontinuity of the verb and the particle in sentences such as (31b) is merely the superficial manifestation of the fact that NP Incorporation has applied before Particle Incorporation in the formation of the complex verb [<sub>v</sub> *turn the light on*].

Fourth, by hypothesizing that the rule responsible for the formation of verb-particle combinations is a word formation rule and not a rule of syntax, Stowell (1981:303-306) claims to be able to account for the arbitrary properties of the rule, e.g. its partial productivity, its failure to apply cross-categorially and its language-specificity. Moreover, according to Stowell (1981:331-336), the hypothesis concerned can also account for two further properties of verb-particle combinations, viz. that the constituents of these combinations may display an arbitrary but invariant order, as shown in (35), and that the verbs appearing in these combinations are limited to a particular morphological class, viz. the class of native (i.e. Germanic) verbs, as illustrated in (36).

- (35)(a) \*I turned off it.  
(b) I turned it off.

- (36)(a) John gave away his money to charity.  
(b) \*John donated away his money to charity.

As shown in (35a), a particle cannot precede an unstressed pronominal object, but must follow it. According to Stowell

(1981:284ff), fixed order of morphemes is a characteristic property of complex words.<sup>11</sup> As regards the sentences in (36), the well-formedness of (36a) containing the native verb *give*, as opposed to the ill-formedness of (36b) containing the synonymous Latinate verb *donate*, is considered by Stowell (1981:333ff) to be an indication that the rule responsible for the formation of the verb-particle combinations in question is sensitive to the native-Latinate distinction. Only rules of phonology and word formation are sensitive to the distinction in question.<sup>12</sup>

Having outlined Stowell's proposal for an incorporation analysis of verb-particle combinations in English, let us briefly consider the way in which he proposes to extend this proposal to the analysis of verb-particle combinations in Dutch.

#### 4.3.1.2 Proposal for Dutch

In a discussion of the phenomenon of preposition stranding in Dutch, Stowell (1981:ch. 7) proposes that Van Riemsdijk's P-shift rule (2) above be reformulated as an extended word formation rule of Particle Incorporation. Since his proposal for Dutch is merely an extension of his proposal for the analysis of verb-particle combinations in English, the discussion will be brief and will concentrate on the differences between Stowell's and Van Riemsdijk's proposals.

Recall that Van Riemsdijk proposes that verb-particle combinations in Dutch are formed by application of a syntactic rule of P-shift. This rule substitutes a particle appearing adjacent to and to the left of the verb for an empty position generated within the substructure of the verb by an independently needed word formation rule --- see par. 4.2.1 above. In par. 4.2.2.1 we saw that, amongst other things, Van Riemsdijk's analysis fails to explain why in-

transitive prepositions, which he assumes to be structurally indistinguishable from particles, cannot be incorporated into the verb by application of P-shift --- see (12) above.

According to Stowell (1981:463f), the failure of Van Riemsdijk's analysis to account for the nonincorporability of intransitive prepositions stems from the fact that Van Riemsdijk incorrectly assumes the relevant incorporation rule to be a syntactic rule. The fact that particles and intransitive prepositions are lexically but not syntactically distinguishable, as suggested by Van Riemsdijk (1978: 56), and that the incorporation rule is sensitive to the distinction, would indicate that the particle incorporation rule is a word formation rule in Dutch just as in English, according to Stowell. Thus, whereas (37a) containing an intransitive preposition and a verb has the structure shown in (37b), (38a) containing a verb-particle combination (as indicated by the noncompositional meaning) has the structure shown in (38b). In the latter structure the particle and the verb constitute a complex verb, whereas in the former structure the preposition and the verb constitute a phrase.

- (37)(a)        *omdat hij voor staan*  
                 because he in front stands  
                 'because he is standing in front'
- (b)        *omdat hij [ $\bar{v}$  [ $_{pp}$  [ $_p$  voor]] [ $_v$  staan]]*
- (38)(a)        *omdat hij voor staan*  
                 because he in front stands  
                 'because he is leading'
- (b)        *omdat hij [ $\bar{v}$  [ $_v$  [ $_p$  voor] [ $_v$  staan]]]*

Because the incorporation rule responsible for incorporating the particle into the verb is a word formation rule which must have applied prior to D-structure, there is no way in

which the intransitive preposition *voor* can be incorporated into the verb in the syntax before the application of V-raising.<sup>13</sup> Thus, it is predicted that V-raising should be able to move *voor* along with the verb in the case of (38) where *voor* is part of the verb, but not in the case of (37) where *voor* is not part of the verb. This prediction is borne out, as shown in (39) and (40). Raising of *voor* along with the verb in (37) yields (39b) which is ill-formed, whereas (40b), corresponding with (38), is well-formed.

(39)(a) *omdat hij voor schijnt te staan*  
because he in front seems to stand  
'because he seems to be standing in front'

(b) \**omdat hij schijnt voor te staan*  
because he seems in front to stand

(40)(a) *omdat hij voor schijnt te staan*  
because he in front seems to stand  
'because he seems to be leading'

(b) *omdat hij schijnt voor te staan*  
because he seems in front to stand

Stowell's incorporation analysis of verb-particle combinations in Dutch succeeds in overcoming at least four of the shortcomings of Van Riemsdijk's P-shift analysis discussed in par. 4.2.2 above. First, Stowell's analysis does not require syntactic rules to analyze word structure, as does Van Riemsdijk's P-shift analysis. Second, Stowell's incorporation analysis need not invoke an obscure notion of 'lexical government' to account for the difference in incorporability between particles and intransitive prepositions. Third, because verb-particle combinations are analyzed only as complex verbs created by the extended word formation rule of Particle Incorporation, and not as both complex words and phrases, as on Van Riemsdijk's account, no generalizations regarding meaning and subcategorization are missed. Fourth, because only a single, complex word structure is assigned to verb-

particle combinations on Stowell's analysis, no incorrect or conflicting predictions are made regarding the syntactic behaviour of verb-particle combinations, as is the case with a dual structure analysis such as Van Riemsdijk's.

#### 4.3.2 Shortcomings

In the previous paragraphs we considered a number of potential advantages of Stowell's incorporation analysis of verb-particle combinations in English and Dutch. In addition to the advantages mentioned there, note that an incorporation analysis could also serve as a basis for explaining the problematic properties of these constructions described in chapter 2. Thus, on the one hand, the word-like properties of verb-particle combinations could be argued to follow from Stowell's claim that the rules responsible for the formation of these combinations are (extended) word formation rules. On the other hand, the claim that extended word formation rules such as the rules of Particle Incorporation (and NP Incorporation in the case of English) do not create phonological words, could be argued to serve as a basis for the explanation of the phrase-like behaviour of verb-particle combinations in English. Particularly, (morpho)phonological properties such as their ability to take inflectional affixes internally and the peculiar stress properties of verb-particle combinations in English, could presumably be argued to follow from the claim that the structures generated by extended word formation rules are not assigned a single pair of external phonological word boundaries, but retain their internal phonological word boundaries. Because the structures generated by extended word formation rules are claimed not to be phonological words, it would not be surprising if rules of inflection and stress assignment, which are sensitive to phonological word boundaries, treated them differently from phonological words.<sup>14</sup>

In addition to the advantages outlined above, Stowell's

incorporation analysis has a number of shortcomings. We turn to these directly.

#### 4.3.2.1 The extended word formation component

A first problematic aspect of Stowell's incorporation analysis concerns the well-foundedness of his claim that the grammars of English and Dutch must be assumed to include a component of extended word formation rules. At least two requirements have to be met in order for this claim to be well-founded. The first is that the content of the notion 'extended word formation rule' should be both clear and precise. The second is that there should be independent motivation for the inclusion of an extended word formation component in the grammar. Unless these requirements are met, it is impossible to assess the merit of the proposal that the grammars of English and Dutch be assumed to contain a component of extended word formation rules. Specifically, it is impossible to judge the extent to which the putative extended word formation rules overlap in function with other rules of the grammar, to what extent their adoption causes problems elsewhere in the grammar and, finally, whether or not their adoption entails an unwarranted extension of the power of the general linguistic theory.

Consider, first, the requirement that the content of the notion 'extended word formation rule' should be both clear and precise. If this requirement is not met, it is impossible to ascertain for a given rule whether it qualifies as an extended word formation rule or not. Put differently, in the absence of a clearly defined notion 'extended word formation rule' it becomes impossible to refute the claim that a given rule X is, or is not, an extended word formation rule.

From the discussion of various instances of what Stowell claims to be extended word formation rules in English, e.g.

the rules incorporating prenominal adjectives (Stowell 1981: 282ff), NPs, and particles (Stowell 1981:ch. 5), and the rules responsible for adding auxiliaries to the verb (Stowell 1981:118, 288-9), it appears that, on the one hand, Stowell considers the following properties to distinguish extended word formation rules from morphological word formation rules:

- (41) Unlike morphological word formation rules, extended word formation rules
  - (a) do not create phonological words (pp. 118, 302);
  - (b) can take syntactic phrases as their bases (p. 361);
  - (c) create complex structures which may be spread over more than one head position at the level of D-structure (pp. 118f, 362); and
  - (d) create complex structures, the constituents of which are syntactically accessible insofar as they can be thematically linked to empty constituents in phrase structure (pp. 304ff).<sup>15</sup>

On the other hand, extended word formation rules are distinguished from syntactic rules by virtue of exhibiting a number of properties that are characteristic of morphological word formation rules according to Stowell.

- (42) Like morphological word formation rules (and unlike syntactic rules), extended word formation rules
  - (a) are highly language-specific (p. 304);
  - (b) do not generalize over categories (p. 303);
  - (c) are sensitive to phonological information such as the native-latin distinction (p. 332ff);

- (d) may display partial productivity (p. 306);
- (e) may have idiosyncratic effects on stress (p. 286);
- (f) may be extrinsically ordered (p. 341); and
- (g) create lexical categories, the constituents of which cannot be separated by the application of syntactic movement rules (pp. 118, 318, 325).

Note, however, that Stowell's characterization of extended word formation rules, as presented in (41) and (42), cannot serve as a basis for distinguishing between extended word formation rules on the one hand and rules of morphology or syntax on the other hand. For instance, Stowell (1981:ch. 7) proposes a rule of Reanalysis which he considers to be a syntactic rule despite the fact that it creates complex verbs, that these complex verbs are not phonological words, that they are identical in structure to the complex verbs created by Particle Incorporation (or Particle Incorporation preceded by NP Incorporation), and that the complex verbs created by Reanalysis are inaccessible to syntactic movement rules.<sup>16</sup> By contrast, he (1981: 285, 301) proposes that the rules adjoining clitics to verbal stems are "word formation rules". These rules are like the rules of NP and Particle Incorporation and the rule incorporating prenominal adjectives in that the clitic is linked with a syntactic argument position in  $\bar{V}$ . Yet they differ from the foregoing rules in that the clitics and the verbs to which they are adjoined form a single phonological word according to Stowell (1981:284). It is therefore not clear whether the rules responsible for adjoining clitics to verbal stems are rules of morphology or extended word formation rules, as they display properties of both rule types.

What is needed, clearly is a theory of extended word formation on the basis of which it would be possible to draw a



principled distinction between extended word formation rules and, on the one hand, rules such as the rules of cliticization and, on the other hand, the rule of Reanalysis. Stowell's theory of extended word formation fails to draw the required distinction, because it is presented in terms of an obscure notion 'extended word formation rule'. As a consequence of this failure, Stowell's claim that rules such as Particle Incorporation and NP Incorporation (and V-raising in Dutch --- see n. 13 above) have the properties which they have because they are extended word formation rules, is virtually irrefutable.

Let us consider, next, the question of whether the claim that the grammars of English and Dutch must be assumed to include a component of extended word formation rules is independently motivated. As was mentioned in par. 4.3.1.1, Stowell proposes the rules of Particle Incorporation and NP Incorporation in English in order to be able to uphold his (1981:87) claim that there is no need for category-specific phrase structure rules in the grammars of human languages. The proposal forms part of an attempt by Stowell to deal with apparent counterexamples to his claim that the major empirical effects of the traditional category-specific phrase structure rules can be deduced from other principles of the grammar, such as principles of  $\theta$ -role assignment, the Projection Principle and an adjacency condition on Case assignment. Recall that the latter condition stipulates that an NP cannot be assigned Case unless it is strictly adjacent to its governing verb.

Verb-particle combinations in English pose problems for Stowell's theory of a universal, category-neutral base component in that

- (43)(a) the verb-particle construction appears to be limited to the verbal system, as evidenced by the ill-formedness of the derived nominal  
*\*the turning (of) the light on;*
- (b) a verb-particle construction such as *turned on the light* apparently violates the adjacency condition on Case assignment;
- (c) the verb-particle construction appears to be arbitrarily limited to only a small number of languages.<sup>17</sup>

However, if verb-particle combinations are complex verbs formed by the application of NP Incorporation and/or Particle Incorporation, the facts of (43) are no longer problematic for Stowell's general theory of phrase structure.

The question is whether there is independent evidence for postulating extended word formation rules such as Particle Incorporation and NP Incorporation, apart from the fact that they offer a neat way of achieving consistency with the adjacency condition on Case assignment and obviating the need for category-specific phrase structure rules in the grammars of English and Dutch. For notice that a number of the structures which Stowell proposes to derive by means of extended word formation rules are structures which would otherwise have violated the adjacency condition on Case assignment and/or necessitated the postulation of category-specific phrase structure rules. This is true of structures containing one or more auxiliaries and a main verb in Dutch (Stowell 1981:117ff), structures containing prenominal adjectives in English (Stowell 1981:282ff), the auxiliary complex in English (Stowell 1981:288f), and double object and verb-particle constructions in English (Stowell 1981:ch. 5).

Now, if an apparent violation of the adjacency condition on Case assignment and/or a possible need for category-specific phrase structure rules were the only considerations

which necessitated the proposal of extended word formation rules, then the proposal could surely be argued to be ad hoc. That is, extended word formation rules as a type of formal device could be argued to represent a mere protective mechanism, the adoption of which serves no other purpose than to save Stowell's general theory of phrase structure from embarrassing counterevidence.

Stowell in fact presents an impressive array of independent evidence for the proposal that the grammar should include a formal device with the properties which he attributes to extended word formation rules, i.e. the properties in (41) and (42) above. Thus, in proposing that an extended word formation rule analyze a main verb and its auxiliaries as a single complex verb syntactically (although not phonologically) in languages such as English, Dutch and French, Stowell (1981:118, 288f) argues that such an analysis can account for the fact that auxiliaries in these languages perform exactly the same grammatical function as morphological affixes in languages such as Japanese and Sanskrit. Similarly, the rule in terms of which a verb and a following string of unstressed pronouns in Dutch, or a prenominal adjective and a noun in English, are analyzed as a complex lexical category syntactically, according to Stowell (1981: 120f, 285ff), can account for the fact that these unstressed pronouns and prenominal adjectives behave like morphologically generated clitics in other languages in (i) exhibiting arbitrary but invariant order, (ii) being syntactically cohesive, and (iii) exhibiting idiosyncratic stress patterns. We saw in par. 4.3.1.1 above that an incorporation analysis of verb-particle combinations can account for a number of problematic properties of verb-particle combinations other than those mentioned in (43). The same is true of double object-NP constructions. According to Stowell (1981:307), an incorporation analysis "not only solves the special problems that arise for a theory with a category-neutral base, but also leads to interesting solutions to a number of long-standing mysteries" associated with these constructions.

Among these "mysteries", according to Stowell (1981:360), are (i) the obligatory nature of double object constructions involving Possessor indirect objects, (ii) the idiosyncratic behaviour of double object constructions with regard to the rules of WH-movement and NP-movement, and (iii) the limitation of the construction to verbs of a specific morphological stem class, viz. the native stem class. A detailed discussion of Stowell's arguments falls outside the scope of this study and the reader is referred to (Stowell 1981:ch. 5) for more details. Finally, according to Stowell, the postulation of a rule of Particle Incorporation for Dutch can account for (i) the asymmetry between WH-movement and NP-movement with regard to preposition stranding in this language (Stowell 1981:442f), (ii) the asymmetric behaviour with regard to V-raising exhibited by particles and motional post-positions on the one hand and intransitive prepositions and nonmotional postpositions on the other hand, and (iii) the absence of dangling particles in multiple V-raising constructions --- see (Stowell 1981:ch. 7) for discussion.

Thus, the structures which necessitate the postulation of extended word formation rules not only involve apparent violations of the adjacency condition on Case assignment and/or pose problems for Stowell's assumption that the theory of grammar does not allow for category-specific rules of phrase structure. These structures also exhibit an array of other problematic properties which cannot be explained by an analysis on which these structures are generated either by ordinary word formation rules, or by rules of syntax. Insofar as some device with properties such as those attributed to extended word formation rules by Stowell appears, therefore, to be required in the grammar to account for the various other problematic properties of the structures concerned, Stowell's postulation of a device to satisfy this requirement can be argued to be independently motivated, hence non-ad hoc.

We have seen, therefore, that Stowell's claim that the grammars of (at least) English and Dutch must be assumed to include a component of extended word formation rules is partly well-founded. This claim is well-founded insofar as it is non-ad hoc. That is, the need for rules with properties such as those attributed to extended word formation rules appears to be independently motivated. The claim is problematic, however, because it has been shown to be virtually irrefutable. The irrefutability of the claim stems from the fact that the content of the notion 'extended word formation rule' with which Stowell operates is insufficiently explicated by him. Thus, it could be considered a shortcoming of Stowell's incorporation analyses of verb-particle combinations in English and Dutch that a central claim of these analyses, viz. the claim that the rules of Particle Incorporation and NP Incorporation are extended word formation rules, is irrefutable because of the obscurity of the notion 'extended word formation rule'.

Apart from the problematic nature of the claim that the rules of Particle Incorporation and NP Incorporation belong to a special type of rule, viz. extended word formation rules, the rules themselves have shortcomings which reflect negatively on Stowell's incorporation analysis. These will be considered in par. 4.3.2.2 and par. 4.3.2.3 below.

#### **4.3.2.2 The rule of NP Incorporation in English**

A second problematic aspect of Stowell's incorporation analysis concerns his claim that the discontinuity of the verb and the particle in English sentences such as (31b) is the result of the application of NP Incorporation before Particle Incorporation. The proposed rule of NP Incorporation is claimed by Stowell (1981:301) to be the same rule of NP Incorporation which is independently required in the grammar of English to account for the incorporation of the indirect

object-NP in double object constructions such as (33) above. There are two problems with this claim.

A first problem with this claim stems from the fact that Stowell fails to consider an important difference between double object constructions such as (33) and discontinuous verb-particle constructions such as (31b). Recall that Stowell (1981:301) initially proposes the NP Incorporation and Particle Incorporation analyses of double object and continuous verb-particle constructions respectively to explain why Case is assigned to the direct object-NP in continuous verb-particle constructions such as (31a) and double object constructions such as (33), despite the fact that the NPs in question are nonadjacent to the verb. What Stowell fails to consider is that in the case of discontinuous verb-particle combinations such as (31b) there is no analogous, compelling reason for assuming that the direct object-NP is incorporated in the verb. The NP in question will receive Case as required by virtue of being adjacent to and governed by the Case-assigning verb at the level of phrase structure. Stowell's failure to consider this difference between discontinuous verb-particle combinations on the one hand and continuous verb-particle combinations on the other hand, has two potentially damaging consequences.

First, the claim that discontinuous verb-particle combinations too are assigned a complex verb structure such as (32b) above as a result of the interaction of NP Incorporation and Particle Incorporation has the following consequence. Given that no general principle such as the adjacency condition on Case assignment forces a complex verb analysis in the case of discontinuous verb-particle combinations, the structure (44) below must be presumed to be a possible structure for the sentence (31b) as well.<sup>18</sup>

(44) Kevin [<sub>VP</sub> [<sub>V</sub> turned] [<sub>NP</sub> the light] [<sub>PP</sub> [<sub>P</sub> on]]]

It appears then that, within Stowell's framework, sentences such as (31b) containing discontinuous verb-particle combinations may have a dual analysis. They may be analyzed both as in (32b) and as in (44). Thus, a discontinuous verb-particle combination such as *turned ... on* in (31b) may be analyzed both as a complex verb and as a phrase within Stowell's framework. A continuous verb-particle combination such as (31a), by contrast, is analyzable only as a complex verb, i.e. as in (32a) above. The assignment of different structures to continuous and discontinuous verb-particle combinations respectively, however, can be shown to incorrectly predict a difference in syntactic behaviour between the two types of constructions in English. Thus, in the discussion of Selkirk's dual structure analysis of verb-particle combinations in par. 3.5.2 above, it was argued that the assignment of a word structure to continuous verb-particle combinations and a phrasal structure to the discontinuous combinations wrongly predicts that the constituents of the former will be less accessible to syntactic rules, such as rules of conjunction, modification, gapping and preposing, than constituents of the latter, and vice versa.

Let us consider the second consequence of Stowell's failure to take account of the fact that the proposed incorporation analysis of discontinuous verb-particle combinations does not follow from the adjacency condition on Case assignment. If the verb *turned* and the NP *the light* in the sentence (31b) *Kevin turned the light on* can be analyzed as in (32b) above, i.e. as a complex verb created by the extended word formation rule of NP Incorporation, it must be assumed that any sequence of a verb and a noun phrase is analyzable as a complex verb. This is clearly an undesirable consequence. Ordinary V-NP sequences, which are not part of a double object or verb-particle construction, and of which the NP is not a so-called idiom chunk, do not behave like words.<sup>19</sup> If they did, syntactic rules such as the rule Move  $\alpha$ , for

instance, would not have been able to apply to such sequences.

In order to prevent the grammar from redundantly assigning a complex verb structure to every ordinary phrasal V-NP sequence generated, the rule of NP Incorporation would have to be restricted so as to apply only to double object verbs and to verbs appearing in verb-particle combinations. Whereas the double object verbs in English constitute a restricted and therefore specifiable class of verbs, the verbs that can appear in verb-particle combinations do not.<sup>20</sup> It is therefore difficult to see how NP Incorporation could be constrained so as to apply only to verbs appearing in verb-particle combinations (and to double object verbs). In the absence of such a restriction, the grammar will incorrectly assign both a word and a phrase structure to all V-NP sequences.

Thus, the claim that the verb and direct object NP in a discontinuous verb-particle combination are assigned a complex verb structure has been shown to have two potentially undesirable consequences. First, because a phrasal analysis of discontinuous verb-particle combinations is not ruled out by the adjacency condition on Case assignment, it must be assumed that a sentence such as (31b) containing a discontinuous verb-particle combination may be assigned both a phrasal analysis such as (44) and a complex word analysis such as (32b). But such a dual structure analysis wrongly predicts that discontinuous verb-particle combinations will exhibit syntactic behaviour which differs from that of continuous verb-particle combinations which are assigned only a complex verb analysis. Second, in the absence of a requirement that the application of NP Incorporation be conditioned by a general principle such as the adjacency condition on Case assignment, any V-NP sequence may be incorrectly assigned both a complex verb structure by the rule of NP Incorporation and the structure of a verb phrase in accordance with principles of phrase structure. The fact that



it has these undesirable consequences reflects negatively on Stowell's claim that the rule of NP Incorporation applies in the derivation of discontinuous verb-particle combinations.

#### 4.3.2.3 Failure to account for the discontinuity of verbs and particles in Dutch

A third problematic aspect of Stowell's incorporation analysis concerns the way in which he proposes to account for the fact that the particle and the verb may be discontinuous in phrase structure. The particle and the verb may be discontinuous as a result of the appearance of the verb in second position as shown in (45a), in V-raising constructions as shown in (45b) and in *aan het* + infinitive constructions as shown in (45c) --- see par. 2.2 above.

(45)(a) *Hij belde het meisje op.*  
he rang the girl up  
'He rang the girl up.'

(b) *dat hij het meisje op kon bellen*  
that he the girl up could ring  
'that he could ring up the girl'

(c) *dat hij het meisje op aan het bellen is*  
that he the girl up PROGRESSIVE ring is  
'that he is ringing up the girl'

To account for the discontinuity of the verb and the particle in V-second structures such as that underlying (45a), Stowell (1981:90, 117ff) assumes that Dutch utilizes both options provided by Universal Grammar for the placement of the head in  $\bar{V}$ . That is, both the  $\bar{V}$ -initial and the  $\bar{V}$ -final head position are realized in phrase structure. This amounts to assuming that  $\bar{V}$ -structure in Dutch is double-

headed. Moreover, the constituents of a complex verb created by a rule of the extended word formation component, i.e. a complex verb with its internal phonological word boundaries still intact, may be inserted discontinuously into the two head positions. Thus (45a) and its embedded counterpart would have roughly the structures shown in (46a) and (46b) respectively.

(46)(a)  $hij [\bar{V} [V \underline{belde}] \text{ het meisje } [V \underline{op}]]$   
 he rang the girl up

(b)  $dat \text{ hij } [\bar{V} [V \text{ ---}] \text{ het meisje } [V \underline{op} + \underline{belde}]$   
 that he the girl up rang

As noted by Stowell (1981:362), the assumption that the complex constituents created by extended word formation rules may be inserted discontinuously in phrase structure calls for some special provisions regarding the nature of the interaction between lexical insertion and the principles of  $\bar{X}$ -theory. He does not give any indication of the nature of these special provisions, however. Neither does he have any concrete proposals regarding the way in which the grammar determines in which of the two head positions the verbal constituent of such complex structures is to be inserted. He (1981:117-118) suggests that the position in which the verb is inserted is "perhaps conditioned by principles relating to government", but does not spell out the details.

Even if it were possible to account for the insertion of the verb in one or the other head position within  $\bar{V}$  on the basis of principles of government theory, Stowell would still have no explanation for the fact that only the verbal component of the complex verb, but never the full complex verb, can appear in the  $\bar{V}$ -initial head position. That is, he would have no explanation for the ill-formedness of (47).

(47)  $*hij [\bar{V} [V \underline{op} + \underline{belde}] \text{ het meisje } [V \text{ ---} ]]$   
 he up rang the girl

That complex verbs should be able to appear in the  $\bar{V}$ -initial head position, leaving the  $\bar{V}$ -final head position empty, is illustrated by the well-formedness of (48) --- see also n. 2 above.

- (48) *Jan* [ $\bar{V}$  [ $V$  over + weegt] *het voorstel* [ $V$  \_\_\_ ]]  
John over weighs the proposal  
'John considers the proposal.'

As far as the problem of accounting for the discontinuity of the verb and the particle in V-raising constructions such as (45b) is concerned, Stowell has even less to say. One way of explaining why the particle may appear separated from the verb in such constructions, would be to argue that particles may also appear as intransitive prepositions at D-structure. That is, Stowell could argue that the rule of Particle Incorporation is optional. If it applies, a complex verb is formed which is treated as an entity by the rule of V-raising. Alternatively, a particle could originate as an intransitive preposition in D-structure. In the latter case it would not be available as part of the verb to the rule of V-raising, which is an extended word formation rule as well, according to Stowell (1981:463) --- see n. 13 for discussion. This would explain the discontinuity of the verb and the particle in V-raising constructions such as (45b).

The same argument would be possible in the case of *aan het* + infinitive constructions such as (45c). But if Stowell were to assume that Particle Incorporation is an optional rule and that there is an alternative way of generating particles, his analysis would face the same problem as Van Riemsdijk's: it would provide for two possible structural descriptions of verb-particle combinations. A given verb-particle combination could be analyzed as a complex verb created by the rule of Particle Incorporation, or it could be analyzed as a syntactic string consisting of an intransitive preposition and a verb. As pointed out in connection

with Van Riemsdijk's analysis, a dual structure analysis fails to express the generalization that a combination of a particle and a verb has the same subcategorization regardless of whether it is analyzed as a complex verb or as a phrase --- see par. 4.2.2.1 above. Moreover, it was argued in par. 4.2.2.2 that a phrasal analysis of verb-particle combinations incorrectly predicts that the constituents of these combinations will be accessible to rules of syntax. A dual structure analysis also predicts that one and the same verb-particle combination will behave differently with regard to syntactic rules, depending on whether it is analyzed as a complex verb or as a phrase, which is clearly impossible.

An explanation of the well-formedness of (45b) and (45c) on the basis of the assumption that Particle Incorporation is an optional rule is therefore unavailable to Stowell. Stowell himself appears to assume that all verb-particle combinations arise as a result of the application of Particle Incorporation. This assumption is implicit in his (1981: 463) claim that there is a difference between particles and intransitive prepositions and that this difference may be ascribed to the fact that "particles originate within the structure of the complex verb at D-structure". Given this assumption, the particle *op* in (45b) and (45c) must be considered to occur in the relevant positions as a result of the application of Particle Incorporation. If so, Particle Incorporation would have to be able to apply after V-raising and the rule forming *aan het* + infinitive constructions, incorporating the particle into the complex verb formed by the latter rules. That is, (45b) and (45c) would have the structures shown in (49a) and (49b) respectively.

- (49)(a) *dat hij het meisje [v [prt op] [v kon bellen]]*  
that he the girl up could ring
- (b) *dat hij het meisje [v [prt op][v aan het bellen]] is*  
that he the girl up PROGRESSIVE ring is

In order to account for the well-formedness of (50a) and (50b) in which the verb-particle combination is continuous, on the other hand, Particle Incorporation would have to apply before V-raising and the rule forming *aan het* + infinitive constructions, presumably producing roughly the structures shown.

(50)(a) *dat hij het meisje [v kon [v [prt<sup>op</sup>] [vbellen]]]*  
that he the girl could up ring

(b) *dat hij het meisje [v aan het [v [prt<sup>op</sup>] [vbellen]]] is*  
that he the girl PROGRESSIVE up ring is

It appears then, that in order to account for the positional variation of particles in V-raising and *aan het* + infinitive constructions, Stowell would have to make the additional assumption that the extended word formation rules of Dutch are unordered with respect to one another. Note that this would be contrary to the assumption made for English. NP Incorporation and Particle Incorporation in English are claimed to be extrinsically ordered by Stowell, as was shown in par. 4.3.1.1 above. The acceptability of such conflicting assumptions about the ordering possibilities of extended word formation rules can be judged only with reference to a general theory of extended word formation, which Stowell fails to present as was noted in par. 4.3.2.1 above.

It has to be concluded, therefore, that Stowell's incorporation analysis of Dutch verb-particle combinations, as it stands, cannot account for all aspects of the discontinuity of verbs and particles in Dutch. In order to account for the problematic properties of V-second, V-raising and *aan het* + infinitive constructions, Stowell would have to make additional assumptions about the interaction between lexical insertion and principles of phrase structure and about the interaction between extended word formation rules. Stowell's failure to state these assumptions and their consequences

for the general theory of grammar detracts from the merit of his incorporation analysis of verb-particle combinations in Dutch.

#### 4.3.2.4 Summary

Stowell's incorporation analysis of verb-particle combinations has been shown to have the following shortcomings:

- (51)(a) Stowell's claim that rules such as Particle Incorporation and NP Incorporation belong to a component of extended word formation rules is only partly well-founded in that such a claim
- i. appears to be independently motivated and hence non-ad hoc; but
  - ii. is irrefutable by virtue of being formulated in terms of an obscure notion 'extended word formation rule'.
- (b) The claim that the NP Incorporation rule which is responsible for the formation of double object constructions in English applies in the formation of discontinuous verb-particle combinations as well, has two undesirable consequences, viz.
- i. that it may result in the assignment of different structures to continuous and discontinuous verb-particle combinations, thus incorrectly predicting a difference in syntactic behaviour between the two types of constructions; and
  - ii. that any V-NP sequence is redundantly, and incorrectly, assigned both a phrasal structure and a complex verb structure.

- (c) In order to account for the discontinuity of verb-particle combinations in Dutch
  - i. special assumptions have to be made with regard to the interaction between lexical insertion and principles of phrase structure, the nature and theoretical consequences of which are not clear; and
  - ii. it has to be assumed that, unlike the rules of Particle Incorporation and NP Incorporation in English, extended word formation rules such as Particle Incorporation and V-raising in Dutch are unordered with respect to one another.

#### 4.3.3 General linguistic assumptions

Let us consider the general linguistic assumptions which Stowell explicitly or implicitly makes or would have to make in arguing for the well-foundedness of his incorporation analysis on the basis of evidence relating to the properties of verb-particle combinations described in chapter 2 above. Recall that the central claims expressed by Stowell's incorporation analysis are the following:

- (52)(a) Verb-particle combinations are syntactically complex words.
- (b) Verb-particle combinations are created by rules of the extended word formation component of the grammar.

First, the separability of the verb and the particle by syntactic rules --- see par. 2.2 above --- is argued by Stowell to bear on the well-foundedness of the claim (52b). Thus, Stowell (1981:302) argues, given that verb-particle

combinations are complex verbs, the structures underlying sentences with discontinuous verb-particle combinations such as (31b) cannot be derived from the structures underlying sentences with continuous verb-particle combinations such as (31a) by means of a syntactic rule of Particle Movement. Rather, both structures must be assumed to be the result of the application of extended word formation rules. Underlying Stowell's argument is the following general linguistic assumption:

(53) The constituents of syntactically complex words cannot be separated by syntactic rule.

The assumption (53) is, of course, a reflex of the Lexical Integrity Hypothesis which Stowell (1981:210, 302, 325) explicitly accepts.

It may be asked at this point whether Stowell accepts the strong version of the Lexical Integrity Hypothesis presented as (6) in chapter 1 above, or whether he accepts a weaker version of this hypothesis such as, e.g., the version presented as (28) above. For recall that, on Stowell's analysis, the constituents of Dutch verb-particle combinations may be inserted discontinuously at the level of D-structure, despite the fact that these combinations are analyzed as syntactic words, i.e.  $X^0$  categories. Thus, although he maintains that the constituents of complex words cannot be separated by the application of syntactic movement rules, he assumes that constituents of complex words such as verb-particle combinations, which are syntactic but not phonological words, may be separated in syntactic structure by virtue of the interaction of lexical insertion rules and principles of phrase structure such as, e.g., principles of government and headedness. That is, Stowell makes the assumptions (54) and (55).



- (54) Syntactically complex words generated by extended word formation rules retain their internal phonological word boundaries.
  
- (55) Lexical insertion rules are sensitive to the presence of internal phonological word boundaries.

Stowell does not provide independent evidence for the assumptions presented above. That such evidence is required in the case of the assumption (54) is indicated by the fact that it is inconsistent with a general constraint on word formation rules accepted within at least one widely adopted general theory of word formation. The assumption (54) is inconsistent with the Bracket Erasure Convention which forms part of the theory of Lexical Phonology and Morphology and which was presented as (30) in par. 3.4 above. The Bracket Erasure Convention ensures that only the external categorial brackets and phonological boundaries of a syntactically complex word remain once all word formation rules have applied. As such it is merely a formal expression of a general constraint on word formation rules known as the Morphological Island Constraint, as was noted in par. 3.4.

It is clear that the assumption (54) is inconsistent with the Bracket Erasure Convention. As pointed out in par. 4.3.2.1 above, the assumption that extended word formation rules differ from ordinary rules of morphology, *inter alia* with regard to the erasure of internal phonological boundaries, remains *ad hoc* unless it can be shown to follow from a principled distinction between extended word formation rules on the one hand, and ordinary rules of morphology and rules of phrase structure on the other hand.

As far as (55) is concerned, once again, Stowell provides no justification for his acceptance of this assumption. This omission on Stowell's part is unfortunate, as it could be argued that the acceptance of (55) is inconsistent with the general requirement that syntactic rules are not sensitive to phonological information, as again pointed out recently by Sproat (1985:334). The question of the well-foundedness of (55) is particularly relevant to the question of whether Stowell accepts the strong version of the Lexical Integrity Hypothesis. Thus, Stowell could argue that (55) is well-founded because lexical insertion rules are not syntactic rules "proper" and are therefore not subject to the requirement that syntactic rules should not be allowed to refer to phonological information. That is, Stowell would have to make the following general linguistic assumption:

- (56) Lexical insertion rules are not subject to the same general constraints as rules of the syntactic component.

But if lexical insertion rules were to be excluded from the class of syntactic rules for purposes of the assumption (55), then there would also be a principled reason for excluding lexical insertion rules from the class of syntactic rules for purposes of the Lexical Integrity Hypothesis. In the latter case Stowell's incorporation analysis would be consistent with the strong version of the Lexical Integrity Hypothesis despite the fact that this analysis embodies the claim that complex words formed by extended word formation rules may be inserted discontinuously in syntactic structures.

That Stowell does indeed accept the assumption (56) that lexical insertion rules are not necessarily subject to the same constraints as syntactic rules is clear from the following remarks by him (1981:88):

".... by restricting the vocabulary of the theory [of phrase structure --- CleR] to primitive terms relating exclusively to structural notions, we introduce a natural distinction between principles of the theory of phrase structure on the one hand, and rules mapping between components on the other. In these terms we might hypothesize that each component of grammar has a core set of principles which are defined exclusively in terms of the primitives of that component. It may be that such principles are invariant across languages, while only the 'hybrid' rules referring to notions from more than one component are subject to parametric variation."

Lexical insertion rules, according to Stowell (1981:92), "involve lexical entries as well as phrase structure configurations" and, hence, could be viewed "as mapping between the lexicon and the phrase structure (X-bar) component". Given their "hybrid" nature, it is to be expected that they will, in principle, be able to refer to lexical information which is not accessible to purely syntactic rules and principles. On Stowell's view, the assumption (55) would therefore represent a parametric property of lexical insertion rules in languages, such as Dutch and English, which have extended word formation rules. Moreover, the property is related in some way to the fact that Dutch utilizes both options provided by Universal Grammar for the placement of the head in  $\bar{V}$ . In conclusion, therefore, we have seen that Stowell's acceptance of the assumption (55) is not inconsistent with the acceptance by him of the strong version of the Lexical Integrity Hypothesis.

Second, the fact that verb-particle combinations take inflectional affixes internally --- see par. 2.3 above --- is certainly consistent with Stowell's incorporation analysis on which such combinations are assumed not to constitute a single phonological word. On such an analysis it is to be expected that inflectional affixes will attach to the verbal constituent of a verb-particle combination and not to the combination as a whole, given that the following general assumption is made:

- (57) Inflectional affixation rules are sensitive to internal phonological word boundaries appearing in the syntactically complex constituents created by extended word formation rules.

Notice that the assumption (57) too is inconsistent with the Bracket Erasure Convention referred to above. Given that extended word formation rules could be shown to be exempt from the latter condition on principled grounds, however, the assumption (57) would certainly be compatible with any general theory of inflection on which rules of inflection are assumed to be part of the morpho(phono)logical rule component of the grammar. It is not compatible with a theory on which inflectional affixes are assumed to be introduced by rules of syntax, as the latter rules are supposed not to be sensitive to phonological information, as pointed out above.

Alternatively, Stowell's incorporation analysis could account for the ability of verb-particle combinations to take inflectional affixes internally if the assumption (58) was made.

- (58) Extended word formation rules apply after rules of inflection.

In addition to making correct predictions about the occurrence of internal inflectional affixes in words formed by extended word formation rules, the assumption (58) does not entail a violation of the Bracket Erasure Convention as does the assumption (57). However, Stowell neither explicitly makes the assumption (57) or (58), nor indicates how the fact that verb-particle combinations take inflectional affixes internally may be brought to bear on the claims expressed by his incorporation analysis. The remarks above are therefore merely speculative.

Third, Stowell (1981:302) cites the fact that "Intuitively, the verb-particle pair functions as a single semantic word" --- see also par. 2.4 above --- as evidence in support of the claim (52a) that verb-particle combinations be assigned the status of (syntactic) words. As examples of verb-particle combinations functioning as single semantic words, he cites "idiomatic pairs such as *turn on* 'excite', or *put off* 'delay'". Facts such as these about the noncompositionality of verb-particle combinations can be brought to bear on the validity of the claim that these combinations should be assigned a word structure only if the assumption (59) is made.

(59) Syntactically complex strings which are semantically noncompositional must be assigned a word structure.

The assumption (59), which is not justified by Stowell, was shown in par. 3.4 above to reflect the Aronovian view about the relationship between word structure and semantic noncompositionality. Aronoff's view was presented as (34) in par. 3.4 above.

Fourth, the ability of an incorporation analysis to account for the fact that verb-particle combinations may differ in subcategorization from the verbs which are the heads of such combinations --- see par. 2.5 above --- follows naturally from the claim (54b) if the assumption (60) is made.

(60) Word formation rules, but not syntactic rules, can affect the subcategorization of a word.

Given (60), it follows that verb-particle combinations, by virtue of the fact that they may display idiosyncratic subcategorization, must be generated by word formation rule.

Stowell does not explicitly make the assumption (60). However, the assumption (60) is merely a reflex of the Projection Principle presented as (22) in par. 3.3.2.3 above. In terms of this principle the subcategorization properties of lexical items must be observed at all syntactic levels of representation. It follows that a rule which created complex expressions which differed in subcategorization from their heads could not be a rule applying at any of the syntactic levels of structure, as such a rule would violate the Projection Principle. Such a rule could therefore only be a word formation rule, given that the further assumption (61) is made.

(61) Word formation rules apply before lexical insertion.

Only if the assumption (61) is made does it follow from the Projection Principle that word formation rules, but not syntactic rules, can change subcategorization. For it is via lexical insertion that the properties of lexical items are projected onto syntactic representations.

Thus, although the assumption (60) is not explicitly made by Stowell, the assumption may be argued to be implicitly accepted by him because it follows from the Projection Principle which Stowell does accept. His acceptance of the Projection Principle is indicated by the way in which he (1983: 463) proposes to solve the problem of accounting for the fact that verbs with incorporated motional postpositions in Dutch differ in subcategorization from the corresponding single verbs appearing in syntactic configurations with a nonincorporated motional postposition. He (1981:463) attempts to solve the problem by making the following general assumption:

- (62) The subcategorization frame of a verb may be satisfied either by an incorporated constituent or by a constituent appearing in the relevant subcategorized position in a syntactic configuration.

Stowell (1981:485 n. 28) justifies the assumption (62) by showing that it is independently needed in order to account for the properties of clitics.<sup>21</sup> More important, however, notice that by assuming (62) Stowell can maintain the claim that in both the sentence (31a) containing the complex verb *turned on* and the sentence (31b) containing the complex verb *turned the light on*, the subcategorization properties of the verb *turn on* are satisfied, despite the fact that in the latter case the subcategorized NP does not appear in the subcategorized direct object NP position at the level of phrase structure, but forms part of the complex verb. That is, by assuming (62), Stowell can maintain that the single subcategorization frame associated with both the continuous verb-particle combination *turned on* in (31a) and the corresponding discontinuous verb-particle combination *turned ... on* in (31b) is satisfied at the level of D-structure, even though the subcategorized NP appears phonetically as part of the complex verb in the latter case.

The important point, however, is that Stowell needs to make the assumption (62) because he accepts the Projection Principle, which requires that the subcategorization properties of a lexical item must be satisfied at D-structure, S-structure, and LF.

Fifth, Stowell does not bring the ability of verb-particle combinations to serve as bases of word formation rules --- see par. 2.6 above --- to bear on either of the major claims (52a, b) expressed by his incorporation analysis. However, if Stowell's incorporation analysis were to account for this property of verb-particle combinations, the following general assumption would have to be made:

- (63) Constituents formed by means of extended word formation rules can serve as bases of rules of morphology.

It may be assumed that the choice of the term "extended word formation rule" to denote rules such as Particle Incorporation and NP Incorporation is intended to signify that these rules belong to the same component of the grammar as ordinary, i.e. morphological, word formation rules. In this case, some kind of interaction between the two kinds of word formation rules, such as that implied by (63), is to be expected. The assumption (63) would be compatible with a theory of word structure such as that proposed by Selkirk (1982) in which complex constituents of the category level word ( $X^0$ ) are allowed to serve as bases for the rules introducing derivational affixes sub-categorized for sister constituents of the category level  $X^0$ . However, the assumption (63) would probably not be compatible with a general theory of morphology, such as that of Allen (1978), which included some version of the Extended Ordering Hypothesis. In terms of the latter hypothesis, as formulated by Allen (1978:83), rules of word formation are ordered in such a way as to make it impossible for compounds to serve as bases for affixation rules. Given that the complex verbs formed by extended word formation rules resemble compounds rather than derived words, extended word formation rules would probably be ordered "after" affixation rules. With such an ordering it would be predicted that verb-particle combinations cannot serve as the bases of affixation rules.

Note, furthermore, that the assumption (63) is not inconsistent with the No Phrase Constraint presented as (7) in chapter 1 above. The constituents formed by extended word formation rules such as Particle Incorporation and NP Incorporation are words, not phrases. However, this is not to say that Stowell accepts the No Phrase Constraint. As



was pointed out in (41) above, Stowell (1981:361) accepts that syntactic phrases must be allowed to form the bases of extended word formation rules in violation of the No Phrase Constraint. The rule of NP Incorporation is an example of an extended word formation rule taking syntactic phrases as its base. As was pointed out in par. 4.2.3 above, the rule of Particle Incorporation in Dutch too must be assumed to be able to incorporate full PPs into the verb if the facts of (25) are to be accounted for.

It would appear therefore as if Stowell accepts a weaker version of the No Phrase Constraint which could be formulated as in (64).

(64) No Phrase Constraint (weaker version)

Major syntactic constituents can appear within word structures generated by extended word formation rules but not within word structures generated by rules of morphology.

Sixth, the syntactic cohesiveness of verb-particle combinations --- see par. 2.7 above --- is considered by Stowell to support the claim (52a), viz. that these combinations are (syntactically complex) words. Thus, Stowell (1981:339) observes that the appearance of manner adverbials before the particle in English "ought to be completely impossible if the particle were within the structure of the verb". Hence, according to Stowell, the ill-formedness of the sentences in (65), in which a manner adverbial intervenes between the NP and the particle, follows from the claim that the V-NP-PP sequences in these sentences are complex verbs as a result of the application of NP Incorporation and Particle Incorporation.

- (65)(a) \*Kevin turned the light QUICKLY off.  
(b) \*Janice cut the cabbage CARELESSLY up.

Similarly, the fact that particles and motional postpositions may "function as a unit" with the verb in V-raising constructions in Dutch is considered by Stowell (1981:462f) to support his claim that particles and motional postpositions "originate within the structure of the complex verb at D-structure". The observed syntactic cohesiveness of verb-particle combinations in English and Dutch can be argued to support the assignment of a complex verb structure to these combinations only if the assumption (66) is made.

- (66) The constituents of syntactically complex words cannot be separated by syntactic rule.

The assumption (66) clearly is a reflex of the Lexical Integrity Hypothesis.

Seventh, consider finally the stress pattern of verb-particle combinations --- see par. 2.8 above. The fact that verb-particle combinations in Dutch exhibit a typical compound stress pattern is not mentioned by Stowell as evidence for his incorporation analysis of these constructions. Neither does he present a theory of compound stress assignment for Dutch, or for language in general, from which the stress properties of verb-particle combinations would follow. Any attempt to reconstruct the assumptions in terms of which the stress properties of verb-particle combinations in Dutch could be brought to bear on either of the claims in (54) would therefore be mere speculation.

Stowell does not have much to say about the stress properties of verb-particle combinations in English either. He does comment on the stress properties of an analogous construction, however. Thus, Stowell (1986:286) refers to the often observed difference between the stress pattern of Adj-N

sequences such as (a) *white house* (with primary stress on the noun *house*) and that of "true" compounds such as (the) *White House* (with primary stress on the adjective *White*). Despite the fact that they exhibit "phrasal stress", Adj-N sequences such as (a) *white house* are analyzed as complex nouns formed by an extended word formation rule of Adjective Incorporation by Stowell (1981:285ff). The fact that these sequences display "phrasal" stress, unlike "true" compounds such as (the) *White House*, according to Stowell (1981:286), is related to the fact that "various morphological affixes have idiosyncratic effects on stress". That is, he implicitly makes the assumption (67).

- (67) Syntactically complex constituents generated by word formation rules may exhibit idiosyncratic stress patterns.

Given the assumption (67), the fact that verb-particle combinations exhibit "phrasal" stress, like the relevant Adj-N sequences, could be argued to be consistent with an analysis on which these combinations are formed by means of (extended) word formation rules, although it does not follow from such an analysis. Given that the stress properties of verb-particle combinations in English could be argued to follow from a phrasal analysis of these constructions, without any additional assumptions such as (67) having to be made, Stowell's argument appears to be rather weak. Moreover, Stowell fails to justify the assumption (67), thereby further weakening his argument against considering "phrasal" stress to constitute counterevidence to an incorporation analysis of the relevant Adj-N sequences and, presumably, verb-particle combinations in English.

To summarize: it has been shown that in order to argue for the claims (52a) and (52b) on the basis of evidence relating to various properties of verb-particle combinations in English and Dutch, Stowell implicitly or explicitly makes or would have to make the following assumptions:

- (68)(a) The constituents of syntactically complex words cannot be separated by syntactic rule [= (53) and (66)].
- (b) Syntactically complex words generated by extended word formation rules retain their internal phonological word boundaries [= (54)].
- (c) Lexical insertion rules are sensitive to the presence of internal phonological word boundaries [= (55)].
- (d) Syntactically complex strings which are semantically noncompositional must be assigned a word structure [= (59)].
- (e) Word formation rules, but not syntactic rules, can affect the subcategorization of a word [= (60)].
- (f) The subcategorization frame of a verb may be satisfied either by an incorporated constituent or by a constituent appearing in the relevant subcategorized position in a syntactic configuration [= (62)].
- (g) Constituents formed by means of extended word formation rules can serve as bases of rules of morphology [= (63)].
- (h) Syntactically complex constituents generated by word formation rules may exhibit idiosyncratic stress patterns [= (67)].

A number of the assumptions of (68) have been shown either to follow from or to be consistent with the following general linguistic assumptions:

- (69)(a) The assumption (68a) follows from the strong version of the Lexical Integrity Hypothesis as formulated in (28) in par. 3.4 above.

- (b) The assumption (68c) is consistent with the assumption (56) regarding the relation between lexical insertion rules and the syntactic component of the grammar.
- (c) The assumption (68d) follows from the Aronovian view of noncompositionality presented as (34) in par. 3.4 above.
- (d) The assumptions (68e) and (68f) follow from the Projection Principle as formulated in (22) in par. 3.4 above.

In addition to the general linguistic assumptions of (69), it was shown that Stowell accepts a weaker version of the No Phrase Constraint, i.e. the version presented as (64) above.

The assumptions (68b), (68g), and (68h) have not been shown either by Stowell himself or in the discussion above to follow from any independently motivated general linguistic assumptions. Of these, the assumptions (68b) and (68g), significantly, are assumptions about the properties of extended word formation rules. The fact that these assumptions cannot be deduced from more general principles reflects a shortcoming of Stowell's incorporation analysis pointed out in par. 4.3.2.1 above, viz. that Stowell does not present a principled theory of extended word formation from which it would follow that putative extended word formation rules have the properties attributed to them by Stowell. The assumption (68h) must be considered to be completely arbitrary in view of the fact that Stowell (i) fails to consider the question of exactly what class of affixes it is that may have idiosyncratic effects on stress, and (ii) fails to show that the constituents introduced into complex word structures by extended word formation rules on the one hand and the relevant class of affixes on the other hand are related in any way.

Like Van Riemsdijk, Stowell is not very clear about the place which the word formation component occupies in the grammar.

The proposed rules of the extended word formation component have been shown to be able to interact to a considerable extent with principles of phrase structure such as principles of  $\bar{X}$  theory, strict subcategorization, and  $\theta$ -role assignment. Yet Stowell considers them to be word formation rules. Stowell (1981:362) himself acknowledges the problems posed by his incorporation analysis for "traditional assumptions" about the interaction between word formation rules and principles of phrase structure. It has been shown that for Stowell to be able to adduce the idiosyncratic subcategorization properties of some verb-particle combinations as evidence for the claim (52b), viz. that verb particle combinations are created by extended word formation rules, he would have to accept the following hypothesis about the organization of a grammar:

(70) Word formation rules apply before lexical insertion(= (61)).

Although the assumption (70) has nothing to say about the "place" of word formation rules in the grammar, its implicit acceptance by Stowell indicates that he too accepts that word formation rules belong to a separate component of the grammar, i.e. that the word formation component is distinct from the syntactic component of the grammar.

Having considered the shortcomings both of the lexicalist analyses of verb-particle combinations discussed in chapter 3 and of the two nonlexicalist analyses discussed in the present chapter, we are now in a position to consider the question of how the shortcomings of the different kinds of analyses bear on the respective general theoretical frameworks within which these analyses are couched.

Chapter 5

**A CRITICAL PERSPECTIVE ON LEXICALIST MORPHOLOGY**

**5.1 General**

This chapter will focus on the general theoretical import of some of the shortcomings of the analyses of verb-particle combinations considered in chapters 3 and 4. First, it will be argued in par. 5.2 that some of the shortcomings of the lexicalist analyses of verb-particle combinations considered in chapter 3 reflect negatively on the lexicalist construal of the relationship between the syntactic and morphological components of the grammar as outlined in chapter 1. Second, it will be shown in par. 5.3 that the conclusions of par. 5.2 are borne out by a consideration of the major shortcomings of the "nonlexicalist" analyses of verb-particle combinations discussed in chapter 4. These shortcomings will be argued to stem from the fact that Van Riemsdijk and Stowell too make some essentially lexicalist assumptions about the relationship between morphology and syntax.

**5.2 Assessment of the lexicalist construal of the relationship between morphology and syntax**

Let us consider the way in which some of the shortcomings of lexicalist analyses of verb-particle combinations considered in chapter 3 bear on the adequacy of the lexicalist construal of the relationship between morphology and syntax. Recall that Simpson, Baayen, and Selkirk have been shown to accept three tenets which are central to the lexicalist construal of the organization of a grammar as outlined in chapter 1, viz.

- (1)(a) a strong version of the Lexical Integrity Hypothesis in terms of which syntactic rules are allowed neither to analyze nor to change word structure;
- (b) the No Phrase Constraint which states that morphologically complex words cannot be formed (by WFRs) on the basis of phrases; and
- (c) the Lexical Component Hypothesis, according to which word structure rules apply exclusively in a separate, lexical, component of the grammar, viz. the lexicon.<sup>1</sup>

As was shown in chapter 3 above, the lexicalist analyses of verb-particle combinations proposed by Simpson, Baayen and Selkirk exhibit various shortcomings. Some of these shortcomings, it will be argued, are the result of the acceptance by these morphologists of the hypotheses (1a-c) concerning the relationship between morphology and syntax. As such, these shortcomings could be taken to reflect negatively on the lexicalist construal of the way in which a grammar is organized. In particular, three of the shortcomings of the lexicalist analyses of verb-particle combinations discussed in chapter 3 can be shown to be symptomatic of the problematic nature of this construal. These shortcomings are

- (2)(a) the postulation of conceptually redundant descriptive devices;
- (b) the postulation of formal devices that are ad hoc in a language-specific and/or in a general linguistic sense; and
- (c) the making of incorrect predictions about the properties of verb-particle combinations.



### 5.2.1 Conceptual redundancy

As a typical example of conceptual redundancy resulting from the acceptance by lexicalist morphologists of the hypotheses (1a-c) concerning the relationship between morphology and syntax, consider Simpson's rules for generating  $\bar{X}$  categories in the lexicon. Simpson requires these devices in order to be able to generate verb-particle combinations (e.g. *hang on*) and their corresponding nouns (e.g. *hanger on*) in the lexicon while maintaining that they are phrases, i.e. belong to the category  $\bar{V}$  and  $\bar{N}$  respectively. As was shown in par. 3.2.2.1 above, the rules generating  $\bar{X}$  categories in the lexicon are identical in function to, and hence duplicate, syntactic phrase structure rules. The postulation of lexical rules which are exact duplicates of syntactic rules, of course, is conceptually redundant.

The reasons for Simpson's postulation of the device in question were indicated in par. 3.4. On the one hand, given Simpson's acceptance of the Lexical Integrity Hypothesis, the only way in which she can account for the syntactic separability of verb-particle combinations is by assuming that these combinations are phrases rather than words. On the other hand, her acceptance of the No Phrase Constraint and the Lexical Component Hypothesis forces her to propose that verb-particle combinations, although they are assigned the category  $\bar{V}$ , are generated by word formation rules in the lexicon. If she were to allow verb-particle combinations to be generated by (independently motivated) phrase structure rules, she would be unable, given her acceptance of the No Phrase Constraint and the Lexical Component Hypothesis, to account for the fact that verb-particle combinations may serve as bases for word formation rules.

Thus we see that it is Simpson's acceptance of the hypotheses (1a-c) concerning the relationship between morphology and syntax which forces her to maintain that verb-particle combinations are phrases and yet to shun the use of indepen-

dently needed phrase structure rules to generate these combinations. Similarly, it was shown in par. 3.4 that it is Baayen's acceptance of the hypotheses (1a-c) which forces him to propose that the rule generating verb-particle combinations, redundantly, be stated twice: once in the lexicon and once in the syntax.

Consider also Selkirk's unspecified lexical rule which has to relate verb-particle combinations generated as compound verbs in the lexicon to the corresponding (discontinuous) verb-particle combinations generated as phrases in the syntax. As far as its function is concerned, this rule duplicates the syntactic rule Move  $\alpha$ . The latter rule is unavailable to Selkirk because, as was noted in par. 3.5.3 above, she accepts a version of the Lexical Integrity Hypothesis which prevents syntactic movement rules from involving categories of both word structure and phrase structure. An alternative analysis on which she would be able to make use of the independently motivated rule Move  $\alpha$ , rather than the conceptually redundant lexical rule, is unavailable to her given her acceptance of the No Phrase Constraint and the Lexical Component Hypothesis. In order to relate continuous and discontinuous verb-particle combinations by the rule Move  $\alpha$ , continuous verb-particle combinations too would have to be syntactic phrases. But Selkirk wishes to maintain that verb-particle combinations can serve as bases of word formation rules. Therefore she is forced by her acceptance of the No Phrase Constraint and the Lexical Component Hypothesis to maintain that continuous verb-particle combinations are lexically generated compound verbs, rather than syntactically generated phrases, and to propose that they are related to the corresponding discontinuous phrases by a lexical rule rather than by the functionally equivalent, independently motivated rule Move  $\alpha$ .

We see then, that acceptance of the hypotheses (1a-c) concerning the relationship between morphology and syntax necessitates the postulation of conceptually redundant descriptive

devices in the case of all three the lexicalist analyses of verb-particle combinations which we have considered.

### 5.2.2 Ad hoc formal devices

The postulation of formal devices that are ad hoc in a language-specific and/or a general linguistic sense represents a second shortcoming of lexicalist analyses of verb-particle combinations which can be argued to be symptomatic of the problematic nature of the lexicalist construal of the relationship between morphology and syntax. The ad hoc devices in question include:

- (3)(a) Simpson's lexical rule generating  $\bar{V}$  categories in the lexicon;
- (b) Baayen's  $V^i$  category level, an additional level in the projection line of  $V$ ; and
- (c) Selkirk's lexical rule which relates lexically and syntactically generated verb-particle combinations.

Apart from the fact that the rules mentioned in (3a) and (3c) have been shown in par. 5.2.1 to be identical in function and, hence, to duplicate independently required syntactic rules, the former rules along with the formal device mentioned in (3b) have all been argued in preceding paragraphs to be ad hoc in some sense.<sup>2</sup>

Thus, on the evidence provided by Simpson, her lexical  $\bar{X}$  rule is required solely to account for the properties of verb-particle combinations (and their corresponding nominals) in English. Similarly, Baayen has been shown in par. 3.5.2.1 to be unable to provide convincing evidence other than evidence relating to verb-particle combinations for the postulation of a category level  $V^i$  in the grammar of Dutch. And,

lastly, Selkirk mentions not one other instance of a lexical redundancy rule performing a function similar to that of the rule which she postulates to relate lexically and syntactically generated verb-particle combinations in English. Neither does any of these grammarians provide evidence that the devices in question are required in the grammars of other human languages.

The question is: What necessitated the postulation of these ad hoc devices? The answer in each case is the same. It is the acceptance by the morphologists in question of the hypotheses (1a-c), and the conception of the relationship between morphology and syntax which these hypotheses represent, that necessitates the postulation of the formal devices of (3a-c) for the analysis of verb-particle combinations. That the postulation of Simpson's lexical  $\bar{V}$  rule and Selkirk's lexical redundancy rule is part of the cost of accepting a lexicalist framework for the analysis of verb-particle combinations has already been demonstrated in par. 5.2.1. Baayen's postulation of a category level  $V^1$ , too, will be shown in par. 5.2.3 immediately below to be necessitated by his acceptance of the lexicalist hypotheses (1a-c). It will be argued that the postulation of this ad hoc formal device is required to prevent Baayen's analysis from making incorrect predictions about the properties of verb-particle combinations in Dutch. That Baayen's analysis would otherwise make the incorrect predictions in question will be argued to be a consequence of the fact that this analysis is couched in a lexicalist framework including the hypotheses (1a-c).

### 5.2.3 Incorrect predictions

As was indicated in chapter 3, analyses of verb-particle combinations proposed within a general theoretical framework including the hypotheses (1a-c) make incorrect predictions about properties of these combinations. This shortcoming will be argued to be a third manifestation of the problematic nature

of the lexicalist construal of the relationship between morphology and syntax.

We saw in par. 3.2.2.2 above that Simpson's analysis, on which verb-particle combinations are assigned the category level  $\bar{V}$ , wrongly predicts that verb-particle combinations will display the same syntactic behaviour as other constituents of the category level  $\bar{V}$ . Similarly, in par. 3.5.2.3 it was shown that, in assigning distinct structural representations to continuous and discontinuous verb-particle combinations respectively, Selkirk's dual structure analysis incorrectly predicts a difference in syntactic behaviour between the two kinds of combinations. Recall also that it has been argued --- see par. 3.3.2.2 --- that Baayen's proposal of a special category level  $V^1$  for verb-particle combinations in Dutch has the sole function of preventing his overlap analysis from incorrectly predicting that verb-particle combinations will exhibit all the properties of both lexical and syntactic constructs.

Thus, whereas Simpson's and Selkirk's analyses make incorrect predictions about the properties of verb-particle combinations, Baayen's analysis is prevented from making such incorrect predictions only by virtue of including a formal device which has been argued to be ad hoc. An analysis which has to be prevented from making incorrect predictions by the arbitrary use of ad hoc protective mechanisms is no less problematic than an analysis which can be shown to have unwanted consequences at an empirical level.

Once again it can be argued that the shortcoming in question, viz. the incorrect predictions made by the analyses in question (or the arbitrary protection of an analysis from the potential impact of such incorrect predictions) is a manifestation of the problematic nature of the lexicalist construal of the relationship between morphology and syntax. On the one hand, it is their adoption of the Lexical Integrity Hypothesis which forces Simpson and Selkirk to maintain that verb-particle combinations are phrases, and Baayen to claim

that these combinations are generated in the syntactic component of the grammar. On the other hand, their adoption of the No Phrase Constraint and the Lexical Component Hypothesis necessitates the claim that verb-particle combinations are generated in the lexicon. And, as has been shown, unless ad hoc protective mechanisms are invoked to prevent this from happening, incorrect predictions about the properties of verb-particle combinations are made by an analysis on which these combinations are claimed to be lexical and syntactic constructs simultaneously.

#### 5.2.4 Conclusion

It has been shown that the lexicalist construal of the relationship between morphology and syntax as represented in (1) dictates analyses of verb-particle combinations which exhibit conceptual redundancies, require the use of ad hoc formal devices, and are empirically inadequate. The shortcomings of the analyses in question may therefore be taken to indicate that this construal of the relationship between morphology and syntax is problematic.

Note, in conclusion, that Simpson, Baayen, and Selkirk are not unaware of the fact that an analysis of verb-particle combinations which is compatible with both the Lexical Integrity Hypothesis and the No Phrase Constraint has potentially problematic empirical consequences. It is precisely in an attempt to avoid such consequences that Baayen postulates an ad hoc device such as the putative category level  $V^i$ . Selkirk's postulation of a lexical redundancy rule to "relate" lexically and syntactically generated verb-particle combinations, too, indicates that she is fully aware of the empirical difficulties inherent in an analysis on which verb-particle combinations are claimed to be lexical and syntactic constructs simultaneously. Simpson acknowledges the existence of the problem, but fails to indicate how it may be solved. What is remarkable, however, is that not one of them

considers a fairly obvious alternative solution to the problem of accounting for the properties of verb-particle combinations, viz. that of analyzing these combinations as syntactically generated words. The reason for their failure to do so, of course, is that an analysis on which verb-particle combinations are claimed to be syntactically generated words is ruled out in principle as a possible analysis of these (or any other) constructions by the Lexical Component Hypothesis which states that all word formation takes place in the lexicon.

It might turn out that an analysis based on the claim that verb-particle combinations are syntactically generated words is theoretically and empirically as unattractive as the lexicalist analyses discussed here. But this has to be demonstrated first. The lexicalist construal of the relationship between morphology and syntax has been shown to result in analyses which, in addition to exhibiting conceptual redundancies and necessitating the postulation of *ad hoc formal devices*, are empirically inadequate as well. If the lexicalist construal of the relationship between morphology and syntax, moreover, entails that such analyses have to be preferred to possible alternative analyses on a priori, purely formalistic grounds, this construal must be considered problematic.

### 5.3 Import of the shortcomings of nonlexicalist analyses of verb-particle combinations

It has been argued in par. 5.2 that some of the shortcomings of the lexicalist analyses of verb-particle combinations highlighted in chapter 3 indicate that the lexicalist construal of the relationship between morphology and syntax, as outlined in chapter 1 and summarized in (1) above, is problematic. It was suggested in par. 5.2.4 that an alternative, nonlexicalist, approach to the problem of accounting for the properties of verb-particle combinations appears at least to

merit consideration. In chapter 4 we did in fact consider two analyses of verb-particle combinations which are not presented within the framework of an explicit lexicalist theory of word formation, viz. those proposed by Van Riemsdijk and Stowell.

Thus it was shown in par. 4.2.3 that Van Riemsdijk assumes, amongst other things, that

- (4)(a) syntactic rules have the power to analyze the internal structure of words; and
- (b) major syntactic constituents can appear within word structures generated by word formation rules.

Stowell was shown in par. 4.3.2 to argue for the postulation of a class of word formation rules, so-called extended word formation rules, which create (syntactic) words, i.e.  $X^0$  categories,

- (5)(a) the constituents of which may be discontinuous at the level of syntactic D-structure;
- (b) the constituents of which are syntactically accessible insofar as they can be thematically linked to empty constituents in phrase structure; and
- (c) the nonhead constituent of which may be a syntactic phrase.

It is clear that the assumptions (4a) and (5a, b) above are incompatible with the strong version of the Lexical Integrity Hypothesis as presented in (1a) above.<sup>3</sup> The assumptions (4b) and (5c), moreover, are at odds with the claim expressed by the No Phrase Constraint as formulated in (1b) above. And, lastly, both Van Riemsdijk and Stowell were shown in chapter 4 to accept implicitly that word formation rules apply in a



separate, nonsyntactic, component of the grammar, although neither of them explicitly commits himself to the position that these rules form part of the lexicon. That is, they do not explicitly accept the Lexical Component Hypothesis as formulated in (1c) above.

Neither Van Riemsdijk's nor Stowell's analysis of verb-particle combinations can therefore be said to be couched within the framework of an explicit lexicalist theory of morphology of the kind accepted by Simpson, Baayen, and Selkirk. However, both Van Riemsdijk and Stowell may be said to be "nonlexicalist" morphologists by omission rather than by commission. Specifically, both of them implicitly accept

- (6)(a) that word structure is specified, not by rules of syntax, but by rules of word formation, and
- (b) that rules of syntax cannot change word structure in any way.

In addition, Stowell has been shown to assume implicitly

- (7) that syntactic phrases cannot appear as constituents of complex words created by ordinary rules of morphology.<sup>4</sup>

Their acceptance of these fundamental tenets of lexicalist morphology, moreover, can be shown to be at the root of some of the shortcomings of their respective analyses of verb-particle combinations.

### 5.3.1 Van Riemsdijk's analysis

It will be argued that it is Van Riemsdijk's acceptance of the tenets (6a) and (6b) which necessitates his postulation of a dual structure analysis of verb-particle combinations in Dutch entailing

- (8)(a) the postulation of a unique kind of syntactic rule, the rule of P-shift, which has the power to move a syntactic constituent into a position within word structure;
- (b) the duplication of lexical entries to account for the similarities in meaning and subcategorization between verb-particle combinations that are analyzed as base-generated phrases and those that are created by the application of P-shift; and
- (c) incorrect predictions about the syntactic behaviour of verb-particle combinations.

As regards (8a), it was shown in par. 4.2.3 above that Van Riemsdijk explicitly rejects the possibility of formulating P-shift as an adjunction rule. As a rule adjoining two constituents of phrase structure, PP and V, P-shift would have represented a nonunique kind of syntactic device. Such a rule would have been analogous to, e.g., the rule adjoining a WH-phrase to COMP. As a substitution rule, by contrast, P-shift represents a unique kind of device, the mode of application of which is unwarranted within the general theory of syntax which Van Riemsdijk adopts --- see par. 4.2.2.1 above. It may be asked why Van Riemsdijk chooses to postulate a unique kind of substitution rule rather than an accepted kind of device such as an adjunction rule. Van Riemsdijk provides the answer himself (1978:107), pointing out that as an adjunction rule P-shift would have to be "allowed to build word structures, a function normally reserved for word formation rules". That is, Van Riemsdijk is forced by his acceptance of an autonomous word formation component in the grammar to formulate P-shift as an (objectionable kind of) substitution rule rather than an (acceptable kind of) adjunction rule.

Turning to (8b), it was argued in par. 4.2.2.1 above that in order to satisfy the Projection Principle Van Riemsdijk's analysis would require every verb-particle combination that

displays idiosyncratic subcategorization properties to be listed twice in the lexicon: once as a phrase and once as a complex word. The redundant listing of verb-particle combinations as both phrases and (complex) verbs is the result of the fact that these constructions are generated as phrases at the level of D-structure, but are (complex) verbs at S-structure due to the application of P-shift. Thus, whereas the D-structure of a sentence containing a verb-particle combination has to satisfy the subcategorization properties of a PP-V phrase, at S-structure it is the identical subcategorization properties of a related complex V that must be satisfied.

Clearly the problem lies with the dual structure assigned to verb-particle combinations on Van Riemsdijk's analysis. Why then does Van Riemsdijk find it necessary to postulate an analysis on which verb-particle combinations are phrases at D-structure but words at S-structure? As was argued in par. 4.2.3 above, analyzing verb-particle combinations as words (at some level of structure) provides Van Riemsdijk with the only means of distinguishing between particles and ordinary intransitive prepositions. In the absence of such a distinction Van Riemsdijk's analysis could not account for the differential behaviour of particles and ordinary intransitive prepositions. Only by assigning verb-particle combinations the structure of complex words at some level of structure can Van Riemsdijk's analysis account for the fact that, unlike ordinary intransitive prepositions, particles can be moved along with the verb by the rule of V-raising and can be neither topicalized nor postposed.

The principle which dictates that verb-particle combinations be analyzed as complex verbs to account for their syntactic cohesiveness was shown in par. 4.2.3 to be the principle that the constituents of syntactically complex words cannot be separated by syntactic rule.<sup>5</sup> The latter principle, of course, is a reflex of the weak version of the Lexical Integrity Hypothesis which stipulates that syntactic rules are not allowed to change word structure.

Hence, Van Riemsdijk's (implicit) acceptance of a weak version of the Lexical Integrity Hypothesis, amongst other things, necessitates the assignment of a complex word structure to verb-particle combinations as a basis for explaining the syntactic cohesiveness of these constructions. However, the A-over-A Principle dictates that verb-particle combinations must be analyzed as phrases at the level of structure at which the rule of V-second applies, as was shown in par. 4.2.3 above. It must be concluded, then, that Van Riemsdijk's acceptance of (a weak version of) the Lexical Integrity Hypothesis is at least partly responsible for the fact that verb-particle combinations must be assigned a dual structure analysis by him. And, as was argued above, the redundant listing of verb-particle combinations both as (complex) verbs and as phrases in the lexicon is the direct result of these combinations being assigned a dual structure at the level of syntactic representation.

A third shortcoming of Van Riemsdijk's analysis, mentioned in (8c) above, is the fact that it was shown in par. 4.2.2.2 above to make incorrect predictions about the syntactic behaviour of verb-particle combinations in Dutch. Specifically, it is predicted that there will be a difference in syntactic behaviour between verb-particle combinations which are analyzed as phrases (i.e. before application of P-shift) and those that are analyzed as words after having undergone P-shift. These incorrect predictions too are the result of Van Riemsdijk's dual structure analysis of verb-particle combinations. As in the case of (8b), it may therefore be argued that this shortcoming of Van Riemsdijk's analysis must be attributed, at least partly, to his acceptance of a weak version of the Lexical Integrity Hypothesis.

### 5.3.2 Stowell's analysis

The major shortcomings of Stowell's analysis of verb-particle combinations in English and Dutch, too, can be shown to be the result of his acceptance of the lexicalist tenets (6a, b) and (7) above. To see this, consider the following shortcomings of Stowell's analysis:

- (9)(a) The rules proposed to account for the formation of verb-particle combinations are claimed to belong to a type of rule, so-called "extended word formation rules", the properties of and restrictions on which are obscure.
- (b) The analysis may form the basis of incorrect predictions about the syntactic behaviour of verb-particle combinations in English.
- (c) The analysis necessitates special assumptions about the interaction between lexical insertion rules and principles of phrase structure in Dutch.

Consider, first, the shortcoming (9a). The central devices proposed by Stowell to account for the properties of verb-particle combinations in English and Dutch, viz. the rules of NP Incorporation and Particle Incorporation, were shown in par. 4.3.2.1 above to be problematic in that they are claimed to belong to a special type of rule, so-called "extended word formation rules". Extended word formation rules, according to Stowell, display properties both of syntactic and of ordinary morphological rules, and yet have to be distinguished from either type of rule.<sup>6</sup> In the absence of a principled theory of extended word formation, it was argued, the content of the claim "that X is an extended word formation rule" remains obscure.

Why, then, do the rules of NP Incorporation and Particle Incorporation have to be assigned a special status: a status,

moreover, which is clearly problematic? At least part of the answer to this question appears to be as follows. The rules in question can be neither ordinary rules of syntax nor ordinary rules of morphology because of Stowell's acceptance of the lexicalist tenets (6a, b) and (7). Thus, on the one hand, the rules of Particle Incorporation and NP Incorporation create syntactically complex words, i.e. constituents of the category level  $X^0$ . As such these rules display many of the properties which set word formation rules apart from rules of syntax, as was shown in (42) in par. 4.3.2.1 above. Given Stowell's acceptance of (6a) above, viz. that word structure is specified, not by rules of syntax, but by rules of word formation, the rules in question cannot be assumed to be syntactic. On the other hand, these rules take syntactic phrases as their bases and create complex structures which, amongst other things, may be discontinuous at the level of D-structure, as was shown in (41) in par. 4.3.2.1 above. Given Stowell's acceptance of the version (6b) of the Lexical Integrity Hypothesis and the version (7) of the No Phrase Constraint, the rules of NP Incorporation and Particle Incorporation cannot be assumed to be ordinary (morphological) word formation rules. Hence, being forced by his acceptance of an essentially lexicalist view of the relationship between morphology and syntax to conclude that the rules of NP Incorporation and Particle Incorporation can be neither rules of syntax nor ordinary (morphological) word formation rules, Stowell's only option is to propose that they belong to a special type of rule, viz. extended word formation rules.

The shortcoming (9b) above was argued in par. 4.3.2.2 above to be a consequence of Stowell's claim that discontinuous verb-particle combinations too must be analyzed as complex verbs derived by the application of NP Incorporation and Particle Incorporation. The problem with such an analysis, it was argued, is that it cannot be claimed to be obligatory. Unlike the incorporation of NP in continuous verb-particle constructions, which is required by the adjacency condition

on Case assignment, the incorporation of NP in discontinuous verb-particle combinations is not conditioned by some independent principle of grammar. In the case of discontinuous verb-particle combinations, therefore, the rules of NP Incorporation and Particle Incorporation must be assumed to apply optionally rather than obligatorily. However, if NP Incorporation and Particle Incorporation fail to apply, the relevant discontinuous verb-particle combination will be assigned the structure of an ordinary syntactic string. The corresponding continuous combination, by contrast must obligatorily be assigned the structure of a complex verb. The fact that a discontinuous verb-particle combination may be assigned a phrasal structure while the corresponding continuous combination is assigned a complex word structure incorrectly predicts a difference in syntactic behaviour between discontinuous and continuous verb-particle combinations.

The question arises why Stowell proposes an analysis of discontinuous verb-particle combinations which both lacks the kind of independent motivation that is available for the analogous analysis of continuous verb-particle combinations, and gives rise to incorrect predictions. The answer to this question is provided by Stowell himself. He (1981:302) notes that an alternative analysis on which discontinuous verb-particle constructions are derived from the corresponding continuous constructions by means of a syntactic movement rule is ruled out by the Lexical Integrity Hypothesis. Thus, Stowell is forced by his acceptance of (a version of) the Lexical Integrity Hypothesis to propose an analysis of discontinuous verb-particle combinations which has the shortcomings indicated above.<sup>7</sup>

And, lastly, the shortcoming (9c) may be argued also to be a consequence of Stowell's acceptance of the principle (6b) which represents a weak version of the Lexical Integrity Hypothesis. It was shown in par. 4.3.2.3 above that an incorporation analysis of verb-particle combinations in Dutch requires, amongst other things, that special assumptions be made about the possible interaction of rules/principles of

lexical insertion with principles of phrase structure. Specifically, given that verb-particle combinations are claimed to be complex verbs after Particle Incorporation has applied, special provision has to be made to allow the constituents of such verb-particle combinations to be inserted under different (and often nonadjacent) nodes in phrase structure. An alternative analysis, which would account for the discontinuity of the verb and the particle in phrase structure without requiring that these special assumptions be made, is ruled out by the Lexical Integrity Hypothesis. On the alternative analysis the discontinuity of the verb and the particle would be the result of the application of a syntactic movement rule. Such an analysis is ruled out by the Lexical Integrity Hypothesis because the effect of the movement rule involved would be to change the structure of a complex word.

### 5.3.3 Conclusion

It is clear from the preceding discussion that, although neither Van Riemsdijk's nor Stowell's analysis of verb-particle combinations is presented within the framework of an explicit lexicalist theory of word formation, some of the major shortcomings of these analyses stem from the adoption by Van Riemsdijk and Stowell of an essentially lexicalist view of the relationship between morphology and syntax. That they adopt such a view is indicated by their acceptance of a version of the Lexical Component Hypothesis --- see (6a) above --- and of the Lexical Integrity Hypothesis --- see (6b) above --- and, in Stowell's case, of a version of the No Phrase Constraint --- see (7) above. The fact that some of the shortcomings of their analyses of verb-particle combinations may be shown to be attributable to their acceptance of the principles in question therefore bears out the conclusion reached in par. 5.2, viz. that the lexicalist conception of the relationship between morphology and syntax is problematic in that it fails to provide an adequate framework



for the analysis of verb-particle combinations in English and Dutch.

What remains now is to consider possible alternative theories of the relationship between morphology and syntax and to investigate the theoretical and empirical consequences of accepting one of these alternative theories as a framework for the analysis of verb-particle combinations in Afrikaans.

Chapter 6

**A SYNTACTIC COMPOUND ANALYSIS OF VERB-PARTICLE  
COMBINATIONS IN AFRIKAANS**

**6.1 General**

This section will explore the possibility of accounting for the properties of verb-particle combinations in Afrikaans within the framework of an explicit nonlexicalist theory of the relationship between morphology and syntax. First, in par. 6.2, I shall briefly consider some possible alternatives to the lexicalist construal of this relationship. The discussion will focus on theories such as those proposed recently by, e.g., Fabb (1984), Baker (1985), Sproat (1985, 1987), and Lieber (1984, to appear). Then, in par. 6.3, one of these alternatives, to which I shall refer as a theory of syntactic word formation, will be considered in more detail. On this alternative theory words are syntactic constructs. That is, it is assumed that the (morpho)syntactic properties of words must be accounted for in terms of types of rules and constraints that are independently required to account for the syntactic properties of phrases and sentences. A possible analysis of verb-particle combinations in Afrikaans consistent with a theory of syntactic word formation will be outlined. The theoretical and empirical consequences of the analysis will be examined in some detail. The findings of par. 6.3 will be used in par. 6.4 as a basis for the assessment of the potential merits and shortcomings of a theory of syntactic word formation as a framework for the description of word structure in natural language.

Before proceeding with the discussion, it needs to be emphasized that the view that (a subset of) syntactically complex words are syntactic constructs is by no means a new one within

generative grammar. On earlier versions of transformational grammar, word formation processes were accounted for by means of syntactic rules, more specifically syntactic transformations, and phonological rules.<sup>1</sup> It could be asked, then, in what sense theories of word formation such as those propounded by Fabb, Baker, Sproat, and Lieber represent a new development within generative grammar.

Lieber provides an answer to this question. She (1984:187) points out first of all that lexicalist theories of word formation arose in reaction to the treatment of word structure within the Standard Theory of generative grammar. This treatment required the postulation of extremely powerful transformations. Chomsky's (1970) proposal to handle the creation of derived nominals in the base was aimed at limiting the power of the transformational component of the grammar. The reduction of the power of transformations required, *inter alia*, the postulation of a lexical component that included word formation rules. However, according to Lieber (1984:187),

"syntax has progressed far beyond the Standard Theory that gave birth to the Lexicalist Hypothesis, which referred originally only to syntactic transformations. With the rise of syntactic theories like the Government-Binding theory, ... and with the generally more modular approach to syntax, transformations have grown far less important ... syntax now makes use of a variety of different rule types and principles which interact in fairly intricate ways. ... These developments alone suggest that it is time to take a new look at the Lexicalist Hypothesis."

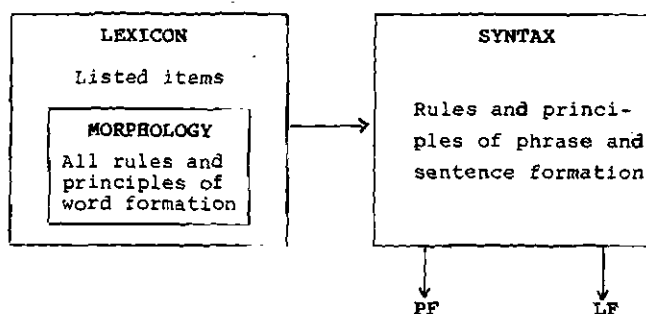
Thus, grammatical theory now makes available types of rules and constraints for the description of properties of phrase structure that differ both in nature and mode of application from those that were available at the time of the first formulation of the lexicalist hypothesis. The question whether formal properties of word structure can be adequately described by the system of rules and principles that is required to ac-

count for the formal properties of phrase structure, is therefore a question well worth reconsidering.

## 6.2 Possible alternative construals of the relationship between morphology and syntax

We have been concerned thus far with one particular construal of the relationship between the morphological and syntactic components of a grammar, viz. the lexicalist construal, the main tenets of which were set out in chapter 1. An abstract representation of the lexicalist construal of the relationship between morphology and syntax is provided in (1). The representation is abstract in the sense that it does not reflect differences between individual lexicalist theories of morphology/word formation such as those referred to in chapter 1 above.

(1)

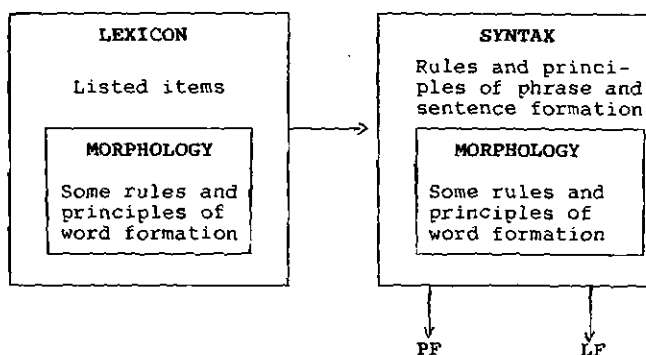


The claim expressed by the Lexical Component Hypothesis is represented in (1) by the fact that the morphological component, containing all word formation rules, forms part of the lexicon. The No Phrase Constraint is represented by the single-headed arrow connecting the lexicon and syntax, indicating that there is no recursion from the syntax to the word formation component of the grammar.<sup>2</sup> The Lexical Inte-

grity Hypothesis is not explicitly represented in (1). The principle that syntactic rules are allowed neither to analyze nor to change word structure does not follow logically from the particular way of construing the relationship between morphology and syntax represented in (1). There is a way in which (1) could be made to explicitly represent the principle of lexical integrity. Following a suggestion made by Di Sciullo and Williams (1987:53), it could be assumed that lexical insertion, which on the theories represented in (1) is the only point of contact between the lexicon and syntax, takes place at the level of (syntactic) S-structure rather than D-structure. It would then follow that the internal structure of words can be neither changed nor analyzed by syntactic rules and principles.<sup>3</sup> The latter assumption is explicitly made by none of the lexicalist morphologists who have been shown in par. 1.2 to subscribe to a strong version of the Lexical Integrity Hypothesis. Most of these morphologists assume the principle of lexical integrity to follow from a constraint on morpho(phono)logical rules known as the Bracket Erasure Convention or the Morphological Island Constraint.<sup>4</sup>

A first alternative to the lexicalist construal of the relationship between morphology and syntax schematized in (1) can be abstractly represented as follows:

(2)



The schema (2) gives a highly oversimplified representation of a number of rather diverse theories of the relationship between morphology and syntax. Thus (2) represents, e.g., the theory of this relationship accepted by those morphologists who assume that inflection is performed in the syntax and not in the lexicon.<sup>5</sup> This schema is also intended to represent the way in which the relationship between morphology and syntax is construed by grammarians who have claimed that a variety of other types of complex words such as, e.g., clitic constructions, causative constructions, and prepositional passives are formed by rules of syntax --- see par. 1.2 above. Notably, too, (2) represents the theories of the relationship between morphology and syntax outlined recently by Fabb (1984) and Baker (1985).<sup>6</sup> Thus, Fabb (1984:38) contests the claim that word formation takes place only in the lexicon and proposes instead that

"productive and regular word-formation processes are generally syntactic processes, while derivations whose output must be listed take place in the lexicon."

He makes the following assumptions about the relationship between morphology and syntax:

(3)(a) Whereas some word formation rules are lexical, other word formation rules apply in the syntax. A word formation rule is lexical if

- (i) aspects of its output must be listed, or
- (ii) its output can serve as input to lexical rules.

A word formation rule is syntactic if

- (i) it is productive,
- (ii) all properties of its output are predictable,

- (iii) it can take syntactic constituents as its bases,
  - (iv) syntactic relations such as theta-indexing and Case-indexing hold between parts of the words formed by the rule. (Fabb 1984:38-39).
- (b) The No Phrase Constraint applies only to lexical word formation rules. (Fabb 1984:240)
- (c) Syntactic rules are allowed to analyze the internal structure of words formed in the syntax.<sup>7</sup> (Fabb 1984:240)

Baker's theory differs somewhat from that of Fabb. On Fabb's theory lexical and syntactic word formation are not only accounted for in terms of two different sets of rules, but the representations generated by these two sets of rules are also subject to different sets of constraints. Baker, by contrast, develops the outlines of a theory of morphology whose aim it is to provide a definition of the notion 'possible word' applicable to words formed both in the lexicon and in the syntax.<sup>8</sup> On Baker's theory the two kinds of words have exactly the same status with regard to the theory of morphology, although they are formed by different sets of rules and, hence, are subject to different sets of nonmorphological principles. Baker's construal of the relationship between morphology and syntax may be summarized as follows:

- (4)(a) Syntactically complex words may be formed either by lexical or by syntactic rules. All syntactically complex words are subject to principles of word formation (i.e. his "morphology theory") that are no longer associated with any particular component of the grammar, but rather apply at all levels of representation within the grammar. (Baker 1985:82-83)

- (b) Syntactic phrases may not appear inside a word, regardless of whether the word is formed in the lexicon or in the syntax, i.e. the No Phrase Constraint forms part of the theory of morphology. (Baker 1985:87)
- (c) Syntactic rules are allowed to analyze word structure and to adjoin constituents to  $X^0$  categories (i.e. words), but not to move a part of a word out of that word. (Baker 1985:88-89)

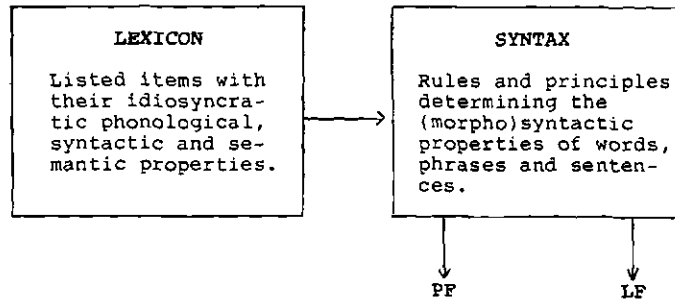
As is clear from the preceding discussion, the crucial difference between the construals of the relationship between morphology and syntax represented in (1) and (2) respectively is that, on the latter but not on the former construal provision is made for some word formation to take place in the syntax. Morphologists who accept a theory of word formation compatible with (2) do not accept the Lexical Component Hypothesis. Consequently, they must accept a weaker version of the Lexical Integrity Hypothesis in order to allow syntactic rules to at least analyze word structure. It also follows from the construal of the relationship between the lexicon and syntax represented in (2) that the No Phrase Constraint will hold of lexical word formation. It is indeed assumed to do so by, e.g., both Fabb and Baker. However, it does not follow from the particular way in which the relationship between syntax and morphology is construed on theories such as those represented in (2) that the No Phrase Constraint will apply to words formed in the syntax. Hence, Baker (1985:87), who assumes that the constraint in question applies to words formed in the syntax, does so on the grounds that "it is a natural principle of morphology to block syntactic phrases inside a word".

Acceptance of a theory of the relationship between morphology and syntax such as that represented in (2) entails that syntactic rules and principles must be assumed to participate in



word formation. It also entails, however, that a significant subset of syntactically complex words must be assumed to be formed by means of nonsyntactic rules and principles. That is, the grammar must contain a set of rules and principles other than those that apply in phrase and sentence formation in order to account for the morphosyntactic properties of (a subset of) syntactically complex words. A second alternative to the lexicalist construal of the relationship between morphology and syntax represented in (1) is one on which it is assumed that the morphosyntactic properties of syntactically complex words are accounted for solely by syntactic rules and principles. On such a construal no provision is made for an autonomous word formation component in the grammar. The lexical component, or lexicon, is assumed to be no more than a repository of all the unpredictable information about a language. That is, as is claimed by Sproat (1985:74), the lexicon is a (possibly structured) list in which morphemes, words, and phrases are paired with a specification of their idiosyncratic phonological, syntactic, and/or semantic properties. The lexicon contains no word formation rules. This construal of the relationship between morphology and syntax may be represented as in (5).

(5)



The schema (5) represents a construal of the relationship

between morphology and syntax such as that underlying what I shall refer to as theories of syntactic word formation.<sup>9</sup> Theories of syntactic word formation have been proposed recently by, e.g., Lieber (1984, to appear) and Sproat (1985, 1987).<sup>10</sup> Both Lieber and Sproat attempt to show that, with some modifications, general syntactic principles such as  $\bar{X}$  theory, Case theory, theta theory, bounding theory, etc. can account for the morphosyntactic well-formedness of complex words. Similarly, Sproat argues that the phonological well-formedness of complex words can be accounted for by general principles of phonology.

Notice that the notion 'word' becomes theoretically insignificant given theories of syntactic word formation such as those abstractly represented in (5). On such theories, rules and principles of morphology are assumed to be indistinguishable from those of syntax. Word (i.e.  $X^0$ ) structure is projected from the lexicon in exactly the same way as phrasal (i.e.  $\bar{X}$ ) structure. The rule  $\text{Move } \alpha$  can move  $X^0$  categories, as it can move  $\bar{X}$  categories, thus creating complex  $X^0$  categories (i.e. words). Word structure, hence, is both part of phrase structure and subject to the same rules and constraints as phrase structure. Differences in properties between words and phrases are claimed by, e.g., Sproat (1985:ch. 3) and Lieber (1984, to appear) to be derivable from the fact that the constituents of words are nonmaximal projections. Nonmaximal projections are assumed by them to be treated differently from maximal projections by principles of syntax, phonology, and semantics. This assumption, then, serves as a basis for explaining properties such as anaphoric islandhood and structural cohesiveness, which are characteristic of words but not of phrases.

Lieber and Sproat's position with regard to the lexicalist tenets presented as (1a-c) in chapter 5 above may be summarized as follows:

- (6)(a) The well-formedness of the morphosyntactic representations assigned to words is determined by syntactic principles such as  $\bar{X}$  theory, binding theory, Case theory, and theta theory. No special word formation component, in the sense of an independent theory of the morphosyntactic well-formedness of words, is required in the grammar. (Sproat 1985:12; Lieber to appear:3)
- (b) The No Phrase Constraint either does not hold (Lieber to appear:14-16) or, in those cases that it does hold, it follows from general principles such as, e.g., principles of theta assignment. (Sproat 1985: 202ff) <sup>11</sup>
- (c) The Lexical Integrity Hypothesis too follows from principles that are independently required in the grammar. (Lieber 1984:195-197; Sproat 1987:194) <sup>12</sup>

The analysis of verb-particle combinations in Afrikaans to be outlined in the remainder of this chapter will assume a theory of the relationship between morphology and syntax such as that represented in (5) above, i.e. a general theory of syntactic word formation. The latter alternative to lexicalist theories of this relationship such as those represented in (1) imposes a stronger requirement on analyses of word structure than does the alternative represented in (2). Thus, a general theory of syntactic word formation requires that the morphosyntactic properties of complex words be accounted for in terms of types of rules and constraints that are independently needed in the grammar to account for the syntactic properties of phrases and sentences. The aim of the discussion in the following paragraph will be to establish to what extent this requirement can be met by a syntactic analysis of Afrikaans verb-particle combinations that satisfies the criteria of descriptive and explanatory adequacy.

6.3 Outline of a syntactic compound analysis of verb-particle combinations in Afrikaans

In this paragraph I shall present the outline of a possible analysis of verb-particle combinations in Afrikaans consistent with a theory of syntactic word formation, i.e. a theory on which the relationship between morphology and syntax is construed as shown schematically in (5) above. In particular, the general theoretical framework proposed by Lieber (to appear) for the analysis of phrasal compounds in English will be taken as a point of departure. Her proposal contains the most explicit statement to date of the kinds of modifications that must be made to the general theory of phrase structure if it is to be able to account for word structure as well. The analysis will also draw heavily on proposals made by Fabb (1984), Baker (1985), and Sproat (1985, 1987) concerning the way in which syntactic rules and constraints may be used to account for properties of complex words.

The discussion will proceed as follows. The central hypotheses of the analysis will be presented in par. 6.3.1. In par. 6.3.2 the formal devices that have been proposed by Lieber (to appear) to express claims such as those presented in par. 6.3.1 will be considered critically. Par. 6.3.3 will address the question of how the characteristic cluster of properties of Afrikaans verb-particle combinations discussed in chapter 2 may be accounted for on the basis of an analysis such as that outlined in the preceding paragraphs. Some empirical consequences of the analysis will be considered in par. 6.3.4. Par. 6.3.5 will summarize the main findings of this section.

Before proceeding it has to be emphasized that the discussion will be exploratory in nature and therefore tentative. The aim is not to present a convincing argument in support of the account of verb-particle combinations to be outlined. The aim is rather to explore the possible consequences of providing

such an account within the framework of a theory of syntactic word formation. The ultimate objective is to assess the potential merits and shortcomings of a theory of syntactic word formation as a framework for the description of word structure. Problematic aspects of the analysis and potential limitations of a theory of syntactic word formation will be identified and suggestions will be made as to directions in which solutions may be sought. The working out of the details of these solutions, however, falls outside the scope of this study.

### 6.3.1 Claims

This discussion will be concerned with Afrikaans verb-particle combinations such as those illustrated in chapter 2. A few representative examples are provided in (7).

|     |                             |                       |
|-----|-----------------------------|-----------------------|
| (7) | <i>af + kyk</i>             | <i>op + gooi</i>      |
|     | off look                    | up throw              |
|     | 'to crib/copy'              | 'to vomit'            |
|     | <i>deur + bring</i>         | <i>oor + skiet</i>    |
|     | through bring               | over shoot            |
|     | 'to squander (money)'       | 'to be left over'     |
|     | <i>in + loop</i>            | <i>uit + vaar</i>     |
|     | in walk                     | out fare/sail         |
|     | 'to cheat'                  | 'to rail (at)'        |
|     | <i>by + kom</i>             | <i>onder + sit</i>    |
|     | at come                     | under put             |
|     | 'to (re)gain consciousness' | 'to overpower/subdue' |
|     | <i>voor + hou</i>           | <i>om + gee</i>       |
|     | before hold                 | for give              |
|     | 'to present'                | 'to care'             |

Given our interest in exploring the possible consequences of using a theory of syntactic word formation as a framework for the analysis of word structure, the hypotheses in (8) will be accepted as working hypotheses.

- (8)(a) Afrikaans verb-particle combinations such as those shown in (7) are compound verbs.
- (b) Compound verbs such as those in (7) are syntactic constructs, the morphosyntactic properties of which are determined by syntactic rules and constraints.

Consider first the empirical motivation for the hypothesis (8a), viz. that Afrikaans verb-particle combinations are compound verbs.<sup>13</sup> Recall that it was shown in par. 2.7 above that verb-particle combinations differ from phrasal PP-V strings in that the former but not the latter combinations behave like single verbs with regard to a variety of syntactic rules in Afrikaans. First, the rule of V-raising, which moves the verb of an embedded sentence to the final position in the matrix sentence, treats the verb-particle combination as a single constituent as shown in (9).<sup>14</sup> Thus, the (i)-sentences, in which the verb and the particle have been separated by the application of V-raising, are unacceptable in Afrikaans. By contrast, the (ii)-sentences, in which both the verb and the particle have been moved to the "raised" position, are acceptable.

- (9)(a) i. \*Hy sal nie [die antwoorde by my af e] kan kyk  
he will not the answers from me off can look  
nie.  
not  
'He will not be able to crib from me.'
- ii. Hy sal nie [die antwoorde by my e] kan af +  
he will not the answers from me can off  
kyk nie.  
look not

- (b) i. \*Hy wil [sy pa as n kenner voor e] kom  
he wants his father as an expert before come  
hou.  
hold  
'He wants to come and pretend that his father is  
an expert.'
- ii. Hy wil [sy pa as n kenner e] kom  
he wants his father as an expert come  
voor + hou.  
before hold

Significantly, too, the syntactic behaviour of verb-particle combinations such as those exemplified above differs from that of homophonous strings consisting of an intransitive preposition and a verb. Thus, corresponding to the unacceptable (i)-sentences in (9) above, we have (10a) and (10b), which are acceptable despite the fact that *af* and *voor* are separated from the verbs *sien* and *hou* respectively after application of V-raising.

- (10)(a) Sal n mens [van daar bo af e] kan kyk?  
will a person from there up down can look  
'Will one be able to look down from up there?'
- (b) Jy sal [iets voor e] moet hou om jou kiere  
you will something before must hold for your clothes  
*te beskerm*.  
to protect  
'You will have to hold something in front to protect  
your clothes.'

Second, in the progressive construction the verb and the particle both appear after *aan die*/*'t* ('on the', as in *on the move* in English). Only the bare infinitival form of a verb can appear in this position in Afrikaans. Thus, the (i)-sentences

in (11), in which the particle and the verb are separated by *aan die/'t* are unacceptable. By contrast, the (ii)-sentences, in which the particle and the verb both appear in the position following *aan die/'t*, are acceptable.<sup>15</sup>

- (11)(a) i. \**Jan is al sy geld deur aan die/'t bring.*  
John is all his money through PROGRESSIVE bring  
'John is squandering all his money.'
- ii. *Jan is al sy geld aan die/'t deur + bring.*  
John is all his money PROGRESSIVE through bring
- (b) i. \**Dit lyk asof sy uiteindelik by aan die/'t*  
it looks as if she at last at PROGRESSIVE  
*kom is.*  
come is  
'It looks as if she is regaining consciousness  
at last.'
- ii. *Dit lyk asof sy uiteindelik aan die/'t*  
it looks as if she at last PROGRESSIVE  
*by + kom is.*  
at come is

By contrast, corresponding to the unacceptable (i)-sentences in (11), we have the acceptable sentences (12a, b). The sentences in (12) are acceptable despite the fact that *deur* and *by* are separated by *aan't* from the verbs *bring* and *kom* respectively. *Deur* and *by* in (12) are intransitive prepositions.

- (12)(a) *Sy is op hierdie oomblik besoekers deur aan't*  
she is at this moment visitors through PROGRESSIVE  
*bring van Kaapstad af*  
bring from Cape Town off  
'She is at this very moment bringing through visitors  
from Cape Town.'



- (b) *Daar was steeds meer mense by aan't*  
there were all the time more people at PROGRESSIVE  
*kom.*  
come  
'More people were joining (in) all the time.'

Third, the rule of Gapping too treats a verb-particle combination as a single constituent, as illustrated in (13).<sup>16</sup> Both sentence (13aii) and sentence (13bii), in which a constituent of the verb-particle combination occurring in the corresponding (i)-sentence has been deleted, are unacceptable to speakers of Afrikaans.

- (13)(a) i. *Sy gooi haar middagete weg en Karel gooi*  
she throws her lunch away and Charles throws  
*syne op.*  
his up  
'She throws her lunch away and Charles throws  
his up.'
- ii. \**Sy gooi haar middagete weg en Karel \_\_\_\_\_*  
she throws her lunch away and Charles  
*syne op.*  
his up
- (b) i. *Jan loop die strate plat en Piet loop sy*  
John walks the streets flat and Peter walks his  
*klante in.*  
customers in  
'John roams the streets and Peter cheats his cus-  
tomers.'
- ii. \**Jan loop die strate plat en Piet \_\_\_\_\_ sy*  
John walks the streets flat and Peter his  
*klante in.*  
customers in

In contrast to the verb-particle combinations *onder + sit* and *in + loop* in (13), the homophonous PP-V strings in (14) allow gapping, as indicated by the acceptability of the (ii)-sentences in (14) below.

- (14)(a) i. *Die wat bo sit, gooi lemoenskilte af*  
those who above sit throw orange peels down  
*en die wat onder sit, gooi bierblikke op.*  
and those who below sit throw beer cans up  
'Those sitting above throw orange peels down  
and those sitting below throw beer cans up.'
- ii. *Die wat bo sit, gooi lemoenskilte af*  
those who above sit throw orange peels down  
*en die wat onder sit, \_\_\_\_\_ bierblikke op.*  
and those who below sit beer cans up
- (b) i. *Sommiges loop by die kerk uit en ander*  
some walk from the church out and others  
*loop by die kroeg in.*  
walk at the pub in  
'Some are leaving the church and others are entering the pub.'
- ii. *Sommiges loop by die kerk uit en ander*  
some walk from the church out and others  
*\_\_\_\_\_ by die kroeg in.*  
at the pub in

Fourth, rules such as PP-preposing and PP-over-V cannot apply to the particle constituent of a verb-particle combination, as shown in (15a, b) and (15c, d) respectively.<sup>17</sup> The particle has been preposed/topicalized in the (ii)-sentences in (15a, b) and postposed in the (ii)-sentences in (15c, d). All these sentences are unacceptable in Afrikaans.

- (15)(a) i. *Jy sal hom nie maklik onder + sit nie.*  
you will him not easily under put not  
'You will not overpower/subdue him easily.'
- ii. *\*Onder sal jy hom nie maklik sit nie.*  
*under will you him not easily put not*
- (b) i. *Hy vaar te dikwels teen die hele wêreld uit.*  
he fares too often against the whole world out  
'He rails at the whole world too often.'
- ii. *\*Uit vaar hy te dikwels teen die hele wêreld.*  
*out fares he too often against the whole world*
- (c) i. *dat jy hom nie maklik sal onder + sit nie*  
that you him not easily will under put not  
'that you will not overpower/subdue him easily '
- ii. *\*dat jy hom nie maklik sal sit onder nie*  
*that you him not easily will put under not*
- (d) i. *dat hy te dikwels teen die hele wêreld*  
*that he too often against the whole world*  
  
*uit + vaar*  
*out fares*  
*'that he rails at the whole world too often '*
- ii. *\*dat hy te dikwels teen die hele wêreld*  
*that he too often against the whole world*  
  
*vaar uit*  
*fares out*

That the homophonous intransitive prepositions *onder* and *uit* can be both preposed/topicalized and postposed is clear from the acceptability of the (ii)-sentences in (16a, b) and (16c, d) respectively.

- (16)(a) i. *Ek wil gewoonlik nie onder sit nie.*  
I want usually not below sit not  
'I usually don't want to sit below.'
- ii. *Onder wil ek gewoonlik nie sit nie.*  
below want I usually not sit not
- (b) i. *Die bote vaar almal in n rekordtyd uit.*  
the boats sail all in a record time out  
'The boats all set record times sailing out.'
- ii. *Uit vaar die bote almal in n rekordtyd.*  
out sail the boats all in a record time
- (c) i. *dat ek gewoonlik geriefliker onder sit*  
that I usually more comfortable below sit  
'that I am usually more comfortable sitting below'
- ii. *dat ek gewoonlik geriefliker sit onder*  
that I usually more comfortable sit below
- (d) i. *dat die bote almal in n rekordtyd uit vaar*  
that the boats all in a record time out sail  
'that the boats all set record times sailing out'
- ii. *dat die bote almal in n rekordtyd vaar uit*  
that the boats all in a record time sail out  
(maar nie terug nie)  
(but not back not)

And, finally, adverbial modifiers have scope over the verb-particle combination as a whole rather than over the particle alone.<sup>18</sup> Thus, both (17a) and (17b), in which the particles *oor* and *om* are modified by the adverb *heeltemal*, are unacceptable.

- (17)(a) \**Die slaaië skier heeltemal oor.*  
the salads shoot (= are left) completely over

- (b) \*Sy gee *heeltemal om vir ander mense.*  
she gives (= cares) completely for for other people

In this respect too the behaviour of the verb-particle combinations differs from that of homophonous PP-V strings. Thus, (18a) and (18b) containing the adverbially modified intransitive prepositions *oor* and *om* respectively are acceptable in Afrikaans.

- (18)(a) *My klippie skiet gewoonlik heeltemal oor.*  
my pebble shoots usually completely over  
'My pebble usually completely overshoots (the mark).'
- (b) *Hulle gee die bal heeltemal om.*  
they give the ball completely around  
'They pass the ball all the way round.'

An analysis on which verb-particle combinations are claimed to be compound verbs can explain the difference in syntactic behaviour between these combinations and homophonous strings consisting of an intransitive preposition (or adverb) and a verb. On such an analysis, the difference in behaviour can be explained on the basis of a structural difference between a phrasal PP-V string and a P-V string constituting a compound verb.

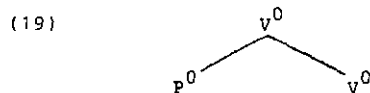
At this junction a terminological point needs to be clarified. Up to now the term "verb-particle combination" has been used pretheoretically to denote all combinations, or sequences, consisting of a preposition (or adverb) and a verb. However, a theoretical distinction is now being made between two classes of "verb-particle combinations", viz. those that are analyzed as phrasal PP-V sequences and those that are analyzed as compound verbs. Therefore, the term "verb-particle combination" will henceforth be taken to refer only to the latter class of constructs, i.e. to members of the class of compound verbs con-

sisting of a preposition and a verb. Phrasal combinations consisting of an intransitive preposition (or adverb) and a verb will be termed PP-V strings.

Having presented some empirical evidence for the claim (8a), viz. that verb-particle combinations are compound verbs in Afrikaans,<sup>19</sup> let us turn now to the claim (8b), viz. that these compound verbs are syntactic constructs, the morpho-syntactic properties of which must be determined by syntactic rules and constraints. The claim (8b) could be argued to be well-founded only if it could be shown that the morphosyntactic properties of verb-particle combinations in Afrikaans can in fact be accounted for by independently motivated syntactic rules and constraints. It is with the question of the well-foundedness of the latter claim that the discussion in the following paragraphs will be concerned.

### 6.3.2 Formal devices

This paragraph will be concerned with the question of the adequacy of formal devices that have been proposed within the framework of a theory of syntactic word formation to account for the structural properties of complex words. Recall that, by the hypothesis (8a), verb-particle combinations in Afrikaans must be assigned a compound verb structure. That is, they must be assigned the morphosyntactic representation (19).



By the hypothesis (8b), the well-formedness of a morphosyntactic representation such as (19) must be determined by syntactic rules and constraints. Lieber (to appear : 8) and Fabb

(1984:256) have argued that formal devices made available by the  $\bar{X}$  theory of phrase structure, with certain modifications, can be used to account for the well-formedness of structures such as (19), i.e. word structures, as well.<sup>20</sup> In what follows, I shall consider Lieber's proposal, which is the more detailed of the two.

Lieber (to appear) argues that the required distinction between possible and impossible compound structures in English can be made by general  $\bar{X}$  principles of phrase structure, if certain modifications are made to these principles and if certain language-specific assumptions are made concerning the setting of parameters associated with these principles. I shall briefly outline the details of her proposal, indicating, where relevant, what additional assumptions would have to be made in order to extend the proposal to an analysis of word structure in Afrikaans. Following this, I shall broach the important question of whether the proposed modifications to generally accepted principles of phrase structure could be argued to be well-founded, hence non-ad hoc.

According to Lieber (to appear:8), a first modification that has to be made to the  $\bar{X}$  theory of phrase structure to account for the well-formedness of word structure concerns the rewrite rule for  $X^n$ . This rule, which on  $\bar{X}$  theory is assumed to be  $X^n \rightarrow \dots X^{n-1} \dots$ , needs to be modified as follows:

$$(20) \quad X^n \rightarrow \dots X \begin{Bmatrix} n-1 \\ n \end{Bmatrix} \dots$$

The rule (20) is claimed to be able to account for the well-formedness of morphosyntactic representations such as (19) in which the head is of the same bar level as its mother.

The rewrite rule (20), however, has nothing to say about the category level of the nonhead constituent in a structure such as (19). Nonhead constituents in phrase structure are generally assumed to be maximal projections. The nonhead constituent in typical compound structures such as (19) is not a

maximal projection, however.<sup>21</sup> This fact too has to be accounted for somehow. Lieber (to appear:8) proposes that the principle (21) be assumed in addition to the rewrite rule (20).

(21) Pre- and post-head constituents can contain  $Y^{\max}$  or  $Y^0$ .

In terms of the principle (21) nonhead constituents may be either maximal projections, as is the case in phrases (and phrasal compounds), or 0-level categories, as is the case in compound structures such as (19).

A last property of the structure (19) that needs to be accounted for is the fact that it is right-headed. The characteristic position of the head in the phrases of a given language is assumed to be determined by the setting of a parameter associated with the principles of  $\bar{X}$  theory: heads may be either  $\bar{X}$ -initial or  $\bar{X}$ -final. In order to make provision for the fact that in English phrasal structure is left-headed while  $X^0$  structure is characteristically right-headed, Lieber (to appear:8-9) proposes that the usual head-initial/head-final parameter be replaced by the following set of parameters (the settings assumed by Lieber for English are underlined):

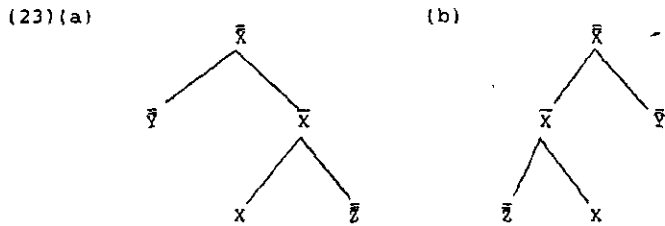
(22)(a) All and only complements are final/initial.

(b) All specifiers and modifiers precede/follow the head.

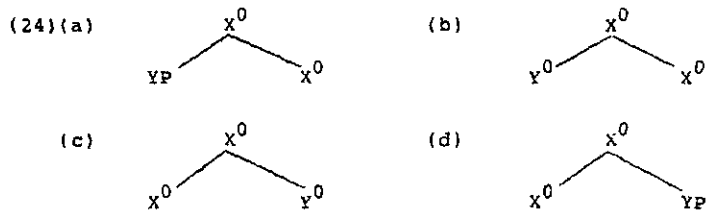
Note that the term "head" in (22) refers both to the head of a phrase, i.e. a constituent of  $\bar{X}$ , and the head of a complex word, i.e. a constituent of  $X^0$ . The setting, i.e. fixing of the value, of the parameters indicated in (22) expresses the claim that in English the head of a phrase is always the left-most constituent of  $\bar{X}$ . Complements, which must be sisters to the head, follow the head in  $\bar{X}$  by (22a). Specifiers and modi-



fiers, which must precede the head by (22b), cannot be constituents of  $\bar{X}$ , as  $X$  must be the leftmost constituent in  $\bar{X}$ . That is, (23a) is predicted to be a well-formed phrase structure in English, with  $X$  the head,  $\bar{Y}$  a specifier/modifier of  $X$  and  $\bar{Z}$  a complement of  $X$ . By contrast (23b), in which a complement  $\bar{Z}$  precedes the head  $X$  in violation of (22a), and a specifier/modifier  $\bar{Y}$  follows the head  $X$  in violation of (22b), is predicted to be ill-formed.



According to Lieber (to appear: 10-14), the parameter settings shown in (22), together with the rule (20) and the principle (21), also correctly predict the right-headed structures (24a, b), but not the left-headed structures (24c, d), to be possible expansions of  $X^0$  in English.



Given the parameter settings shown in (22), together with the rule (20) and the principle (21) above, (24a) is predicted to be possible in English with  $YP$  a specifier or modifier of some sort. This prediction is correct according to Lieber (to ap-

pear:9). Structure (24a) is the structure of phrasal compounds in English. Structure (24b) is predicted to be possible as well. This is in fact the structure associated with the majority of compounds and affixed words in English. In order to rule out structure (24c), another principle must be added to the principles of phrase structure assumed so far, according to Lieber (to appear:13). This principle she (to appear:8) formulates as follows:

- (25) All complements are  $Y^{\max}$ , but not all  $Y^{\max}$  are complements.

Given that only complements can follow heads in English by the parameter (22a),  $Y^0$  must be a complement in (24c). But then (24c) violates (25) and is therefore ruled out as a possible word structure of English.<sup>22</sup> Structure (24d) is ruled out on the assumption that complements must receive Case marking and that Case may be assigned only within a nonminimal phrase according to Lieber (to appear:13). YP in (24d) must be a complement by (22a), but cannot be assigned Case within  $X^0$ . Thus, (24d) is predicted not to be a possible word structure in English. Lieber claims that these predictions are indeed correct. Complex words with the structure (24d) are not attested and complex words with the structure (24c) cannot be formed productively in English. Hence, she argues, the characteristic right-headedness of word structure in English could be made to follow from a set of principles and parameters that can also account for the fact that  $\bar{X}$  structures in the same language are characteristically left-headed.

Thus, Lieber claims to be able to account for the morphosyntactic well-formedness of word structure in English in terms of a set of rules, principles and parameters which, according to her (to appear:9), "are reasonable and independently necessary with respect to the syntax". Before addressing the question of the well-foundedness of Lieber's claim, let us briefly consider how the modified rules, principles, etc. of

$\bar{X}$  theory proposed by her could be argued to account for the morphosyntactic well-formedness of compound structures such as (19), the structure assigned to verb-particle combinations in Afrikaans.

The rule (20), the principles (21) and (25), and the parameters (22a) and (22b) are all assumed by Lieber (to appear: 8-9) to be language-independent. They could therefore be taken to make the same predictions about possible word (and phrase) structures in Afrikaans as in English. The settings, or values, assumed by Lieber for the parameters in (22), however, are claimed to be language-specific and therefore not necessarily the same for Afrikaans and English. Let us therefore consider the question of how the parameters (22a, b) would have to be set in order for correct predictions to be made about both possible phrase structures and possible word structures in Afrikaans.

Afrikaans phrase structure differs from that of English with respect to the position of complements. Recall that it was shown in par. 2.2 above that Afrikaans exhibits SOV word order in subordinate clauses and SVO order in main clauses, as illustrated in (26):

- (26)(a) *Die kinders eet hulle middagete.*  
the children eat their lunch  
'The children eat their lunch.'
- (b) *dat die kinders hulle middagete eet*  
that the children their lunch eat

Moreover, Afrikaans has both prepositions and postpositions, as illustrated in (27).

- (27)(a) *Hy klim [in die bed]<sub>pp</sub>*  
he climbs in the bed  
'He gets into bed.'

- (b) *Ons beweeg [die toekoms in]pp.*  
we move the future in  
'We are moving into the future.'
- (c) *Hulle sukkel [teen die bult af]pp.*  
they struggle against the hill down  
'They are struggling down the hill.'

Complements of nouns and adjectives, by contrast, follow their heads in Afrikaans as in English, as illustrated in (28a) for NP and in (28b) for AP.

- (28)(a) [*Die uitslag van die verkiesing*]<sub>NP</sub> *het almal*  
the result of the election has everybody  
*verbaas.*  
surprized  
'The result of the election surprized everybody.'
- (b) *Hy is [baie trots op sy seun]*<sub>AP</sub>.  
he is very proud of his son  
'He is very proud of his son.'

It is clear from the examples given in (26)-(28) that the order of complements in Afrikaans phrase structure cannot be determined simply by choosing a setting for the parameter (22a). A distinction would have to be made between, on the one hand, NP and AP, which are head-initial (i.e. complements follow the head) and, on the other hand, VP and PP, which can be either head-initial or head-final (i.e. complements either precede or follow the head).<sup>23</sup> There could be argued to be at least two ways of approaching the problem of drawing the required distinction. The first would be to assume that different parameter settings must be stated for NP and AP on the one hand, and for PP and VP on the other hand. A potential problem with this approach is that it would entail that a parameter of phrase structure must refer to specific categories. This would be an undesirable consequence,

given Stowell's (1981) proposal that principles of phrase structure should be formulated in category-neutral terms, a proposal that has been widely accepted by GB theorists.

The second approach would be to assume that the position of complements vis à vis that of heads in phrase structure is not the result of the fixing of an independent parameter such as (22a), but that it is the result of the fixing of values for parameters associated with other subtheories of the grammar such as, e.g., Case theory and theta theory. The latter approach is in fact suggested by, e.g., Travis (unpubl.: 16 n. 9) --- see also the discussion in (Van Riemsdijk and Williams 1986:321). Such an approach would seem promising, given that the distinction that has to be made in Afrikaans is between NP and AP, i.e. [+ N] or non-Case assigning categories, on the one hand, and PP and VP, i.e. [- N] or Case-assigning categories on the other hand. As the working out of the details of the latter approach falls outside the scope of this study, however, I shall do no more than note this possibility here.

Let us therefore consider the consequences of taking the first approach, disregarding for the moment the fact that it is potentially problematic, as noted above. As shown in (28) above, complements of N and A follow their heads in Afrikaans as in English. The setting of the parameter (22a) for English could therefore be argued to apply in the case of NP and AP in Afrikaans as well. It is less clear how the parameter should be set to account for the fact that complements can either precede or follow the head in the case of VP and PP in Afrikaans. It could be argued that in the case of VP and PP there is no fixed value for the parameter (22a) in Afrikaans. The absence of a fixed value for this parameter would express the claim that in the case of VP and PP no canonical ordering of the head and complements can be stated in Afrikaans. The position of complements vis à vis the head V or P would then have to be assumed to be determined by a complex of factors, including, e.g., the settings assumed for parameters such as

those determining the direction of Case-assignment and theta role assignment, and whatever structural properties are responsible for the V-second phenomenon. As noted above, the details of how this could be achieved are currently being investigated by various GB theorists.

Given these provisos, let us assume that Afrikaans has the following settings for the parameters proposed by Lieber:

- (29)(a) All and only complements are final/initial:  
i. [+ N] (i.e.  $N^n$  and  $A^n$ ) = final.  
ii. [- N] (i.e.  $V^n$  and  $P^n$ ) = no setting.
- (b) All specifiers and modifiers precede/follow the head.

Note that underlying (29b) is the assumption that specifiers and modifiers occupy the same position in Afrikaans as in English. Given the absence of studies on the specifier system of Afrikaans, this assumption is based solely on observed similarities between Afrikaans and English as regards the position of specifiers, as shown in (30).

- (30)(a) NP :  
[John's]<sub>SPEC</sub> [book]<sub>N</sub>  
[Jan se]<sub>SPEC</sub> [boek]<sub>N</sub>
- (b) AP :  
[so]<sub>SPEC</sub> [beautiful]<sub>A</sub>  
[so]<sub>SPEC</sub> [ mooi ]<sub>A</sub>
- (c) PP :  
[right]<sub>SPEC</sub> [into the quagmire]<sub>P</sub>  
[ reg ]<sub>SPEC</sub> [in die moeras in]<sub>P</sub>

(d) VP :

he [[usually ]<sub>SPEC</sub> [drinks wine ]<sub>V</sub> ]<sub>V</sub>  
 (dat) hy [[gewoonlik]<sub>SPEC</sub> [wyn drink ]<sub>V</sub> ]<sub>V</sub>  
 that he usually wine drinks<sup>24</sup>

Now, let us assume for the moment that Lieber's proposed modifications to the  $\bar{X}$  theory of phrase structure and the parameter settings assumed for Afrikaans above could be shown to be well-founded. (This will be argued not to be the case below.) Despite the difference in the parameter settings assumed for Afrikaans and English, exactly the same expansions of  $X^0$  would be predicted to be possible in Afrikaans as in English. By the rule (20) and the principle (21) all the structures in (24) would be generated for Afrikaans. The structures (24a) and (24b) would be ruled well-formed with  $Y^0/YP$  assigned the status of modifier.  $Y^0$  and  $YP$  cannot be complements in (24a, b) for the following reasons: (i) if  $X$  was  $N$  or  $A$ , both (24a) and (24b) would violate (29a i) which stipulates that complements must follow the head, and (ii) if  $X$  was  $V$  or  $P$ , (24b) would be ruled out by (25) which states that complements must be maximal projections and (24a) would be ruled out on the assumption that complements must receive Case and Case may be assigned only within a nonminimal phrasal projection. Thus, the structure (24a) could be argued to be the structure assigned to phrasal compounds such as [[Charles-en-Di]<sub>NP</sub> [sindroom]<sub>N</sub> ]<sub>N</sub> ('Charles-and-Di syndrome') and [[God-is-dood]<sub>S</sub> [teologie]<sub>N</sub> ]<sub>N</sub> ('God-is-dead theology') which can be formed productively in Afrikaans according to Savini (1983). The structure (24b) could be argued to be the structure underlying the majority of compounds, in Afrikaans, e.g. [[tafe]<sub>N</sub> [doek]<sub>N</sub> ]<sub>N</sub> ('table cloth'), [[soet]<sub>A</sub> [mielie]<sub>N</sub> ]<sub>N</sub> ('sweetcorn'), [[in]<sub>P</sub> [sig]<sub>N</sub> ]<sub>N</sub> ('insight'), [[bak]<sub>V</sub> [oond]<sub>N</sub> ]<sub>N</sub> ('baking-oven'), [[sop]<sub>N</sub> [nat]<sub>A</sub> ]<sub>A</sub> ('sopping wet'), [[rooi]<sub>A</sub> [warm]<sub>A</sub> ]<sub>A</sub> ('redhot'), [[oor]<sub>P</sub> [vol]<sub>A</sub> ]<sub>A</sub> ('filled to overflowing').

[[breek]<sub>V</sub>[vry]<sub>A</sub>]<sub>A</sub> ('shatterproof'), [[toneel]<sub>N</sub>[speel]<sub>V</sub>]<sub>V</sub> ('to play-act'), [[dood]<sub>A</sub>[maak]<sub>V</sub>]<sub>V</sub> ('to kill'), [[in]<sub>P</sub>[sit]<sub>V</sub>]<sub>V</sub> ('to put in'), and [[ry]<sub>V</sub>[loop]<sub>V</sub>]<sub>V</sub> ('to hitch-hike'). The structure (24b) could also be argued to be the structure assigned to derived words such as [[oppas]<sub>V</sub>[-er]<sub>AF</sub>]<sub>N</sub> ('care-taker'), [[eet]<sub>V</sub>[-baar]<sub>AF</sub>]<sub>A</sub> ('edible'), [[heilig]<sub>A</sub>[-heid]<sub>AF</sub>]<sub>N</sub> ('sanctity'), [[verderf]<sub>N</sub>[-lik]<sub>AF</sub>]<sub>A</sub> ('pernicious'), [[brou]<sub>V</sub>[-sel]<sub>AF</sub>]<sub>N</sub> ('(a) brew'), [[keur]<sub>V</sub>[-ing]<sub>AF</sub>]<sub>N</sub> ('selection'), [[ver-]<sub>AF</sub>[groeil]<sub>V</sub>]<sub>V</sub> ('to grow crooked'), [[ont-]<sub>AF</sub>[neem]<sub>V</sub>]<sub>V</sub> ('to deprive'), [[be-]<sub>AF</sub>[hou]<sub>V</sub>]<sub>V</sub> ('to keep'), and [[on-]<sub>AF</sub>[net]<sub>A</sub>]<sub>A</sub> ('untidy'). Note, in particular, that the compound verb structure (19), which is assumed to be an instance of the structural configuration (24b), would be ruled well-formed as required.

The structures (24c) and (24d) would be predicted to be impossible in Afrikaans. That is,  $Y^0$  cannot be a complement in (24c) because by (25) all complements must be maximal projections.  $YP$  in (24d) cannot be a complement because it cannot be assigned Case within  $X^0$ . But in these structures  $Y^0$  and  $YP$  cannot be specifiers/modifiers either, given the parameter (29b) which stipulates that specifiers must precede their heads. Hence, the structures (24c, d) would be ruled out as possible word structures in Afrikaans. As a result, word structure would be predicted to be right-headed in Afrikaans as in English.<sup>25</sup> The right-headedness of the structure (19), which I am assuming to be the structure of verb-particle combinations in Afrikaans, could thus be argued to follow from the structural principles assumed by Lieber.

It has been shown that Lieber's modified principles of phrase structure, in conjunction with certain assumptions about Case assignment and the settings of the parameters (22a, b) for Afrikaans, could be argued to account for the morphosyntactic well-formedness of the structure (19) which is assumed to be



the structure underlying verb-particle combinations in Afrikaans. An important question which has not been addressed yet, is the question of the well-foundedness of the modifications to  $\bar{X}$  theory which Lieber proposes. It is clear that without these modifications, an account of the possible word structures of English and Afrikaans such as that outlined above could not be given in terms of  $\bar{X}$  theory. Let us therefore consider some of the theoretical and empirical consequences of these modifications. For ease of reference, the modifications proposed by Lieber are summarized in (31).

- (31)(a) The rewrite rule for  $X^n$  has to be modified to allow for the head of  $X^n$  to be of the same bar level as the mother node --- see (20) above.
- (b) The principle that nonhead constituents are maximal projections has to be modified to allow for nonhead constituents of the category level  $X^0$  --- see (21) above.
- (c) The head parameter has to be replaced by two parameters, one for complements and one for specifiers --- see (22) above.
- (d) It has to be stipulated that complements are  $y^{\max}$  --- see (25) above.

Consider the modification (31a). A first consequence of the acceptance of the rewrite rule (20), would be that adjunction structures are allowed at the level of syntactic D-structure. Thus, the rewrite rule (20) expresses the claim that any category  $X^n$  can dominate a category of the same bar level as itself. Now, the well-foundedness of this claim would depend on the availability of evidence indicating that a category of any bar level, and not just a category of the level  $X^0$ , can dominate a category of the same bar level. Lieber, however, provides no such evidence. Instead, she (to appear: 8) adds a proviso to the rule (20) to the effect that adjunction is possible "at least" at the category level  $X^0$ . But if adjunction were to be possible only at the level  $X^0$ ,

the parallelism that is claimed to obtain between word structure and phrase structure by the rule (20) would not exist. The generalization expressed by (20) could then be argued to be a false generalization and the well-foundedness of the modification (31a) would have to be questioned. Note, however, that proposals assuming adjunction at levels other than  $X^0$  in D-structure have been made in recent studies couched within the framework of some version of the GB theory of syntax. Thus, recursion at the level of  $\bar{V}$  is assumed, e.g., for the analysis of double object constructions by Larson (1988:353), and for the analysis of verb clusters in Germanic languages by Christensen (1986) and Travis (unpubl.). However, it would be incumbent upon proponents of a theory of syntactic word formation, such as Lieber, to show that such proposals are well-motivated and, hence, that the rule (20) does not express a false generalization.

A second consequence of the modification (31a) would be that it necessitates a redefinition of the notion 'projection of category  $X'$ '. The definition of the notion 'projection of category  $X'$ ' is theoretically important insofar as the presence or absence of a projection relationship between a category  $X^m$  and its dominating category  $X^n$  is a factor in determining whether or not features such as, e.g., Case features, theta features, inflectional features, etc., can percolate, i.e. be transmitted, between  $X^n$  and  $X^m$ . On current definitions of the notion 'projection of category  $X'$ ', a category  $X^n$  can be a projection of another category  $X^m$  only if  $X^n$  is one bar level higher than  $X^m$ . On this definition, the dominating category  $V^0$  in (19) is not a projection of the dominated category  $V^0$ , clearly an undesirable consequence. However, Fabb (1984:16-18, par. 1.3) has proposed an alternative definition of the notion 'projection of category  $X'$ ' in terms of which the head constituent of a syntactically complex word is in a projection relationship with the category dominating it even though both are of the same bar level. On Fabb's alternative definition of the notion 'projection of  $X'$ ', the percolation of features from a dominated category to the dominating cate-

gory (and vice versa) in a word structure such as (19) is thus predicted to be possible. If this prediction could be shown to be correct, the fact that the modification (31a) necessitated such a redefinition of the notion 'projection of category X' could be argued to be nonproblematic. The question of the adequacy of Fabb's alternative definition of this notion is a complex theoretical and empirical one that I cannot attempt to resolve here. Suffice it to note, then, that an alternative notion 'projection of category X', of the kind required by the modification (31a), could be argued to be definable in principle.

By (31b), it is assumed that nonhead constituents of words and phrases may be either maximal or minimal projections. This assumption, presented as (21) above, is clearly problematic as far as phrase structure is concerned. It is generally accepted that nonhead constituents of phrases must be maximal projections --- see e.g. (Stowell 1981:par. 2.1.2). But if this is true of phrase structure generally, the principles of phrase structure must express this fact. That is, the principle (21) would have to be supplemented with a stipulation to the effect that nonhead constituents of phrases must be maximal projections. In the case of complements this requirement is met by the stipulation (25), viz. that all complements are maximal projections. However, the fact that specifiers/modifiers of phrases must be maximal projections would have to be stipulated as well. The mere fact that the modification (26b) would necessitate such stipulations could be argued to indicate that the generalization expressed by (21) is a false generalization.<sup>26</sup>

Consider, next, the modification (31c), viz. the proposal of the separate head parameters (22a) and (22b) to account for the position of complements and specifiers respectively. To justify this modification it would have to be argued that the parameters (22a, b) are independently required to account for possible phrase structure configurations in human languages as well. Thus, given a broad definition of the notion 'head'

as either "head of  $\bar{X}$ " or "head of  $\bar{X}$ ", it could, for instance, be argued that these parameters are needed to specify that in English  $\bar{X}$  is generally righthanded, with specifiers preceding, whereas  $\bar{X}$  is lefthanded, with complements following. However, Stowell (1981:par. 4.3) has shown that, at least in English, different types of specifiers and modifiers appear in different positions in  $\bar{X}$ , and that the position of a given type of specifier or modifier must be assumed to be determined by independent principles of the grammar. If this could be shown to be correct, it would follow that the position of specifiers and modifiers in the structural configurations of individual languages cannot be determined by the setting of a parameter such as (22b). But if the parameter (22b) could not be assumed to form part of the theory of phrase structure, it could also not be invoked to account for properties of word structure. The fact that specifiers/modifiers must appear to the left of the head in English word structures would then have to be shown to follow from other principles of the grammar. Until such time as the parameter (22b) could be shown to be independently required to account for the possible phrase structure configurations in human languages, therefore, its inclusion in Lieber's set of syntactic principles could be argued to amount to ad hoc stipulation.

As regards the parameter (22a), recall that it was shown above that there is no obvious way in which the differences as regards the position of complements between [+ N] and [- N] categories in Afrikaans can be accounted for by specifying a single value for this parameter. In addition, it appeared that the variable position of the heads of VP and PP with regard to their complements in Afrikaans could not be accounted for by choosing a setting for the parameter (22a). In both cases, it was argued, the facts of Afrikaans would have to be accounted for in terms of other principles and/or parameters of the grammar. This of course reflects negatively on the well-foundedness of the modification (31c) which entails the claim that the parameter (22a) forms part of a language-independent set of syntactic principles and parameters.

The modification (31d), viz. the stipulation that all complements are  $Y^{\max}$  --- formulated as (25) above --- is perhaps the most problematic of the modifications proposed by Lieber. Notice that the assumption that complements are maximal projections is generally made in current versions of the GB theory of syntax. However, given that all nonhead constituents of a phrase are required to be maximal projections on this theory, there is no need to stipulate the maximality of complements. The necessity for stipulating (25) could therefore be argued to be an undesirable consequence of Lieber's acceptance of the principle (21) which allows nonhead constituents to be either maximal or nonmaximal. In the absence of the stipulation (25), the structure (24c) with  $Y^0$  to the right of the head  $X^0$  would be ruled well-formed by the principle (21). This would be inconsistent with the facts of English according to Lieber (to appear:13). The stipulation (25) appears, therefore, to be required for the sole purpose of preventing Lieber's principle (21) from making incorrect predictions about the well-formedness of the structure (24c) in English. Hence, the modification (31d) must be considered to be an ad hoc protective mechanism. In response to this criticism, Lieber could argue that (24c) could be ruled out as a possible word structure of English on other grounds as well. Thus, she could argue that (24c) could be ruled out for the same reason that (24d) is ruled out. The latter structure is leftheaded and contains a phrasal nonhead constituent which must be a complement by (22a). This structure is argued by Lieber (to appear:13) to be ruled out on the assumption that Case can only be assigned within a nonminimal projection. Given that the dominating category in (24d) is  $X^0$ , i.e. a minimal projection, Case would not be assigned to YP and the requirement that complements must have Case would not be met. But the well-foundedness of Lieber's assumption that Case can only be assigned within a nonminimal projection could be questioned as well. Lieber (to appear:19 n. 6) claims that the assumption that Case is assigned only within nonminimal projections is implicitly made in current work on syntax. It should be noted, however, that this assumption is made within a theoretical

framework in terms of which principles of Case assignment, applying as they do in the syntax, cannot refer to constituents below the  $X^0$  level. By contrast, linguists such as Fabb (1984:43) and Sproat (1985:209), who accept that syntactic principles can refer to constituents below the  $X^0$  level, assume that Case may be assigned within  $X^0$ .

Lieber rejects the former theoretical framework in favour of the kind of framework argued for by Fabb and Sproat. Therefore, she cannot justify the assumption that Case can be assigned only within nonminimal projections on the strength of its acceptability within the former theoretical framework. Rather, she would have to present evidence to show that the claim made by Fabb and Sproat, viz. that Case can be assigned within  $X^0$ , is incorrect. Until she has presented such evidence, her assumption concerning the impossibility of assigning Case within  $X^0$  would have to be considered unfounded. Hence, the assumption in question could be argued to be ad hoc in the sense that it is apparently required for the sole purpose of ruling out the structure (24d) which would otherwise, incorrectly, be ruled well-formed by Lieber's structural principles and parameters. And if this assumption could be shown to be ad hoc, any argument for ruling out (24c) that was based on this assumption would have little merit. As a result, (24c) could be ruled out only by the stipulation (25) which has been argued to be ad hoc.

To summarize: it has been shown that all of the modifications proposed by Lieber to generally accepted principles of phrase structure could be argued to be problematic. First, in the absence of evidence indicating that adjunction is possible at syntactic levels other than the level  $X^0$ , the modified rewrite rule (20) for  $X^n$  could be argued to express a false generalization. Also, the modification in question would have the potentially problematic consequence of necessitating a redefinition of the notion 'projection of category X'. Second, the claim (21) that nonhead constituents can be nonmaximal entails that the maximality of the nonheads of phrases has to be stipulated.

The claim could therefore be argued to express a false generalization. Third, in the absence of independent evidence for the specifier parameter (22b), this parameter could be argued to be stipulatory in nature. Also, the claim that the complement parameter (22a) forms part of a language-independent set of structural principles and parameters has been argued to be inadequate as a basis for predicting the possible positions of complements in Afrikaans phrase structure. And fourth, the claim (25) that all and only complements are  $X^{\max}$  has been argued to be an ad hoc mechanism required only to protect Lieber's claim (21) from refutation. In addition, it could be argued that Lieber has failed to present relevant evidence for her assumption that Case can be assigned only within nonminimal projections.

It must be concluded, then, that the modifications (31a-d) to  $\bar{X}$  theory proposed by Lieber, as well as her assumption concerning Case-assignment within  $X^0$  structures, are by no means unproblematic. The problematic nature of these modifications has potentially serious consequences for a theory of syntactic word formation. The question of exactly how serious these consequences are will be addressed in par. 6.4 below. However, let us assume for the present that an account of the morphosyntactic well-formedness of the structural representation (19) assigned to verb-particle combinations in Afrikaans could be given along the lines indicated above. It then has to be established what further assumptions of a general and/or language-specific nature need to be made to account for the remaining properties of verb-particle combinations mentioned in chapter 2 on the basis of an analysis such as that outlined above.

### 6.3.3 Accounting for the properties of verb-particle combinations

In the previous paragraph we considered the formal devices proposed by Lieber to account for the morphosyntactic well-formedness of structural representations such as (19) above, assumed to be the representation assigned to verb-particle combinations in Afrikaans. The analysis outlined in par. 6.3.1 will henceforth be referred to as the syntactic compound analysis in view of its two central hypotheses, viz. that Afrikaans verb-particle combinations are compound verbs --- see (8a) above --- and that compound verbs are syntactic constructs, the morphosyntactic properties of which are determined by syntactic rules and constraints --- see (8b) above.

The main concern of this section will be to establish whether the characteristic cluster of properties of Afrikaans verb-particle combination discussed in chapter 2 can be accounted for, given the hypotheses (8a) and (8b) and the general assumptions of a theory of syntactic word formation as outlined in (6) above. The property with which we shall be particularly concerned is the difference in syntactic cohesiveness displayed by verb-particle combinations with regard to the rule of V-second and rules of inflection on the one hand and rules such as V-raising, PP-preposing, PP-over-V and Gapping, and the progressive construction on the other hand. This property will be extensively discussed in par. 6.3.3.1. Other properties of verb-particle combinations, such as their ability to serve as bases of word formation rules, their tendency to have noncompositional meanings and idiosyncratic subcategorization properties, and their characteristic stress pattern will be briefly considered in par. 6.3.3.2.

#### 6.3.3.1 Syntactic separability vs. syntactic cohesiveness

Consider once again the syntactic behaviour of verb-particle combinations as described in chapter 2. On the one hand, the



verb and the particle are obligatorily separated by application of V-second (par. 2.2) and rules of inflection (par. 2.3). The effect of the application of V-second is illustrated in (32) and that of the rule of *ge*-inflection in (33).

(32)(a) *Hy vermoed dat sy by hom af + kyk.*  
he suspects that she from him off looks  
'He suspects that she cribs from him.'

(b) *Sy kyk by hom af.*  
she looks from him off  
'She cribs from him.'

(33) *Sy het by hom af + GEkyk.*  
she has from him off -ED look  
'She cribbed from him.'

On the other hand, the verb and the particle can not be separated by the application of rules such as V-raising, PP-preposing/Topicalization, PP-over-V/PP-extraposition and Gapping, and in progressive constructions (par. 2.7), as was illustrated in par. 6.3.1 above. These facts pose two problems for a syntactic compound analysis of verb-particle combinations such as that outlined above.

First, given the general theory concerning the relationship between morphology and syntax being assumed, viz. a theory of syntactic word formation, a principle such as the Lexical Integrity Hypothesis would not be available as a basis for explaining why constituents of syntactically complex words cannot be separated by the application of rules such as V-raising, etc. The syntactic cohesiveness of the constituents of structures such as (19) would have to be shown to follow from some independently required principle or principles rather than from the mere fact of their being dominated by the category  $X^0$ . Second, supposing that the syntactic cohesiveness of verb-particle combinations with regard to rules

such as V-raising, etc., could be shown to follow from some independently required grammatical principle, a theory of syntactic word formation would have to be able to explain why rules such as V-second and *ge-* affixation are not subject to this principle.

#### 6.3.3.1.1 Nonhead movement

Consider first the problem of accounting for the syntactic cohesiveness of verb-particle combinations with regard to rules such as PP-preposing and PP-over-V. The impossibility of preposing or postposing the particle constituent of a verb-particle combination could be claimed to follow, trivially, from the fact that the relevant rules, i.e. the rules of PP-preposing and PP-over-V respectively, are formulated as PP rather than P movement rules. Such an account would be highly stipulatory, however. Given a theory of syntactic word formation, syntactic rules such as Move  $\alpha$  must presumably be able to move  $X^0$  categories as well as  $X^{\max}$  categories, subject to general constraints such as the Empty Category Principle, Subjacency, etc. Baker (1985:par. 1.2) in fact argues that the rule Move  $\alpha$  should be generalized in this way. Supposing that PP-preposing and PP-over-V are subcases of the rule Move  $\alpha$ , with  $\alpha$  potentially either  $P^0$  or  $P^{\max}$ , then an alternative explanation for the inability of these rules to move the P constituent in a structure such as (19) would be required.

Lieber (1984:196) argues that movement out of or into  $X^0$  categories could be prohibited by stipulating that  $X^0$  counts as a bounding node for Subjacency. The Subjacency condition which Lieber has in mind is formulated as follows by Van Riemsdijk and Williams (1986:62):

(34) Subjacency condition

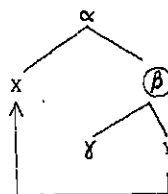
No rule can relate X, Y in the structure

... X ... [  $\alpha$  ... [  $\beta$  ... Y ...  
 (or: ...Y ... ]  $\beta$  ... ]  $\alpha$  ... X ...)

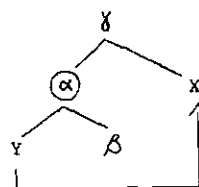
where  $\alpha$ ,  $\beta$  are bounding nodes.

Thus, if X in (34) is a moved constituent and Y its trace, (34) expresses the claim that a maximum of one bounding node may intervene between a moved constituent and its trace. That is, either movement shown in (35a) is possible, but not that shown in (35b). The circled nodes represent the bounding nodes intervening between the moved constituent X and its trace Y in (35).

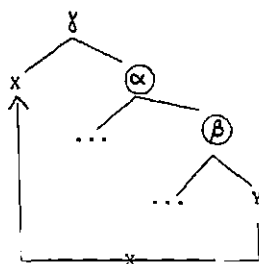
(35)(a) i.



ii.



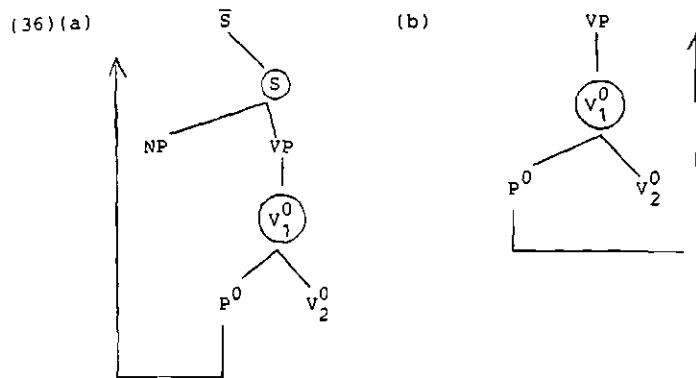
(b)



Languages may vary in their choice of bounding nodes along parameters laid down in Universal Grammar --- see (Van Riemsdijk and Williams 1986:74) for discussion.

Supposing that we did stipulate that  $X^0$  counted as a bounding

node for Subjacency. Supposing also that we assumed that S is a bounding node for Afrikaans.<sup>27</sup> Then, it could be argued that Subjacency will rule out the preposing of P in a structure such as (36a). In (36a) P is required to cross two bounding nodes, viz. the circled  $V^0$  and S. Movement of P over V in the structure (36b) would not be ruled out, however, because the movement crosses only one bounding node, viz. the circled  $V^0$ .



Thus, even if we took  $X^0$  to be a bounding node, Subjacency as formulated in (34) would not be able to account for the impossibility of  $P^0$  movement in (36b).

Baker (1985:63ff) has argued that the movement of both  $X^{\max}$  and  $X^0$  constituents is subject to the Empty Category Principle, which imposes even stricter constraints on  $X^0$  movement than does Subjacency. The Empty Category Principle is formulated as follows by Baker (1985:50):

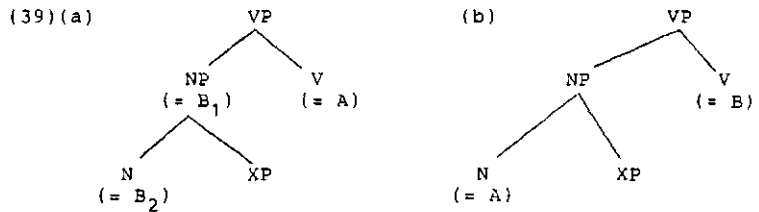
- (37) Empty Category Principle (ECP)  
Traces must be properly governed.

The notion 'government' is defined as follows by him (1985:49):<sup>28</sup>

(38) Government

A governs B if and only if A c-commands B  
and there is no category C such that C is  
a barrier between A and B.

Thus consider the structures in (39).



In (39a) A c-commands  $B_1$  because VP, i.e. the first maximal projection which dominates A, also dominates  $B_1$ . Hence, A governs  $B_1$ . Whether or not A also governs  $B_2$ , which it c-commands, will depend on whether or not the intervening NP (=  $B_1$ ) counts as a barrier to government between A and  $B_2$ . The notion 'barrier' will be discussed below. In (39b) A does not c-command B because NP, i.e. the first maximal projection which dominates A, does not dominate B. Hence, A does not govern B in (39b).

By the ECP, traces must not only be governed, they must be properly governed. A trace is properly governed, according to Baker (1985:67), if it is governed either by an element which is theta-indexed with it, or by an element which is identification-indexed with it.<sup>29</sup>

The first case of proper government is the case where a trace is properly governed by virtue of being a complement of, i.e. of being assigned a theta role by, a lexical head which governs it. For example, the NP position (=  $B_1$ ) in structure (39a) is properly governed because it is a complement of, hence theta-

indexed with (i.e. assigned a theta role by), the V which governs it. This possibility is not available for the trace of an  $X^0$  category, according to Baker, because only  $X^{\max}$  may be assigned a theta role, and not  $X^0$ . That is, the trace of an  $X^0$  constituent can never be properly governed by a lexical head as the  $X^0$  constituent cannot be theta-indexed with the head. It follows, then, that the position of N (=  $B_2$ ) in (38a) is not properly governed by V (= A), since NP (=  $B_1$ ) and not N is theta-indexed with the governing lexical head V. The only circumstances in which the N position would be properly governed, according to Baker (1985:74f), would be if it was governed by an element with which it was identification-indexed, the second case of proper government mentioned above. Before considering this second case note that, by the definition of proper government as 'theta-indexing with a governing lexical head', the trace of the moved  $p^0$  in structures (36a) and (36b) could not be claimed to be properly governed by the lexical head  $v^0$ .

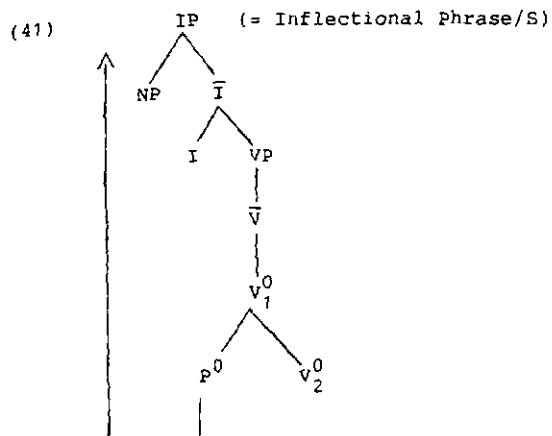
The second case of proper government is the case where a trace is governed by the antecedent with which it is coindexed as a result of the application of the rule Move  $\alpha$ . Let us consider the question of whether the trace of the moved category  $p^0$  in (36a, b) would be properly governed in terms of this alternative definition of proper government. I will assume that in both structures (36a) and (36b) the position to which  $p^0$  is moved will c-command the position of the trace of  $p^0$ , i.e. the first branching node dominating  $p^0$  will also dominate the trace of  $p^0$ . The question then is whether there is a barrier category which intervenes between the two, blocking government. Baker (1985:71) defines the notion 'barrier' as follows:<sup>30</sup>

(40) Barrier

The maximal projection C is a (government) barrier between A and B if and only if C contains B, C does not contain A, and C is not theta-indexed (with A).

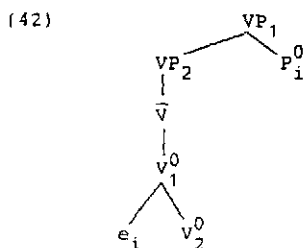
Consider again the structure (39a). This structure contains two maximal projections which are potential barriers to government, viz. NP and XP. Now, let  $V = A$  and  $N$  or  $XP = B$ . As a complement of  $V$ , NP will be theta-indexed with  $V$ . According to Baker (1985:71ff), NP would not be a barrier to government of either  $N$  or  $XP$  by  $V$ . But  $XP$  is not theta-indexed with  $V$ . Therefore  $XP$  would be a barrier to government by  $V$  of both itself and any category that it may dominate. As a result, a trace in the  $N$  position but not in the  $XP$  position will be properly governed by an antecedent adjoined to  $V$ . That is, the head, but not the nonhead, of a constituent can be governed by an element appearing outside that constituent.

Now consider the structures (36a, b). In order to be able to argue that the trace of  $P^0$  is not governed by its antecedent, one of the intervening nodes would have to be shown to constitute a barrier to government between the trace of  $P^0$  and the position to which it is moved. Neither  $P^0$  nor  $V_1^0$  is a potential barrier. Both these nodes satisfy the requirement that they may not be theta-indexed with the antecedent of the moved category, given that only maximal projections can be assigned theta roles. But, by the same argument, neither  $P^0$  nor  $V_1^0$  can be a maximal projection. Thus, as only maximal projections can be barriers to government by (40), neither  $P^0$  nor  $V_1^0$  would constitute a barrier to government between the trace of  $P^0$  and its antecedent. The only other category which is a potential barrier in both structure (36a) and structure (36b) is VP. VP is not assigned a theta role by the node into which  $P^0$  is moved, as VP is assigned a theta role by I(NFL) --- see par. 6.3.3.1.2 below --- and neither PP-preposing nor PP-over-V moves a constituent to the I(NFL) position. Thus, consider (41), which is a slightly more detailed representation of the structure (36a).



Whatever the exact node into which  $P^0$  is moved by the rule of PP-preposing/Topicalization, it must be to the left of the subject-NP and hence cannot be I. Thus, VP is not assigned a theta role by the node which receives the moved category  $P^0$ . VP is also a maximal projection which contains the trace of  $P^0$  but not its antecedent. Hence, VP would count as a barrier to government between  $P^0$  and its trace.

In order for VP also to count as a barrier to government between the postposed  $P^0$  node and its trace in (36b), VP would have to contain the trace of  $P^0$ , but not the antecedent. That is, the structure after application of PP-over-V would have to be roughly as shown in (42).





That is, it would have to be assumed that  $P^0$  is adjoined to VP so that  $VP_2$ , which contains the trace of  $P^0$ , does not contain the antecedent as well. In this case  $VP_2$  would count as a barrier to government between  $P^0$  and its trace by (40). Notice that the postposed PP/P constituent could be argued to function as a specifier/modifier of  $V_2^0$  in the same way that nonsub-categorized adverbials of time and place function as specifiers/modifiers of VP. As specifiers and modifiers are introduced at the level of  $\bar{X}$  on  $\bar{X}$  theory, it would seem reasonable to assume that adjunction of a moved specifier/modifier of  $V_2^0$  would take place at the level of VP ( $\bar{V}$ ) --- see (Stowell 1981:281-282) for some discussion.

Thus, in both (41) [= (36a)] and (42) [= (36b)] VP could be argued to constitute a barrier category to government of  $P^0$  by its antecedent. In that case the impossibility of movement from the nonhead position of the compound V in the structures (36a, b) could be accounted for on the basis of the claim embodied in (40), viz. that the presence of a lexical head in the sister position of a trace blocks government of the trace. Movement of the nonhead constituent of the compound V in (36a, b) would leave behind an ungoverned trace in violation of the ECP. Hence, movement of the nonhead constituent of the compound V would be predicted to be impossible.

The impossibility of  $P^0$  movement in structures such as (36a, b) could therefore be argued to follow from the ECP, given currently accepted definitions of notions such as 'government', 'proper government', and 'barrier'. In order for the argument to hold, the assumption that  $P^0$  is adjoined to VP by the rule of PP-over-V, yielding the structure (42), would have to be independently motivated. I shall not attempt to do so here.

#### 6.3.3.1.2 Head movement

Having presented a possible argument in terms of which the impossibility of movement of the nonhead of a syntactically

complex word could be accounted for without assuming a principle such as the Lexical Integrity Hypothesis, let us consider the problem of accounting for the facts concerning the movement of the verbal head constituent of verb-particle combinations in Afrikaans. The crucial facts are the following: whereas the verb-particle combination is treated as a unit by the rule of V-raising in Afrikaans, V-second cannot move the particle along with the verb. Examples illustrating the effect of V-raising and V-second on verb-particle combinations in Afrikaans were presented in par. 2.3 and par. 2.7 above. Thus we have the contrast shown in (43) and (44).

(43) V-raising:

- (a) ?*omdat Jan [haar op e] wou bel*  
because John her up wanted ring
- (b) *omdat Jan [haar e e] wou op + bel*  
because John her wanted up ring  
'because John wanted to ring her up'

(44) V-second:

- (a) *Jan bel sy meisie op.*  
John rings his girl up.
- (b) \**Jan op + bel sy meisie.*  
John up rings his girl  
'John rings up his girlfriend.'

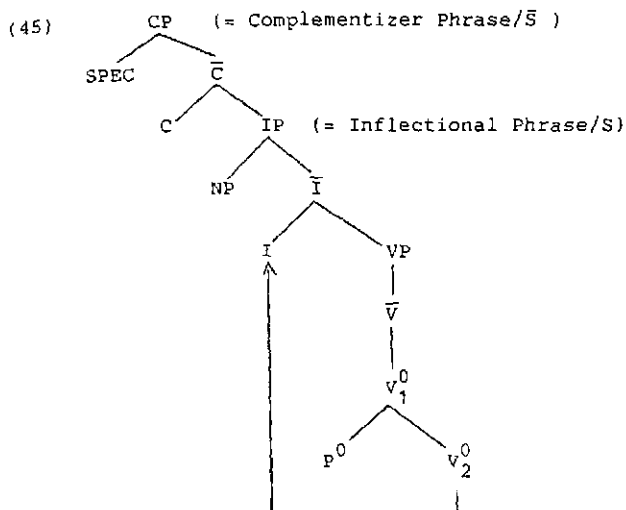
As was pointed out in par. 2.7, judgements in the V-raising cases are not always clear. It appeared that the more transparent the meaning of a verb-particle combination, the more hesitant speakers are to rule out as completely unacceptable sentences such as (43a) in which the particle is left behind and the verb alone is moved to the "raised" position. I shall not attempt to account for this phenomenon here. For purposes of the present discussion it will be assumed that the preferred position for the particle after application of the rule

of V-raising, viz. the position adjacent to the verb, is indeed the only possible position for the particle in Afrikaans. V-second, by contrast, can never front the particle along with the verb in Afrikaans, as indicated by the ill-formedness of (44b) above.

On the syntactic compound analysis outlined in par. 6.3.1, the verb-particle combination *opbeel* in Afrikaans would be assigned the structure  $[[op]_P[beel]_V]_V$ . Notice that any movement rule that applied to the inner rather than the outer V node in such a structure would violate the A-over-A Principle presented as (19) in par. 4.2.3 above. This principle requires that a rule that refers ambiguously to V in a structure such as  $\{...\}_V$  can only be taken to refer to the outer V node. The A-over-A Principle would therefore, correctly, prevent a rule such as V-raising from moving only the inner V *beel*, thereby separating the constituents of the syntactically complex verb. As the head of an (endocentric) compound by definition bears the same categorial features and is of the same category level as its dominating category, movement of the head of a compound would be effectively ruled out by the A-over-A Principle.<sup>31</sup> It could then be argued that the characteristic syntactic cohesiveness of verb-particle combinations, and of endocentric compounds in general, could be accounted for without assuming a principle such as the Lexical Integrity Hypothesis.

The A-over-A Principle, however, would also prevent the rule of V-second from moving the inner V *beel* out of the structure  $[[op]_P[beel]_V]_V$ . This brings us to the second problem mentioned at the beginning of this section, viz. that of explaining why V-second is not subject to the principles that prevent rules such as PP-preposing, PP-over-V, and V-raising from moving a constituent of a verb-particle combination. Recall that it has been shown that the ECP could be argued to be responsible for blocking movement of the nonhead constituent (i.e. the particle) by rules such as PP-preposing and PP-over-V. Let us consider the question whether the ECP could also be argued to block movement of the head (i.e. the verbal consti-

tuent) of a verb-particle combination by the rule of V-second. Following Chomsky (1986:68ff), the relevant phrase structure configuration may be taken to be as follows:



The arrow indicates the path along which  $V_2$  is moved by the rule of V-second.  $V_2$  is moved to the head position in  $\bar{I}$  where it substitutes for, hence merges with, I ( $\approx$  INFL) according to Chomsky (1986:4-5). If  $V_2$  moves to I its trace must be properly governed in order to satisfy the ECP. By the definition of proper government presented in par. 6.3.3.1.1 above, the trace of  $V_2$  will be properly governed if it is antecedent-governed, i.e. governed by the moved constituent in the I position. The question, therefore, is whether I (the position to which  $V_2$  is moved by V-second) governs the  $V_2$  position in the structure (45). I c-commands  $V_2$  as required by the definition of government presented in (38). Given the definition (40) of the notion 'barrier', the only potential barrier to government of  $V_2$  is the maximal projection VP which intervenes between I and  $V_2$ .

According to Chomsky (1986:68ff) and Baker (1985:70), VP is not a barrier to government of  $V_1$  in a structure such as (45). The general principle was shown in par. 6.6.3.1.1 to be that if the maximal projection of the category containing a trace is theta-indexed with the head position containing the antecedent of the trace, this maximal projection is not a barrier to government of the trace by the antecedent. VP is theta-indexed with I according to Chomsky (1986:20).<sup>32</sup> Hence,  $V_1$  and, presumably, its head  $V_2$  are governed by I and can therefore be moved to the I position. The moved constituent would govern its trace, which would therefore be antecedent-governed, hence properly governed, and no violation of the ECP would occur.

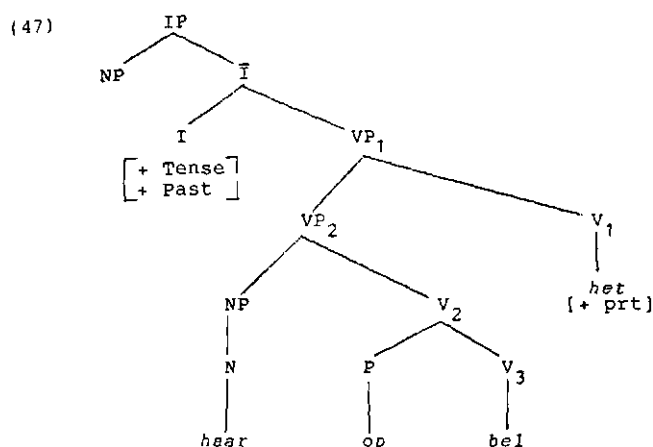
The problem with this argument, of course, is that the ECP would allow movement of either  $V_1$  or  $V_2$  as both are  $X^0$  categories and both are governed by I, the position to which V is moved. But movement of  $V_1$  must be blocked and only movement of  $V_2$  must be allowed in structures such as (45) in order to account for the facts of (44) above. That is, given that the rule of V-second, as a head movement rule, moves the minimal projection of the category  $V^n$  --- see (Chomsky 1986:4) ---  $V_2$  would have to be assumed to be the minimal projection of  $V^n$  in a structure such as (45).

The assumption that the lowest  $V^0$  node in a structure such as (45) is the minimal projection of  $V^n$  could be argued to be independently motivated by virtue of the fact that it could also serve as a basis for explaining the inflectional properties of verb-particle combinations in Afrikaans. Thus, this assumption could serve as a basis for explaining why the inflectional affix *ge-* attaches to  $V_2$  rather than to  $V_1$ , yielding (46a) and not the ill-formed (46b) --- see also (33) above.

- (46)(a) *Hy het haar op + GEbel.*  
he has her up + AFFIX ring  
'He rang her up.'

- (b) \*Hy het haar GE + opbe1.  
 he has her AFFIX up ring

Let us assume, along the lines suggested by Travis (unpubl.: 14), that the relevant part of the D-structure of (46) is as follows:



The feature specification [+ prt] in (47) refers to a lexical property of the verb *het* ('have'), viz. that its verbal complement must be a participle. According to Travis (unpubl.: 14), a feature such as [+ prt] is assigned by a head X with which it is lexically associated (i.e.  $V_1$  in (47)) to a maximal projection which is a complement Y of that head (i.e.  $VP_2$  in (47)). Like, e.g., Case features, a feature such as [+ prt] percolates down to the head (i.e. the minimal projection) of Y, where it is spelled out as the appropriate inflectional form, presumably at the level of PF.

The fact that the participle affix *ge-* is "spelled out" on the verb *be1* and not on the compound verb *opbe1*, as shown in (46), could be argued to indicate that  $V_3$  rather than  $V_2$  must be as-

sumed to be the minimal projection or head of  $VP_2$  in (47). Thus, it could be argued that the head V of a compound verb, rather than the dominating V node, must be assumed to be the minimal category in the V projection line, i.e. the head of VP, for purposes of both V-second and feature percolation.

The assumption that the head of the compound verb is also the head of VP in structures such as (45) and (47) above would not be inconsistent with a model of the relationship between morphology and syntax on which word structure is claimed to be a part of sentence structure. The assumption would be inconsistent with the A-over-A Principle, however. Therefore, upholding an account of verb-particle combinations such as the one outlined above would entail abandoning the A-over-A Principle as a general linguistic constraint. Given the uncertain status of this principle in current versions of the GB theory of syntax --- see n. 31 above --- this could be argued to be less damaging than it may at first appear.

Let us consider what consequences abandoning the A-over-A Principle would have for the kind of analysis that we are considering. First, if the A-over-A Principle were to be abandoned, an alternative account of the V-raising facts of (43) would have to be given. Second, an alternative explanation would have to be found for the fact that the heads of (endocentric) compounds can generally not be moved out of the compound structure in which they appear.

An alternative account of the behaviour of verb-particle combinations with regard to V-raising would have to proceed from the assumption that, unlike V-second which moves a minimal projection of V, V-raising moves a nonminimal projection of V. An analysis along these lines has in fact been proposed by, e.g., Haegeman and Van Riemsdijk (1986). They (1986:419) argue that by building the possibility of parametric variation into the rule responsible for so-called V-raising phenomena in Germanic languages, variation such as that shown in (48) can be accounted for:

(48)(a) Standard Dutch:

- i. *dat Jan [PRO [een huis kopen]] wil*  
that John a house buy wants  
'that John wants to buy a house'
- ii. *dat Jan [PRO [een huis e]] wil kopen*  
that John a house wants buy
- iii. \**dat Jan [PRO [ e e]] wil een huis kopen*  
that John wants a house buy

(b) West-Flemish:

- i. *da Jan [PRO [een hus kopen]] wilt*  
that John a house buy wants
- ii. *da Jan [PRO [een hus e]] wilt kopen*  
that John a house wants buy
- iii. *da Jan [PRO [ e e]] wilt een hus kopen .*  
that John wants a house buy

(c) Züritüütsch:

- i. *das de Hans [PRO [es huus chaufe]] wil*  
that Hans a house buy wants
- ii. *das de Hans [PRO [es huus e]] wil chaufe*  
that Hans a house wants buy
- iii. *das de Hans [PRO [ e e]] wil es huus chaufe*  
that Hans wants a house buy

According to Haegeman and Van Riemsdijk (1986:428-434), an extraposition analysis of sentences such as (48b iii) and (48c iii) above is ruled out on independent grounds. Their arguments will not be repeated here. Assuming that their arguments are sound, the difference in acceptability between (48a iii) and the (iii)-sentences in (48b, c) would have to be assumed to follow from differences in the way V-raising is formulated and/or applied in the various dialects.



Specifically, according to them (1986:426), languages may differ with regard to the projection level specified for the V node that undergoes raising.

A parameterized account of V-raising along the lines proposed by Haegeman and Van Riemsdijk could be argued to provide a potential explanation for the fact that both the verb and the particle must be raised in Afrikaans. The success of such an argument would depend on the possibility of providing a non-ad hoc definition of the notion 'nonminimal projection of V'. Note that the claim that the  $V^0$  node dominating a compound structure such as (19) is a nonminimal projection would be consistent with the assumption that the head  $V^0$  of the compound structure is the minimal projection of V. The latter assumption has been argued above to be necessary to account for the facts concerning V-second and *ge-* inflection in Afrikaans. However, it is not immediately clear how the distinction 'minimal vs. nonminimal projection' may be made with respect to the head and the dominating category in a compound structure, given that both categories are of the same level, viz.  $X^0$ . One possibility would be to define the notion 'head' or 'minimal projection', of XP as 'the lowest nonbranching category X in a tree'. However, I shall not pursue this question here.

An account of V-raising in terms of which the projection level of the V node affected by the rule is assumed to be subject to variation across languages could also serve as a basis for explaining why Dutch differs from Afrikaans in that the particle may be either raised along with the verb or left behind in the former but not in the latter language. This difference between Dutch and Afrikaans was illustrated in par. 2.2 above. The relevant examples are repeated in (49).

(49)(a) Dutch:

- i. *omdat Carol [hem op + bellen] kon*  
because Carol him up ring could  
'because Carol could ring him up'

- ii. *omdat Carol [hem op e ] kon bellen*  
because Carol him up could ring
- iii. *omdat Carol [hem e e ] kon op + bellen*  
because Carol him could up ring

(b) Afrikaans:

- i. \**omdat Jan [haar op + bel] wou*  
because John her up ring wanted  
'because John wanted to ring her up'
- ii. ?*omdat Jan [haar op e ] wou bel*  
because John her up wanted ring
- iii. *omdat Jan [haar e e ] wou op + bel*  
because John her wanted up ring

Assuming an account such as that proposed by Haegeman and Van Riemsdijk, the difference in acceptability between (49a ii) and (49b ii) could be argued to be the result of a difference between Dutch and Afrikaans as regards the values assigned to the parameter determining the projection level of V at which V-raising applies. Note that no such explanation would be possible within the framework of a theory incorporating the A-over-A Principle. If the syntactic compound analysis of verb-particle combinations outlined here were to be extended to Dutch, *opbellen* would have to be assigned the structure  $[[op]_p[bellen]_V]_V$ . Given that the clustering of properties displayed by verb-particle combinations in Dutch were shown in chapter 2 to be similar to those displayed by Afrikaans verb-particle combinations, the claim that they should be assigned the same analysis may be assumed to be a reasonable one.<sup>33</sup> But then the A-over-A Principle would rule out sentences such as (49a ii) as ill-formed in Dutch, clearly an undesirable consequence. Hence, in addition to the fact that an analysis along the lines proposed by Haegeman and Van Riemsdijk could be argued to account for the behaviour of Afrikaans verb-particle combinations with regard to V-raising without

referring to the A-over-A Principle, at least one good reason could be provided for preferring such an account to one that does refer to the A-over-A Principle.

As is clear from the foregoing discussion, the argument for the claim that the behaviour of verb-particle combinations with respect to V-raising in Afrikaans can be accounted for without reference to the A-over-A Principle relies on two assumptions. The first is that Haegeman and Van Riemsdijk's parameterized account of V-raising can be justified empirically and theoretically. The second is that a notion 'non-minimal projection of V' can be defined in terms of which the required distinction between possible and impossible applications of V-raising can be made in Afrikaans. The problematic nature of the second assumption has been indicated already. Let us consider the question of whether the first assumption could be argued to be problematic as well.

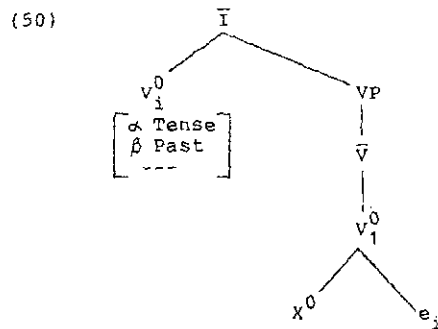
Haegeman and Van Riemsdijk's account could be argued to be problematic on theoretical grounds. Unlike most other accounts of V-raising --- see chapter 2 n. 4 --- their account assumes V-raising phenomena to be the result, not of V movement, but of the successive application of a syntactic reanalysis rule and a phonological inversion rule. The details of their analysis do not concern us here --- see n.35 below for some discussion. It should be noted, however, that whereas the properties of movement rules have been investigated in great depth and could be claimed to be well-understood within the framework of GB syntax, this is not true of reanalysis rules. Thus, Baker (1988:40-41) has argued against a reanalysis account of V-raising on the grounds that it is highly stipulative and requires a weakening of the theory of phrase structure.

However, it is not so much the assumption that V-raising is the result of reanalysis which is of importance here. It is the assumption that languages may differ with regard to the projection level of V at which V-raising, however it is de-

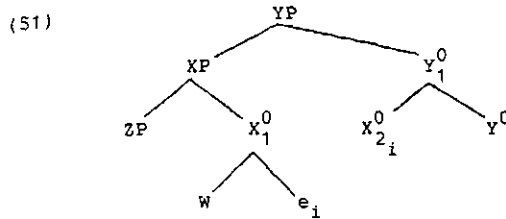
fined, takes place. The latter assumption is made by Baker (1988:51-52) as well. Moreover, Baker (1988:48ff) proposes an alternative, movement-and-cliticization account of V-raising which is explicitly shown to obey the ECP and which would therefore be consistent with the general theoretical framework assumed here.<sup>34</sup> The question of which of the two alternative analyses is to be considered the more adequate is clearly immaterial here. The important point is that the assumption concerning the ability of V-raising to apply at a nonminimal projection level of V could be argued to be unproblematic. Given this assumption (and an appropriate definition of the notion 'nonminimal projection of V') the behaviour of verb-particle combinations with regard to V-raising in Afrikaans would follow on whatever analysis should prove to be conceptually and empirically the more acceptable analysis of this phenomenon in Afrikaans.

It is less clear how the second consequence of giving up the A-over-A Principle could be handled. That is, it is not immediately obvious how the GB theory of syntax, as currently construed, could account for the fact that the head of an endocentric compound cannot be moved out of the compound structure, except in the case where the head and its dominating node are of the category V. In order for such an account to be possible, it would have to be argued that  $V^0$  movement differs in some crucial respect from other  $X^0$  movement rules. Let us consider one possible difference between  $X^0$  movement and  $V^0$  movement, where I will assume V-second to be the core case of  $V^0$  movement in Afrikaans. V-raising will be disregarded here as it could be argued to affect a nonminimal projection of V rather than  $V^0$  in Afrikaans, as shown above. Also, the status of V-raising as a movement rule is not beyond dispute.<sup>35</sup> Recall that V-second is claimed to be a substitution rule by GB theorists such as, e.g., Travis (unpubl.) and Chomsky (1986). They assume that  $V^0$  is moved to an empty I(NFL) node in structures such as (45) and (47) above, where  $V^0$  substitutes for, or "merges with", the inflectional fea-

tures associated with I. Consider the case where the moved  $V^0$  is assumed to have originated as the head of a compound verb. The result of the substitution of the moved  $V^0$  for I would be a structure such as (50).



The formulation of  $X^0$  movement as a substitution rule depends crucially on the availability of an empty structural position to which  $X^0$  can be moved. On Travis's and Chomsky's accounts I and, in some cases, C (the head position in CP) are empty at the level of D-structure and hence can serve as potential landing sites for a moved  $V^0$  category. No empty head positions for which  $X^0$  categories other than  $V^0$  can be substituted are obligatorily present at the level of D-structure, however. As a result, all other  $X^0$  movement rules would have to be head adjunction rules, as is in fact argued by Baker (1985). The structure that would result from the adjunction of the head of a compound to a c-commanding node could be abstractly represented as in (51), in which XP must be assumed to be a complement of, hence theta-indexed with,  $V^0$  to satisfy the ECP.<sup>36</sup>



The structures (50) and (51) differ with regard to the number of 0-level categories that intervene between the moved category  $X^0$  and its trace. In (50) only one 0-level category, viz.  $V_1^0$ , intervenes between the moved  $V^0$  and its trace. In (51), by contrast, two 0-level categories, viz.  $X_1^0$  and  $Y_1^0$  intervene between the moved  $X^0$  and its trace. Suppose it could be argued that the presence of more than one  $X^0$  category between an antecedent and its trace constitutes a barrier of some sort. If the presence of two intervening  $X^0$  nodes were to be taken to constitute a barrier to government, then structures such as (51), hence all structures resulting from the movement of an  $X^0$  category other than  $V^0$  from a compound structure, would contain a trace that is not properly governed. Such structures would then be ruled out by the ECP. By contrast,  $V^0$  movement, as a substitution rule, would result in a structure that did not violate the ECP.

Alternatively, the presence of two intervening  $X^0$  nodes could be assumed to constitute a barrier, not for government, but for movement. In the latter case, the movement of an  $X^0$  category other than  $V^0$  from the head position in a compound to a position within the head of which the phrase containing the compound is a complement would result in a Subjacency violation.

The argument outlined above depends on the well-foundedness of the assumption that the presence of two or more  $X^0$  categories between an antecedent and its trace constitutes a barrier, either for government or for movement. If this assumption could be shown to be well-founded, the impossibility of head

movement from a compound structure other than a compound V structure could be argued to follow from the ECP or from Subjacency. On such an account the A-over-A Principle could be dispensed with. The account would also be superior to an account in terms of the A-over-A Principle, as the former account would be able to draw the required distinction between possible and impossible movement from compound structures, a distinction that cannot be made on the basis of the A-over-A Principle. As the theoretical and empirical issues involved in any proposal concerning the definition of the notion 'barrier' are highly complex, the question of the adequacy of a notion 'barrier' defined in terms of the presence of two or more  $X^0$  categories will not be pursued here.

#### 6.3.3.1.3 Gapping and progressive constructions

Finally, let us briefly consider the behaviour of verb-particle combinations in the remaining two types of constructions mentioned in par. 2.7 above. First, as was shown in par. 2.7, sentences in which constituents of verb-particle combinations have been gapped become progressively more acceptable the more transparent the meanings of the combinations concerned are felt to be. Thus, sentence (52a ii) in which a constituent of a semantically compositional, hence completely transparent, collocation is gapped, is completely acceptable to speakers of Afrikaans. Sentence (52b ii), in which a constituent of a semantically noncompositional, but still transparent, verb-particle combination is gapped is slightly less acceptable. By contrast, sentence (52c ii) in which a constituent of a noncompositional, semantically nontransparent, verb-particle combination is gapped, is completely unacceptable.

- (52)(a) i. Party mense kom in en ander kom uit.  
some people come in and others come out  
'Some people come in and others come out.'
- ii. Party mense kom in en ander \_\_\_\_\_ uit.  
some people come in and others out
- (b) i. In die lente kom die bloeisels uit en kom  
in the spring come the blossoms out and come  
die blomme op.  
the flowers up  
'In the spring blossoms come out and flowers grow.'
- ii. ?In die lente kom die bloeisels uit en \_\_\_\_\_ die  
in the spring come the blossoms out and the  
blomme op.  
flowers up
- (c) i. Een van die beseerdes kom by maar die ander  
one of the injured comes to but the other  
een kom om.  
one comes around  
'One of the injured regains consciousness, but  
the other dies.'
- ii. \*Een van die beseerdes kom by maar die ander  
one of the injured comes to but the other  
een \_\_\_\_\_ om.  
one around

Note, first of all, that the collocations *in + kom* and *uit + kom* in (52a) could be analyzed as phrasal PP-V strings. Thus, for instance, *in* and *uit* can undergo PP-preposing, as shown in (53).

- (53)(a) In kom n mens net met n gestoei.  
in comes a person only with a fight  
'One gets in only by fighting.'



- (b) *Uit sal die mense moet kom.*  
out will the people must come  
'The people will have to come out.'

By contrast *uit + kom*, *op + kom*, *by + kom*, and *om + kom* in (52b) and (52c) must be assumed to be verb-particle combinations. That is, they must be analyzed as compound verbs as evidenced, for instance, by the fact that the particles of these combinations cannot be preposed. Thus, consider (54).

- (54)(a) ?*Uit sal die bloeisels moet kom.*  
out will the blossoms must come  
'The blossoms will have to come out.'
- (b) \**Op sal die blomme moet kom.*  
up will the flowers must come  
'The flowers must come up.'
- (c) \**By sal die beseerdes wel kom.*  
to will the injured indeed come  
'The injured will eventually regain consciousness.'
- (d) \**Om sal die beseerdes wel kom.*  
around will the injured indeed come  
'The injured will eventually die.'

Thus, sentences such as (52b ii) and (52c ii) differ in acceptability, although a constituent of a verb-particle combination has been gapped in both cases. This would appear to indicate that it is their lack of semantic transparency rather than the (assumed) fact of their being assigned a compound word structure by the grammar, which is responsible for the syntactic cohesiveness displayed by verb-particle combinations with regard to the deletion rules responsible for gapping phenomena. Parts of syntactically complex words may indeed be deleted under certain conditions, as has often been pointed out.<sup>37</sup>

One of the constraints on the applicability of deletion rules in natural languages is the so-called Recoverability Condition which requires, amongst other things, that an element of a P-marker may be deleted only if it is identical to some other element in the P-marker.<sup>38</sup> Now, verb-particle combinations have been shown to be characteristically noncompositional in meaning. Yet they differ in degree of noncompositionality. It could be argued that the meanings of the constituents of semantically nontransparent verb-particle combinations, unlike those of the more transparent ones, are semantically underdetermined --- see the discussion in par. 2.4 above. And if a constituent of a verb-particle combination could not be said to have a fully determined meaning, then there could be no question of its being identical in the intended sense to another constituent whose meaning is similarly underdetermined. The gapping of a constituent of a semantically nontransparent verb-particle combination could therefore be argued to violate the Recoverability Condition. In that case, the cohesiveness of verb-particle combinations with respect to Gapping could be accounted for without reference to a principle such as the Lexical Integrity Hypothesis.

Second, verb-particle combinations, but not phrasal PP-V strings, were shown to occur in the position following *aan die/'t* in progressive constructions. This property of verb-particle combinations in Afrikaans was illustrated in (11) above. A single example is presented here for ease of reference. Thus consider the sentences in (55). Whereas sentence (55a i) in which the particle *af* is separated from its verb by *aan die/'t* is unacceptable, sentence (55a ii) in which both the particle and the verb appear in the position following *aan die/'t* is acceptable. A PP-V string, by contrast, cannot appear in the position following *aan die/'t*, as evidenced by the unacceptability of (55b ii).

- (55)(a) i. \*Hy was by sy maat af aan die/'t kyk toe  
he was from his friend off PROGRESSIVE look when  
*die opsiener hom vang.*  
the invigilator him caught  
'He was cribbing from his friend when the invigi-  
lator caught him out.'
- ii. Hy was by sy maat aan die/'t af + kyk  
he was from his friend PROGRESSIVE off look  
*toe die opsiener hom vang.*  
when the invigilator him caught
- (b) i. Hy was in die skag af aan die/'t kyk toe  
he was in the shaft down PROGRESSIVE look when  
*hy sy balans verloor het.*  
he his balance lost  
'He was looking down into the shaft when he lost  
his balance.'
- ii. \*Hy was aan die/'t in die skag af kyk toe  
he was PROGRESSIVE in the shaft down look when  
*hy sy balans verloor.*  
he his balance lost

The fact that verb-particle combinations, but not phrasal PP-V strings, can appear in the position following *aan die/'t* progressive constructions in Afrikaans could be argued to follow from an analysis such as the one assumed here in a straightforward way. On this analysis verb-particle combinations are assumed to be compound verbs. They are assigned the category  $V^0$  by the grammar and are therefore expected to be able to occur in any context in which a syntactically noncomplex constituent of the category  $V^0$  can occur. No additional assumptions would have to be made to account for this aspect of the syntactic behaviour of verb-particle combinations.

This concludes the discussion of the question whether a syntactic compound analysis could account for the syntactic behaviour of verb-particle combinations in Afrikaans. As in-

icated at the start of the discussion, the syntactic behaviour of verb-particle combinations poses two problems for a syntactic compound analysis. First, given the unavailability of a principle such as the Lexical Integrity Hypothesis within the framework of a general theory of syntactic word formation, the syntactic cohesiveness of verb-particle combinations cannot be argued to follow from the mere fact of their being dominated by the category  $X^0$ . Hence, this property of verb-particle combinations would have to be argued to follow from other, independently motivated grammatical principles. It was then shown that

- (56)(a) the inability of PP-preposing and PP-over-V to move the nonhead constituent of a verb-particle combination could be argued to follow from the ECP, given current definitions of notions such as 'government', 'proper government', and 'barrier';
- (b) the syntactic cohesiveness of verb-particle combinations with respect to V-raising could be accounted for by assuming that V-raising affects a nonminimal projection of V, the content of the notion 'nonminimal projection' to be made precise;
- (c) the syntactic cohesiveness of verb-particle combinations with respect to Gapping could be argued to follow from the Recoverability Condition; and
- (d) the ability of particles to appear adjacent to the verb in progressive constructions could be argued to follow straightforwardly from the claim that verb-particle combinations are compound verbs.

The second problem that the syntactic behaviour of verb-particle combinations poses for a syntactic compound analysis is that of explaining why V-second and *ge-* affixation are not subject to the principles that could be argued to be responsible for the cohesiveness of verb-particle combinations with respect to the rules mentioned in (56) and for the cohesiveness of compound structures generally. It was shown that

- (57)(a) the fact that the head of a verb-particle combination rather than the compound verb as a whole is affected by V-second and *ge-* affixation could be accounted for by assuming the head of the compound to be the minimal projection of V;
- (b) the possibility of moving the head of a compound verb (by V-second) vis à vis the impossibility of moving the head of any other compound  $X^0$  could be accounted for by assuming that the presence of more than one  $X^0$  node between an antecedent and its trace constitutes a barrier either to government or to movement.

In the following paragraph we shall briefly consider the remaining properties of verb-particle combinations, once again with the aim of establishing whether or not any special assumptions would need to be made in order to account for the fact that verb-particle combinations exhibit these properties, given the syntactic compound analysis outlined above.

#### 6.3.3.2 Other properties

Consider first the ability of verb-particle combinations in Afrikaans to serve as bases of word formation rules. This property was illustrated in par. 2.6 above. Examples of possible complex words in which some of the verb-particle combinations shown in (7) occur as nonhead constituents are provided in (58).

- (58)(a) Derivation (affixes are capitalized):

|                       |                         |
|-----------------------|-------------------------|
| $[GE \ [af + kyk]]_N$ | $[[op + gooi] \ ERY]_N$ |
| AFFIX off look        | up throw -ing           |
| 'cribbing'            | 'vomiting'              |

|   |  |
|---|--|
| [[ <i>deur + bring</i> ] ER] <sub>N</sub> | [[ <i>oor + skiet</i> ] Ø] <sub>N</sub>          |
| through bring -er                         | over shoot                                       |
| 'spendthrift'                             | 'left-overs'                                     |
| [[ <i>in + loop</i> ] BAAR] <sub>A</sub>  | [[ <i>om + gee</i> ] ERIG] <sub>A</sub>          |
| in walk -able                             | for give -y                                      |
| 'cheatable'                               | 'characterized by a tendency to care (too much)' |

(b) Compounding:

|  |  |
|--|--|
| [[ <i>oor + skiet</i> ][ <i>kos</i> ]] <sub>N</sub>  | [[ <i>by + kom</i> ][ <i>tekens</i> ]] <sub>N</sub>  |
| over shoot food                                      | to come signs  |
| 'left-over food'                                     | 'signs of regaining consciousness'                   |
| [[ <i>op + gooi</i> ][ <i>siekte</i> ]] <sub>N</sub> | [[ <i>onder + sit</i> ] [ <i>hou</i> ]] <sub>N</sub> |
| up throw sickness                                    | under put blow                                       |
| 'vomiting sickness'                                  | 'subduing blow'                                      |

The bracketings indicated in (58) could be argued to be the only possible bracketings given a principle of compositionality --- see par. 2.6 above. In the case of all the forms of (58) the noncompositional meaning of the verb-particle combination is a constituent in the composite meaning of the derived or compound word. Given the principle of compositionality, the verb-particle combination should therefore also be a constituent in the structural representation assigned to these forms.

The ability of verb-particle combinations to occur as non-head constituents of compound and derived words could be argued to pose no problems for a syntactic compound analysis. If it is assumed that the same set of rules and principles are responsible for the formation of both compound and derived words, it follows that structures such as (19) may serve as bases for further compounding and for the attachment of affixes, subject of course to lexical properties of the relevant affixes, e.g. subcategorization properties. 39

Second, consider the characteristic tendency of verb-particle combinations to have noncompositional meanings --- see par. 2.4 --- and idiosyncratic subcategorization properties --- see par. 2.5. Each of the verb-particle combinations in (7) above has been claimed to have a noncompositional meaning. The meanings shown in (59a) could be considered metaphorical, hence not completely nontransparent, whereas those shown in (59b) are clearly idiomatic. Yet neither type of meaning is fully predictable on the basis of the literal meanings of the constituents of the verb-particle combinations concerned and the relation between these constituents.

|         |  |   |
|---------|--|---|
| (59)(a) | <i>af + kyk</i><br>off look<br>'to crib/copy'            | <i>voor + hou</i><br>before hold<br>'to present'              |
|         | <i>onder + sit</i><br>under put<br>'to overpower/subdue' | <i>by + kom</i><br>to come<br>'to regain consciousness'       |
| (b)     | <i>sit + vaar</i><br>out fare/sail<br>'to rail (at)'     | <i>in + loop</i><br>in walk<br>'to cheat'                     |
|         | <i>om + gee</i><br>for give<br>'to care'                 | <i>deur + bring</i><br>through bring<br>'to squander (money)' |

An illustration of the ability of verb-particle combinations to have subcategorization properties that differ from those of their verbal head is provided in (60).

- (60)(a) i. *Hy kyk NA n TV-program.*  
he looks at a TV programme  
'He watches a TV programme.'
- ii. *Hy kyk BY sy maat af.*  
he looks from his friend off  
'He cribs from his friend.'

- (b) i. *Die skelm loop* (vinnig/saggies/op sy tone).  
the crook walks (fast /quietly/on his toes)  
'The crook walks (fast/quietly/on his toes).'
- ii. \**Die skelm loop HOM* (vinnig/saggies/op sy tone).  
the crook walks him (fast /quietly/on his toes)  
'The crook walks him (fast/quietly/on his toes).'
- iii. \**Die skelm loop in*.  
the crook walks in  
'The crook cheats.'
- iv. *Die skelm loop HOM in*.  
the crook walks him in  
'The crook cheats him.'

It is clear from (60a) that the verb-particle combination *af-kyk* and its verbal head *kyk* subcategorize for different prepositions. The sentences in (60b) show that, whereas the verb-particle combination *inloop* takes an obligatory direct object NP, its verbal head *loop* is an intransitive verb.

The characteristic semantic noncompositionality and (often) idiosyncratic subcategorization of verb-particle combinations would pose no problem for the analysis of verb-particle combinations outlined above. Both Sproat (1985:493) and Lieber (to appear:6) assume that all idiosyncratic forms of a language, be they morphemes, roots, simple words, complex words, phrases, or sentences, must be listed in the lexicon. Their lexical entries could thus be argued to display their idiosyncratic properties, including, where relevant, noncompositional meanings and idiosyncratic subcategorization. Insofar as they have regular syntactic, phonological, and semantic properties, these properties would be specified by the syntactic, phonological, and semantic rules of the language.<sup>40</sup> The fact that (some of) the morphosyntactic properties of verb-particle combinations could be argued to be predictable on the basis of syntactic rules and principles, would not be inconsistent with the claim that they are listed in the lexi-



con by virtue of having noncompositional meanings and/or idiosyncratic subcategorization properties. Neither would the fact of their being listed in the lexicon rule out the possibility of their having regular syntactic and semantic properties that could be accounted for on the basis of an analysis such as that outlined above.

Third, verb-particle combinations were shown in par. 2.8 to display a stress pattern similar to that of compound words. That is, they have primary stress on the nonhead constituent, as shown in (61) where "´" indicates primary stress.

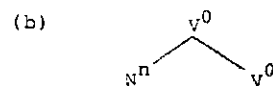
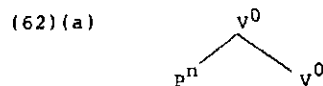
- (61)      *á*f + *kyk*                      *ó*p + *gooi*  
          *vó*or + *hou*                      *ó*m + *gee*  
          *in* + *loop*                        *ó*nder + *sit*

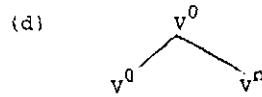
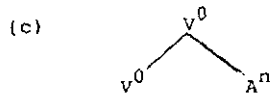
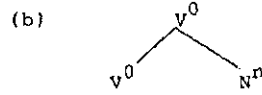
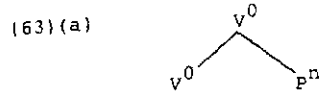
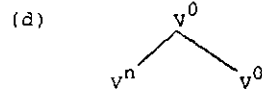
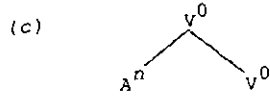
I shall do no more than note that an analysis on which verb-particle combinations are claimed to be compounds is not inconsistent with the facts shown in (61).

#### 6.3.4 Some empirical consequences

In this paragraph some of the predictions made by a syntactic compound analysis about possible compound verb structures in Afrikaans will be examined in more detail.

Recall that Lieber's generalized set of syntactic principles were shown in par. 6.3.2 to predict that all of the structures in (62) should be possible verb compound structures in Afrikaans, whereas the structures in (63) should be ruled out as impossible.<sup>41</sup>





Let us consider these predictions. In addition to verb-participle combinations, which have been assumed to be instances of (62a), Afrikaans also has compound verbal expressions such as the following:

(64)(a) Nominal constituent + V

|                       |                     |
|-----------------------|---------------------|
| <i>toneel + speel</i> | <i>geluk + wens</i> |
| play act              | joy/luck wish       |
| 'to play-act'         | 'to congratulate'   |
| <br>                  |                     |
| <i>tuin + maak</i>    | <i>vis + vang</i>   |
| garden make           | fish catch          |
| 'to garden'           | 'to angle'          |

(b) Adjectival constituent + V

|                    |                     |
|--------------------|---------------------|
| <i>mooi + maak</i> | <i>dood + skiet</i> |
| pretty make        | dead shoot          |
| 'to tittivate'     | 'to shoot dead'     |
| <br>               |                     |
| <i>seer + kry</i>  | <i>toe + sluit</i>  |
| hurt get           | closed lock         |
| 'to get hurt'      | 'to lock'           |

(c) Verbal constituent + V

|                  |                          |
|------------------|--------------------------|
| <i>ry + loop</i> | <i>skater + lag</i>      |
| ride walk        | peal laugh               |
| 'to hitch-hike'  | 'to shout with laughter' |
| <i>sit + lê</i>  | <i>draf + stap</i>       |
| sit lie          | jog walk                 |
| 'to lounge'      | 'to jogtrot'             |

There is evidence that, like verb-particle combinations, expressions such as those exemplified in (64) should be assigned a compound structure. Thus, these expressions can appear in the position following *aan die/t* in progressive constructions, a position which can be occupied only by bare infinitives and not by phrases, as we have seen. Thus, compare (65).

- (65)(a) i. *Sy is alweer aan 't tuin + maak.*  
she is again PROGRESSIVE garden make  
'She is gardening again.'
- ii. \**Sy is alweer aan 't n tuin maak.*  
she is again PROGRESSIVE a garden make  
'She is laying on a garden again.'
- (b) i. *Hy is die deure aan 't toe + sluit.*  
he is the doors PROGRESSIVE closed lock  
'He is locking the doors.'
- ii. \**Hy is die deure aan 't met die sleutel sluit.*  
he is the doors PROGRESSIVE with the key lock  
'He is locking the doors with the key.'
- (c) i. *Hulle is nog steeds aan 't ry + loop.*  
they are yet still PROGRESSIVE ride walk  
'They are still hitch-hiking.'
- ii. \**Hulle is nog steeds aan 't stadig loop.*  
they are yet still PROGRESSIVE slowly walk  
'They are still walking slowly.'

Also, the lefthand constituent of the expressions in (64) do not freely allow specifiers, prehead modifiers, and complements, a property which is assumed by, e.g., Fabb (1984:143), Sproat (1985:par. 3.3), and Di Sciullo and Williams (1987: 50, 80) to be related to the fact that the constituents of syntactically complex words are typically nonreferential.<sup>42</sup> Thus, compare (65) above with (66) immediately below.

- (66)(a) \*Sy is alweer aan 't [haar tuin] + maak.  
she is again PROGRESSIVE her garden make
- (b) \*Hy is die deure aan 't [hermeties toe] + sluit.  
he is the doors PROGRESSIVE hermetically closed lock
- (c) \*Hulle is nog steeds aan 't [in 'n motor ry]  
they are yet still PROGRESSIVE in a car drive  
+ loop.  
walk

Another indication that the lefthand constituents of, at least, the combinations in (64a) are nonreferential is the fact that they are characteristically assigned a generic rather than a specific interpretation. Thus, *toneel* ('play') in *toneelspeel* ('to play-act') refers not to a specific play but, generically, to the kind of object denoted by the word *toneel*; *tuin* ('garden') in *tuinmaak* ('to garden') refers not to any specific garden, but to gardens in general, etc. The impossibility of assigning the nominal lefthand constituents of these combinations a nongeneric interpretation can only be explained by assuming that the nominal constituent is an N rather than an NP. Since reference is associated with maximal projections (hence NP) according to, e.g., Di Sciullo and Williams (1987:50) and Sproat (1985:336), assignment of the category N<sup>0</sup> to the nominal constituent of the combinations in (64a) predicts their nonreferentiality, hence their generic interpretation. A compound analysis of the combinations in (64a) above therefore could be argued to be the only analysis

that can account for the generic interpretation of the nominal constituent of these combinations. Although the nonreferentiality of the combinations in (64b, c) cannot be demonstrated as strikingly, it is clear that the properties of these combinations are otherwise identical to those of the combinations in (64a). It could therefore be argued that the former combinations should be assigned the same type of analysis, i.e. a compound analysis, as the combinations in (64a). Hence, the predictions shown in (62a-d) could be concluded to be correct at least in those cases where the category level of the non-head constituent is  $X^0$ .

Before considering the question of whether phrases can occur as nonhead constituents of compound verbs, as predicted on Lieber's theory, let us digress slightly to consider a consequence of the claim that NV and AV compounds such as those exemplified in (64a, b) are compounds. Note that this claim would pose a further problem for two assumptions made by Lieber. Recall that Lieber assumes (i) that all complements are maximal projections --- see (25) above --- and (ii) that Case can be assigned only within a nonminimal projection. The lefthand N and A constituents of the compound verbs in (64a, b), however, could be argued to be complements of the verbal head. Thus, for example, *vis* ('fish') in *visvang* ('to catch fish/to fish') bears exactly the same thematic relation to *vang* ('to catch') as does *vis* in the phrase *om n vis te vang* ('to catch a fish'). That *vis* in *visvang* functions as a subcategorized complement is also indicated by the fact that *vang* cannot occur without it, as shown by the ill-formedness of *\*Ek gaan gou \_\_\_ vang* ('I am going to catch quickly'). Similarly, *mooi* ('pretty') in *mooimaak* ('to make pretty/to tittivate') could be argued to function as a subcategorized complement by virtue of the fact that *maak* cannot occur without it, as shown by the ill-formedness of *\*dat sy haar gedurig \_\_\_ maak* ('that she is perpetually making herself'). However, if the N and A constituents of NV and AV compounds were assumed to be complements, then they would have to be assigned theta roles. For example, *vis* in *visvang* would have to be as-

signed a Theme role. In order to be assigned a theta role a constituent must have Case --- see, e.g., (Fabb 1984:42f). It would have to be concluded, therefore that (i) the left-hand constituents of compound verbs can be complements and (ii) Case can be assigned within a minimal projection.

The latter conclusion would be problematic within Lieber's framework, where any  $X^0$  is assumed to be a minimal projection. However, this conclusion could be argued to be unproblematic given a revised definition of the notion 'projection of category  $X^n$ ', such as that proposed by Fabb --- see the discussion in par. 6.3.2 above. On the latter definition the compound node  $X^0$  would be a projection of its head  $x^0$ . Hence the compound node  $X^0$  could be argued not to be a minimal projection and Case assignment to the nonhead constituent of the compound would not be ruled out. The assumption that the head  $x^0$  of a compound and not the compound node itself counts as the minimal projection of  $X^n$  has been shown to be required to account for the behaviour of verb-particle combinations with regard to V-second and *ge-* affixation as well --- see par. 6.3.3.1.2 above. The fact that it could also serve as a basis for explaining properties of the nonhead constituent of NV and AV compounds could be argued to constitute independent evidence for this assumption.

To return to the main theme of this section, let us consider the question of whether phrasal constituents can occur in the nonhead position of compound verbs in Afrikaans as predicted. This prediction is difficult to test as it is not clear how an XP-V compound can be distinguished from a phrasal XP-V sequence. The indications are, however, that the nonhead constituent of a compound verb, cannot be a phrase, as evidenced by the ill-formedness of the (ii)-sentences in (65) and the sentences in (66) above.

There are a number of PP-V collocations in Afrikaans that appear to contradict the claim that XP-V compounds are impossible in Afrikaans. These collocations exhibit properties

similar to those of verb-particle combinations. A few representative examples are provided in (67).

- (67)(a) [ter dood]<sub>pp</sub> [veroordeel]<sub>v</sub>  
to death condemn  
'to condemn to death'
- (b) [hand + uit]<sub>pp</sub> [ruk]<sub>v</sub>  
hand out pull  
'to get out of hand'
- (c) [ten laste]<sub>pp</sub> [lê]<sub>v</sub>  
to burden lay  
'to hold (someone) responsible for'
- (d) [tot niet]<sub>pp</sub> [maak]<sub>v</sub>  
to void make  
'to destroy'

In (68) it is shown for *handuit ruk* that collocations such as those in (68) are syntactically cohesive with regard to V-raising (68a), PP-preposing (68b), and the progressive construction (68c).

- (68)(a) i. ?Die kinders sou dalk [handuit e] kon ruk.  
the children would perhaps hand out could pull  
'The children could possibly get out of hand.'
- ii. Die kinders sou dalk [ e e ] kon handuit ruk.  
the children would perhaps could hand out pull
- (b) i. \*Handuit sal hulle tog seker nie ruk nie!  
hand out will they surely not pull not  
'They will surely not get out of hand!'
- ii. Hulle sal tog seker nie handuit ruk nie!  
they will surely not hand out pull not

- (c) i. \*Die kinders is handuit aan 't ruk.  
the children are hand out PROGRESSIVE pull  
'The children are getting out of hand.'
- ii. Die kinders is aan 't handuit ruk.  
the children are PROGRESSIVE hand out pull

On the strength of similarities such as these between the behaviour of PP-V collocations such as those exemplified in (67) and that of verb-particle combinations, it could be argued that the former collocations should be analyzed as compound verbs as well. It should be noted, however, that there are only a handful of PP-V collocations such as those of (67) which exhibit the syntactic cohesiveness of compound verbs in Afrikaans. The majority of PP-V sequences are syntactically noncohesive and therefore analyzable as phrases. This point can be illustrated by comparing the syntactic behaviour of the collocation {*uit die hand*}<sub>pp</sub>{*verkoop*}<sub>v</sub> in (69) with that of *handuit ruk* in (68).

- (69)(a) i. *Ons sou die motor [uit die hand e] kon verkoop.*  
we would the car out the hand could sell  
'We could possibly sell the car privately.'
- ii. \**Ons sou die motor [e e] kon uit die hand verkoop.*  
we would the car could out the hand sell  
verkoop.
- (b) i. *Uit die hand kan jy dit nie verkoop nie!*  
out the hand can you it not sell not  
'You cannot sell it privately!'
- ii. *Jy kan dit nie uit die hand verkoop nie.*  
you can it not out the hand sell not
- (c) i. *Hy is die motor uit die hand aan't verkoop.*  
he is the car out the hand PROGRESSIVE sell  
'He is selling the car privately.'



- ii. \*Hy is die motor aan't uit die hand verkoop.  
he is the car PROGRESSIVE out the hand sell

Apart from an unproductive class of PP-V collocations such as those exemplified in (67), it appears, therefore, that Afrikaans does not have compound verbs of which the nonhead constituent is a phrase. This is contrary to the prediction made by Lieber's generalized syntactic principles set out in par. 6.3.2 above. By contrast, the prediction that compound verbs with the structures shown in (63) are impossible in Afrikaans appears to be correct. No leftheaded compound verbs exist in Afrikaans.

It appears, therefore, that, apart from verb-particle combinations, only complex verbal expressions with a noun, adjective or verb as lefthand constituent could possibly be argued to be compound verbs in Afrikaans. If they were to be assigned the structure of compound verbs, like verb-particle combinations, they would be predicted to display exactly the same syntactic behaviour as the latter combinations. This prediction is borne out, at least with respect to NV and AV combinations in Afrikaans. NV and AV combinations behave like verb-particle combinations in that their constituents are obligatorily separated by V-second, as shown in (70), they take the inflectional affix *ge-* internally, as shown in (71), and their constituents are adjacent after V-raising, as illustrated in (72).

- (70)(a) i. Sy maak in die lente tuin.  
she makes in the spring garden  
'She gardens in spring.'
- ii. \*Sy tuinmaak in die lente.  
she gardens in the spring
- (b) i. Hy sluit al die deure toe.  
he locks all the doors closed  
'He locks all the doors.'

- ii. \*Hy toesluit al die deure.  
he locks all the doors
- (71)(a) i. Sy het in die lente tuin + GEmaak.  
she has in the spring garden AFFIX make  
'She gardened in springtime.'
- ii. \*Sy het in die lente GE + tuinmaak.  
she has in the spring AFFIX garden
- (b) i. Hy het al die deure toe + GEsluit.  
he has all the doors closed AFFIX lock  
'He has locked all the doors.'
- ii. \*Hy het al die deure GE + toesluit.  
he has all the doors AFFIX lock
- (72)(a) i. Sy sal altyd [e e] bly tuin + maak.  
she will always keep on garden make  
'She will always keep on gardening.'
- ii. ?Sy sal altyd [ tuin e] bly maak.  
she will always garden keep on make
- (b) i. Hy het [al die deure e e] bly toe + sluit.  
he has all the doors closed keep on lock  
'He kept on locking all the doors.'
- ii. Hy het [al die deure toe e] bly sluit.  
he has all the doors closed keep on lock

A small number of NV combinations in Afrikaans do not behave as predicted. Consider, for example, the following:

- (73)(a) i. Hy hand + groet almal wat hy teëkom.  
he hand greets everybody that he meets  
'He greets everybody he meets by hand.'
- ii. \*Hy groet almal wat hy teëkom hand.  
he greets everybody that he meets hand

- (b) i. *Die perd bok + spring wild.*  
the horse buck jumps wildly  
'The horse bucks wildly.'
- ii. \**Die perd spring wild bok.*  
the horse jumps wildly buck
- (c) i. *Hulle brein + spoel die gevangenes.*  
they brain wash the prisoners  
'They brainwash the prisoners.'
- ii. \**Hulle spoel die gevangenes brein.*  
they wash the prisoners brain

In each of the NV combinations above, both constituents, rather than the verb alone, are fronted by V-second. These combinations also do not take the inflectional affix *ge-* internally. Thus we have (74).

- (74)(a) *GE[hand + groet] - \*[hand][GE + groet]*  
'greeted by hand'
- (b) *GE[bok + spring] - \*[bok][GE + spring]*  
'bucked'
- (c) *GE[brein + spoel] - \*[brein][GE + spoel]*  
'brainwashed'

In contrast to NV combinations such as those of (64a) which occur productively in Afrikaans, the combinations exemplified here are highly restricted in number and cannot be productively formed. Also, they clearly have metaphorical meanings. It could be argued therefore that they are lexicalized compounds which, as a result of their being listed in the lexicon, have also acquired the idiosyncratic property of syntactic cohesiveness. This would account for the fact that they differ in syntactic behaviour from NV compounds, such as those of (64a), with which they are structurally identical.

A first potential problem with such an account of the facts in (73) and (74) would be that it could not serve as a basis for explaining why lexicalization results in syntactic cohesiveness in the case of NV compounds, but not in the case of verb-particle combinations which have been assumed to be PV compounds. A second potential problem arises from the fact that, in addition to NV compounds such as those exemplified in (73)-(74), the class of syntactically cohesive compound verbs also includes all the VV compounds and a number of PV compounds. Thus, VV combinations such as those of (64c) do not pattern like verb-particle combinations with regard to V-second and inflectional affixation, as shown in (75) and (76) respectively.

(75)(a) *Hy ryloop na sy meisie toe.*  
he hitch-hikes to his girl to  
'He hitch-hikes to (where) his girlfriend (is).'

(b) \**Hy loop na sy meisie toe ry.*  
he walks to his girl to ride

(76)(a) *Hy het GE + ryloop.*  
he has AFFIX hitch-hike  
'He hitch-hiked.'

(b) \**Hy het ry + GEloop*  
he has ride AFFIX walk

Consider also the PV combinations shown in (77).

(77)(a) *Hy oor + werk homself heeltemal.*  
he over work himself completely  
'He completely overworks himself.'

(b) *Hulle om + seil eenvoudig die beperkings.*  
they around sail simply the restrictions  
'They simply circumvent the restrictions.'

- (c) Sy deur + boor hom met haar blik.  
she through drills him with her look  
'She casts him a piercing look.'
- (d) Vinnige optrede voor + kom ongelukke.  
quick action before comes accidents  
'Quick action prevents accidents.'

The underlined syntactically complex verbs in (77a-d) resemble verb-particle combinations in that they consist of a preposition/adverb/particle and a verb. However, the combinations in (77) differ from verb-particle combinations in that their constituents are not syntactically separable. Thus, it is clear from (77) that both the preposition and the verb are fronted by the rule of V-second in root clauses. In addition, these verbs do not take the inflectional affix *ge-* internally, as shown in (78).

- (78)(a) Hy het homself heeltemal oorwerk/\*oorgewerk.  
he has himself completely overworked  
'He completely overworked himself.'
- (b) Hulle het eenvoudig die beperkings omseil/\*omgeseil.  
they have simply the restrictions circumvented  
'They simply circumvented the restrictions.'
- (c) Sy het hom met haar blik deurboor/\*deurgeboor.  
she has him with her look pierced  
'She pierced him with her look.'
- (d) Haar vinnige optrede het n ongeluk voorkom/\*voorgekom.  
her quick action has an accident prevented  
'Her quick action prevented an accident.'

The question is how the syntactic cohesiveness of the VV and PV combinations exemplified in (75)-(76) and (77)-(78) respectively could be accounted for given a syntactic compound analysis such as that outlined above. A first possibility would

be to argue, exactly as in the case of the inseparable NV combinations in (73)-(74) above, that the combinations in question have become lexicalized as a result of having acquired a specialized meaning by metaphorical extension. Their syntactic cohesiveness could then be argued to be the result of their lexicalization. Once again, however, it could be argued that such an account would be problematic because it cannot explain why lexicalization results in syntactic cohesiveness in the case of VV compounds and the PV compounds in question, but not in the case of verb-particle combinations.

In the case of VV and PV compounds, such an account would be problematic for other reasons as well. First, as regards VV compounds, notice that it is not just a restricted subset of VV compounds that exhibit the exceptional property in question. All VV compounds are syntactically cohesive in Afrikaans. Moreover, not all VV compounds have metaphorical or otherwise noncompositional meanings by virtue of which they could be claimed to have become lexicalized. For example, VV compounds with a coordinative meaning, such as those shown in (79), have a fully compositional meaning which could be claimed not to require listing in the lexicon.

|      |                                   |                                   |
|------|-----------------------------------|-----------------------------------|
| (79) | <i>sit + lê</i>                   | <i>huil + kreun</i>               |
|      | sit lie                           | cry groan                         |
|      | 'to lounge'                       | 'to cry and groan simultaneously' |
|      | <i>stoot + trek</i>               | <i>sê + vra</i>                   |
|      | push pull                         | say ask                           |
|      | 'to push and pull simultaneously' | 'to say and ask simultaneously'   |

Thus it appears (i) that there are no VV compounds that display the syntactic noncohesiveness that all compound verbs are predicted to display on a syntactic compound analysis, and (ii) that some syntactically cohesive VV compounds are

fully compositional in meaning. Facts such as these could not be explained by claiming that the compounds in question have become lexicalized and, hence, syntactically cohesive by virtue of having acquired a metaphorical meaning.

Second, in addition to being syntactically cohesive, PV combinations such as those in (77)-(78) all exhibit an idiosyncratic stress pattern, a fact that could not be explained by an account in terms of lexicalization analogous to that provided for inseparable NV compounds. Thus, notice that the stress pattern of PV combinations such as those of (77)-(78) above differs systematically from that of verb-particle combinations. The stress pattern of the PV combinations discussed above is shown in (80a) and that of the corresponding verb-particle combinations is shown in (80b), where "ˈ" indicates primary stress.

|  |   |
|--|---|
| <p>(80)(a) <i>oor + wérk</i><br/>over work<br/>'to overwork'</p> <p><i>deur + búor</i><br/>through drill<br/>'to pierce'</p> <p><i>om + séil</i><br/>around sail<br/>'to circumvent'</p> <p><i>voor + kóm</i><br/>before come<br/>'to prevent'</p> | <p>(b) <i>óor + werk</i><br/>over work<br/>'to work over'</p> <p><i>déur + boor</i><br/>through drill<br/>'to drill through'</p> <p><i>óm + seil</i><br/>around sail<br/>'to circumnavigate'</p> <p><i>vóor + kom</i><br/>before come<br/>'to get to the front'</p> |
|--|---|

It could be argued that items in the lexicon may acquire idiosyncratic stress properties in the same way that they may acquire idiosyncratic syntactic properties such as syntactic cohesiveness. However, an account in terms of lexicalization would not be able to explain why all and only this particular

set of lexicalized PV compounds acquired the property in question. For, notice that neither the NV nor the VV compounds that could be argued to be lexicalized exhibit the stress pattern in question.

An account of the problematic properties of inseparable NV, VV, and PV combinations in terms of lexicalization would therefore have to be concluded to be problematic. First, such an account could not explain why only these combinations, and not lexicalized verb-particle combinations, acquire the idiosyncratic property of syntactic cohesiveness. Second, such an account could not explain why all VV compounds, including those with a fully compositional meaning, are lexicalized. And, third, such an account could not explain why all and only inseparable lexicalized PV compounds acquire an idiosyncratic stress pattern.

In the case of inseparable PV compounds, there could be argued to be a possible alternative account to the one outlined above. On this alternative account inseparable PV strings would be argued to be derived words rather than compounds. If they could be successfully argued to be derived words rather than compounds, their syntactic cohesiveness would no longer pose a problem for the syntactic compound analysis outlined above. Three pieces of evidence could be adduced in support of the claim that inseparable PV strings should be analyzed as derived words rather than compounds. The first piece of evidence is their syntactic cohesiveness. On the syntactic compound analysis assumed here, compound verbs are predicted to be syntactically non-cohesive under certain conditions. However, the constituents of the PV strings in question cannot be separated under the relevant conditions. By contrast, their syntactic cohesiveness would follow from an analysis on which the lefthand constituent was assumed to be a bound morpheme, e.g. a prefix, that was lexically specified to be a sister to a category of a certain type, a verb in this case, at all syntactic levels of representation.<sup>43</sup>



The second piece of evidence that could be adduced in support of the claim that inseparable PV strings should be analyzed as derived words concerns their characteristic stress pattern. Thus, compare (81a) which shows the stress pattern of the PV combinations in (77)-(78) above, and (81b) which shows the stress pattern of prefixed words in Afrikaans.

|  |  |
|--|--|
| <p>(81)(a) <math>[[oor][wérk]_V]_V</math><br/>         over work<br/>         'to overwork'</p> <p><math>[[deur][bóor]_V]_V</math><br/>         through drill<br/>         'to pierce'</p> <p><math>[[om][séil]_V]_V</math><br/>         around sail<br/>         'to circumvent'</p> <p><math>[[voor][kóm]_V]_V</math><br/>         before come<br/>         'to prevent'</p> | <p>(b) <math>[[be][wérk]_V]_V</math><br/>         be- work<br/>         'to cultivate'</p> <p><math>[[her][bóor]_V]_V</math><br/>         re- drill<br/>         'to redrill'</p> <p><math>[[ver][séil]_V]_A</math><br/>         AFFIX sail<br/>         'mixed up (with)'</p> <p><math>[[ont][kóm]_V]_V</math><br/>         un- come<br/>         'to escape'</p> |
|--|--|

It is clear from a comparison of (81a) and (81b) above that the stress properties of inseparable PV strings would be consistent with the claim that they are prefixed words.

A third piece of evidence that could be adduced in support of this claim concerns the inflectional properties of inseparable PV strings. Thus, it was shown in (78) above that the inflectional affix *ge-* can be deleted in the past participle forms of the combinations in question. This property too is characteristic of prefixed words in Afrikaans, as illustrated for the PV strings in (82a) and for prefixed words in (82b).<sup>44</sup>

- (82)(a) [ge-*oorwérk*]<sub>v</sub>]<sub>vprt</sub> - [∅ [*oorwérk*]<sub>v</sub>]<sub>vprt</sub>  
[ge-*deurbóor*]<sub>v</sub>]<sub>vprt</sub> - [∅ [*deurbóor*]<sub>v</sub>]<sub>vprt</sub>  
[ge-*omséil*]<sub>v</sub>]<sub>vprt</sub> - [∅ [*omséil*]<sub>v</sub>]<sub>vprt</sub>  
[ge-*voorkóm*]<sub>v</sub>]<sub>vprt</sub> - [∅ [*voorkóm*]<sub>v</sub>]<sub>vprt</sub>
- (b) [ge-*bewérk*]<sub>v</sub>]<sub>vprt</sub> - [∅ [*bewérk*]<sub>v</sub>]<sub>vprt</sub>  
[ge-*herbóor*]<sub>v</sub>]<sub>vprt</sub> - [∅ [*herbóor*]<sub>v</sub>]<sub>vprt</sub>  
[ge-*ontkóm*]<sub>v</sub>]<sub>vprt</sub> - [∅ [*ontkóm*]<sub>v</sub>]<sub>vprt</sub>

Given the similarities mentioned above between inseparable PV strings such as those exemplified in (77)-(78) on the one hand and prefixed words on the other hand, it could be argued that the PV strings in question should be analyzed as derived words and not as compounds. On such an analysis, the prepositions occurring as the lefthand constituents of the relevant PV strings would be claimed to be prefixes. The claim that the prepositions in question are prefixes which are homophonous with a preposition or adverb has often been made with respect to the corresponding Dutch and German forms.<sup>45</sup> The claim is not unproblematic, however.

First, as is clear from a comparison of the (a)- and (b)-forms in (80), every inseparable PV string is related in meaning to a corresponding verb-particle combination. Specifically, the meaning of the inseparable PV string could be argued to be a metaphorical extension of the meaning of the related verb-particle combination. No other (class of) derived words is related to (a class of) compound words in the same way. Claiming that the prepositional constituents of inseparable PV strings are prefixes, would entail claiming that the PV strings in which they occur are unrelated to the corresponding verb-particle combinations, clearly an undesirable consequence. Second, if prepositions/adverbs such as *oor*, *om*, *deur*, and *voor* were to be assigned the status of prefixes, they would constitute a unique class of affixes in

Afrikaans. No other affixes in Afrikaans have been claimed to occur as free morphemes as well. An account of the properties of inseparable PV compounds based on the claim that the prepositions *oor*, *om*, *deur*, and *voor* occurring in such compounds are prefixes, would therefore have to be concluded to be potentially problematic as well.

In the absence of a well-motivated account of the problematic properties of inseparable NV, VV, and PV compounds in Afrikaans, these properties would have to be assumed to be stipulated in the lexicon. This was shown to be an undesirable step, particularly in the case of inseparable VV and PV compounds.

Thus, on the one hand, a syntactic compound analysis could be shown to provide a basis for predicting both the existence and the properties of separable NV and AV compounds in Afrikaans. On the other hand, however, it has been shown not to provide a well-motivated basis for explaining either the existence or the properties of inseparable NV, VV, and PV compounds such as those discussed above.

#### 6.3.5 Summary of findings

The aim of par. 6.3 has been to outline a possible analysis of verb-particle combinations in Afrikaans that would be consistent with a conception of the relationship between morphology and syntax such as that accepted by Sproat (1985, 1987) and Lieber (to appear). On the general theory of syntactic word formation accepted by them, the same syntactic, phonological, and semantic rules and constraints that account for the properties of phrases and sentences are assumed to be able to account for the properties of syntactically complex words as well.

In par. 6.3.1 evidence concerning the syntactic properties of verb-particle combinations in Afrikaans was presented in

support of the claim (8a) that verb-particle combinations should be analyzed as compound verbs. The remainder of par. 6.3 was devoted to a critical examination of the kinds of arguments that would have to be presented to support the claim (8b) that, as compound verbs, verb-particle combinations are syntactic constructs, the morphosyntactic properties of which must be accounted for by syntactic rules and constraints. The theoretical devices proposed by Lieber (to appear) to account for the morphosyntactic properties of compound word structures were considered in par. 6.3.2. They were summarized in (31) above. Every one of the modifications proposed by Lieber to generally accepted principles of phrase structure was argued to be problematic on either empirical or theoretical grounds.

The question of the adequacy of a syntactic compound analysis as a basis on which to account for the characteristic cluster of properties exhibited by verb-particle combinations was addressed in par. 6.3.3. A detailed examination was made of the assumptions that would have to be made in order to argue

- (i) that an account of the cohesiveness of compound words with regard to deletion and movement rules could be given on the basis of a syntactic compound analysis that did not assume a principle such as the Lexical Integrity Hypothesis, and
- (ii) that a syntactic compound analysis could serve as a basis for explaining the difference in behaviour exhibited by verb-particle combinations with regard to movement rules such as PP-preposing and PP-over-V (and possibly V-raising) on the one hand, and the rule of V-second on the other hand.

It was argued that both the account of (i) and the explanation of (ii) could be given partly in terms of independently motivated syntactic notions such as 'trace', 'antecedent', 'government', 'proper government' and 'barrier', the syntactic

rule Move  $\alpha$ , the syntactic parameter specifying the possible projection levels of V at which V-raising may apply, a syntactic constraint such as the ECP, and a semantic constraint such as the Recoverability Condition. However, it became clear that, in addition to these independently motivated theoretical notions, rules and conditions, a number of notions/conditions would have to be assumed for which no such independent motivation existed and which could therefore be argued to be problematic. Thus, it was argued that, in order to provide the account of (i) and the explanation of (ii), the additional language-specific assumptions of (83) and general linguistic assumptions of (84) would have to be made.

- (83)(a) The constituent moved by the rule of PP-over-V in Afrikaans must be adjoined to VP (par. 6.3.3.1.1).
- (b) V-raising affects a nonminimal projection of V in Afrikaans (par. 6.3.3.1.2).
- (84)(a) The head of a syntactically complex category  $X^0$  rather than  $X^0$  itself is the minimal projection of  $X^n$  (par. 6.3.3.1.2).
- (b) A notion 'nonminimal projection of V' can be defined in terms of which the correct predictions will be made about possible and impossible V-raising constructions in Afrikaans.
- (c) I; the head of INFL, assigns a theta role to its complement VP (par. 6.3.3.1.2).

Moreover, it was argued in par. 6.3.3.1.2, that the difference in syntactic cohesiveness between compound verbs on the one hand, and compound nouns and adjectives on the other hand could be explained only if the following assumption was made:

- (85) The notion 'barrier' can be defined in such a way that the presence of more than one  $X^0$  node between an antecedent and its trace would constitute a barrier to either government or movement.

The assumptions (84a), (84b) and (85) in particular could be argued to require a nontrivial modification of current syntactic theory on which it is claimed that (i) the notion 'projection of  $X^n$ ' is defined as ' $X^{n+1}$ ', --- but see the discussion in par. 6.3.2 --- (ii) the notion 'minimal projection of  $X^n$ ' is defined as ' $X^0$ ', and (iii) only a maximal projection, i.e. XP, can be a barrier to government/movement under the appropriate conditions. The possible theoretical and empirical consequences of these modifications have not been systematically investigated. They may be expected to be far-reaching and certainly not unproblematic.

It was argued that the following properties of verb-particle combinations in Afrikaans could be accounted for with the aid of independently motivated assumptions on a syntactic compound analysis: (i) the ability of verb-particle combinations to occur in the position following *aan die/'t* in progressive constructions --- see par. 6.3.3.1.3, (ii) the ability of verb-particle combinations to serve as the bases of word formation rules --- see par. 6.3.3.2, and (iii) the characteristic noncompositionality and idiosyncratic subcategorization exhibited by verb-particle combinations --- see par. 6.3.3.2.

And, finally, it was shown in par. 6.3.4 that a syntactic compound analysis could be argued to provide a basis for predicting both the existence and the properties of separable NV and AV compounds in Afrikaans. However, it was also shown that neither the existence nor the properties of inseparable NV, VV, and PV compounds could be accounted for on the basis of a syntactic compound analysis such as that outlined above. Thus, unless the following assumption was made,

the existence and properties of these compounds could be argued to constitute counterevidence to a syntactic compound analysis:

- (86) The properties of inseparable NV, VV and PV compounds are stipulated in the lexicon.

The latter assumption was argued to be problematic, particularly as far as inseparable VV and PV compounds are concerned.

#### 6.4 Assessment

In par. 6.2 above two possible alternative construals of the relationship between morphology and syntax were outlined. One of these, viz. the construal of this relationship assumed on a theory of syntactic word formation such as that proposed by Sproat (1985, 1987) and Lieber (to appear), was assumed in par. 6.3 as a framework for the analysis of verb-particle combinations in Afrikaans. On this construal a theory of morphology/word formation and a theory of syntax are taken to be one and the same theory. That is, it is assumed that the properties of word structure can be accounted for by a theory of syntax.

It appeared from the discussion in par. 6.3 that, in order to account for the formal and other (morpho)syntactic properties of verb-particle combinations on the basis of a syntactic compound analysis, a number of modifications would have to be made to currently accepted versions of the GB theory of syntax. These modifications included modifications to  $\bar{X}$  theory such as those proposed by Lieber --- see par. 6.3.2 --- and the redefinition of structural notions such as 'barrier' and structural relations such as 'projection of category  $X^N$ ' along the lines indicated in par. 6.3.3.1. The problematic nature of these modifications has been made clear. It remains

to consider the question of what may be learnt from the problematic nature of these modifications about the potential adequacy of a theory of syntactic word formation as a framework for the description of the properties of syntactically complex words. Before doing so, however, let us consider the question of what the merits of a syntactic compound analysis such as that outlined above could be argued to be.

First, at a language-specific level, the analysis could be argued to be able to account for the problematic properties of Afrikaans verb-particle combinations discussed in chapter 2. In addition to accounting for these properties, the analysis could be argued to have the further advantage of being able to explain why verb-particle combinations exhibit at least some of these properties. Recall that the analyses of Dutch verb-particle combinations discussed in chapters 3 and 4 were criticized for failing to provide a principled basis for explaining why verb-particle combinations behave cohesively with regard to rules such as PP-preposing, PP-over-V, and V-raising on the one hand, but not with regard to rules such as V-second and *ge-* affixation on the other hand. On a syntactic compound analysis, the internal structure of syntactically complex verbs is assumed to be part of phrase structure and, hence, accessible to syntactic rules. Given this assumption, the difference in cohesiveness displayed by verb-particle combinations with regard to the two classes of rules could be argued to be related to structural properties of the combinations themselves and the configurations in which they appear.

Thus, it could be argued that PP-preposing and PP-over-V cannot apply to the lefthand constituent of a verb-particle combination because the constituent to be moved is the non-head constituent of the structure in which it appears. Movement of a nonhead constituent out of a complex word structure would be systematically excluded by an independently motivated general syntactic principle, viz. the Empty Category Principle. V-second, by contrast, moves the head of the structure underlying verb-particle combinations in Afrikaans. Unlike nonhead



movement, head movement would be allowed by the Empty Category Principle. Hence, a syntactic compound analysis could be argued to provide a principled basis for explaining the contrasting facts concerning the applicability of rules such as PP-preposing and PP-over-V on the one hand and V-second on the other hand to constituents of verb-particle combinations in Afrikaans.

The behaviour of verb-particle combinations with regard to V-raising, too, could be shown to be related to structural properties of these combinations. V-raising has been independently argued to be able to apply to a projection of  $V^0$ . Given that the compound structure underlying verb-particle combinations forms part of the syntactic phrase structure to which V-raising applies, it could be argued that the V-node dominating the compound structure qualifies as a projection of the head  $V^0$  of the compound structure for purposes of V-raising.

If these arguments could be shown to be sound, the above account of the syntactic behaviour of verb-particle combinations could be argued to be superior at a language-specific level to accounts such as those proposed for Dutch by Baayen, Van Riemsdijk, and Stowell. On the latter accounts no principled explanation is available for the contrasting behaviour of verb-particle combinations with regard to the rules mentioned above.

A further positive language-specific consequence of accepting a syntactic compound analysis of verb-particle combinations was discussed in par. 6.3.4. As was shown there, the claim that word structure obeys general, category-neutral principles of phrase structure predicts the existence not only of verb-particle combinations but also of compound verbs with lefthand constituents other than prepositions. This prediction appeared to be correct, as evidenced by the existence of NV, AV, and VV compounds in Afrikaans. The fact that the analysis could serve as a basis for correct predic-

tions could be considered a positive consequence of accepting such an analysis.

Turning now to the general linguistic level, a syntactic compound analysis could be argued to have at least two major positive consequences. A first positive consequence of accepting a syntactic compound analysis would be the elimination of conceptual redundancy in the theory of grammar. Recall that it was argued in chapter 5 above that analyses of verb-particle combinations consistent with a lexicalist construal of the relationship between morphology and syntax all led to the postulation of conceptually redundant descriptive devices and, hence, to the loss of generalization. These devices included a rule generating  $\bar{X}$  categories in the lexicon, as proposed by Simpson; the two rules (one lexical and one syntactic) proposed for the generation of verb-particle combinations by Baayen; Selkirk's redundancy rule relating lexically and syntactically generated verb-particle combinations; Van Riemsdijk's P-shift rule which in effect duplicates the function of word formation rules; and Stowell's extended word formation component which overlaps in function with both the morphological and the syntactic components of the grammar.

By contrast, if the syntactic compound analysis presented here could be justified, no conceptually redundant devices would be required to account for the properties of verb-particle combinations. The syntactic properties of verb-particle combinations in Afrikaans could be described in terms of notions, rules, principles and parameters that are independently required for the description of the syntactic properties of phrases. Thus, on the syntactic compound analysis outlined above, the properties of verb-particle combinations were described in terms of syntactic notions such as 'projection of  $X^n$ ', 'trace', 'antecedent', '(proper) government', 'barrier', etc., the syntactic rule  $Move \alpha$ , a syntactic distinction such as that between head movement and nonhead movement rules, (sets of) syntactic principles such as  $\bar{X}$  theory, the Empty Category Principle, and bounding theory,

syntactic parameters such as those determining the position of specifiers and complements, and a semantic constraint, viz. the Recoverability Condition. Now, a theory of word formation postulating a single set of categories, notions, rules, and constraints to account for the properties of words and phrases could be argued to be more highly valued in terms of a criterion of generality than one on which two systems of rules, principles, etc. are, redundantly, required to account for the properties of words and phrases respectively. If, in addition to being more highly valued in terms of a criterion of generality, the former theory could be argued also to be at least as adequate, empirically and conceptually, as the latter theory, then this would be a strong indication that the former theory should be preferred to the latter theory. Whether or not a theory of syntactic word formation could be argued to be empirically and conceptually adequate would depend on the availability of independent evidence for the modifications to the general theory of grammar that are required on particular analyses of word structure such as the syntactic compound analysis of verb-particle combinations in Afrikaans outlined above. We shall return to this question below. What is clear, however, is that acceptance of a syntactic compound analysis of verb-particle combinations could be argued to have the advantage of eliminating the need for redundant rules, concepts and other descriptive devices at both a language-specific and at a general theoretical level.

Acceptance of a syntactic compound analysis of verb-particle combinations could be argued to have a second positive consequence at the general linguistic level as well. As was indicated in par. 6.2 above, the Lexical Integrity Hypothesis, which forbids syntactic rules from analyzing or changing word structure, does not follow logically from the particular way in which the relationship between morphology and syntax is construed on a lexicalist theory of morphology. Therefore, if the Lexical Integrity Hypothesis, insofar as it can be maintained, could be derived instead of having to be stipulated on an alternative theory of morphology, then the alter-

native theory could be argued to derive some merit from this fact. Thus, let us consider the implications of a syntactic compound analysis for the Lexical Integrity Hypothesis.

One consequence of accepting a syntactic compound analysis of verb-particle combinations would be that the Lexical Integrity Hypothesis, even on its weaker formulation, could not be maintained. On a syntactic compound analysis, V-second would have to be able to move the head constituent of a compound verb, in violation of even the weaker version of the Lexical Integrity Hypothesis as formulated in (5) in chapter 3. However, it would appear that a principle of lexical integrity could be argued to hold in the case of other syntactically complex words. Thus, it was pointed out in par. 6.3.3.1.2 that the rule Move  $\alpha$  cannot move constituents of compounds other than the head of a compound verb in Afrikaans. This phenomenon could be adduced as evidence for accepting some version of the Lexical Integrity Hypothesis. However, this phenomenon could also be argued to be the kind of phenomenon that bounding theory was designed to deal with. And a theory of syntactic word formation, by hypothesis, would allow for the difference between permissible and impermissible cases of movement out of compound word structures to be accounted for in terms of syntactic principles such as the principles of bounding theory. If such an account could indeed be given, there would be no need for a stipulation such as the Lexical Integrity Hypothesis in the theory of syntactic word formation. Although the details of such an account have not been worked out, recent proposals by Chomsky (1986) concerning the reformulation of the Subjacency Condition in terms of a category-specific notion 'barrier' would suggest that such an account might be possible, as was indicated in par. 6.3.3.1.2.

The No Phrase Constraint was not at issue in the analysis of verb-particle combinations presented in par. 6.3. However, the set of word structures generated by the category-neutral principles of  $\bar{X}$  theory was shown in (24) above to include the

structure (24a) which contains a maximal projection, and which is the structure underlying phrasal compounds in English according to Lieber (to appear). It was shown in (67) above that Afrikaans does have a small and unproductive class of syntactically complex verbal expressions which could be argued to be analyzable as compound verbs of which the non-head constituent is a PP rather than a P. It could also be argued that the morphosyntactic well-formedness of members of unproductive classes of words, and of lexicalized forms in general, must be specifiable by the rules and constraints of the language --- see n. 40 above. It would then follow that a theory of syntactic word formation on which structures such as (24a) were ruled well-formed could be considered more adequate than a theory on which such structures were ruled ill-formed by virtue of violating the No Phrase Constraint. Moreover, Sproat (1985:202ff) has shown that the part of the No Phrase Constraint that does appear to hold of word structure generally, viz. the constraint against the appearance of specifiers, prehead modifiers, etc. in the nonhead constituent of complex words, may be argued to follow from a principle of theta theory --- see n. 11 to chapter 6 for details. Once again, therefore, a theory of syntactic word formation could be argued to be superior to a lexicalist theory of word formation in that a constraint such as the No Phrase Constraint could be shown to be derived from an independently required syntactic principle on the former theory, whereas it has to be stipulated on the latter theory.

It has been noted repeatedly that a syntactic compound analysis of verb-particle combinations (and other compound verbs) in Afrikaans could be claimed to achieve the descriptive and explanatory success indicated above only if the language-specific and general-linguistic assumptions listed in (31) and (83)-(86) above could be shown to be well-founded.

The assumptions of (31), i.e. those concerning modifications to the  $\bar{X}$  theory of phrase structure as proposed by Lieber, have been argued to be problematic for a variety of reasons.

Let us consider two of these reasons. On the one hand, at least two of Lieber's modified syntactic principles, viz. (20) and (21), were argued to express false generalizations about supposed similarities between word structure and phrase structure. In other words, these principles were shown to predict similarities between word structure and phrase structure which could be argued not to exist. On the other hand, both the parameter (22b) and the stipulation (25) were argued to be ad hoc on the grounds that there was no evidence that they were required for any purpose other than that of ensuring that the proposed structural principles made correct predictions about possible word structures in English. Both these shortcomings could be argued to detract from the potential merit of a theory of syntactic word formation for the same reason. Thus, it could be argued that a theory of syntactic word formation necessitated the postulation of theoretical devices which expressed false generalizations about supposed similarities between word structure and phrase structure, or which were required solely to prevent the theory from making incorrect predictions about possible word structures. Such a theory could be claimed to be both empirically and conceptually inadequate. And, as was argued above, greater generality bought at the cost of empirical and conceptual adequacy does not ensure greater merit. That is, a theory that could be claimed to be more general (in the sense of less redundant) than an alternative theory, but at the same time less adequate empirically and conceptually than this alternative theory, could not be argued to be superior to the latter, alternative theory. A theory of syntactic word formation which included the problematic assumptions of (31) could be argued to be empirically and conceptually inadequate. Hence, it could not be argued to have greater merit as a framework for the description of word structure in human languages than a lexicalist theory of morphology.

It was claimed that the well-foundedness (or otherwise) of the general linguistic assumptions (84a-c) and (85) could be established only on the basis of further research. Let us

consider the possible consequences which failure to provide independent justification for just one of these assumptions, viz. the assumption (85), would have for a theory of syntactic word formation. The assumption in question concerns the redefinition of the notion 'barrier' in such a way that the presence of more than one  $X^0$  node between an antecedent and its trace would constitute a barrier to government or to movement. This assumption was argued in par. 6.3.3.1.2 to be required in order to account for the difference in cohesiveness with regard to syntactic movement rules displayed by compound verbs (excluding inseparable NV, VV and PV compounds) on the one hand, and compound nouns and adjectives on the other hand.

It is of crucial importance that it should be possible to relate the difference in accessibility to movement rules displayed by the heads of compound nouns and adjectives on the one hand and those of compound verbs on the other hand to some other difference in properties between the two classes of constructions or to some independent principle of the grammar. If this could not be done, some version of the Lexical Integrity Hypothesis would have to be assumed to apply in the case of the former but not the latter compounds. This would be a highly undesirable consequence for two reasons.

First, the fact that it would create the possibility of deriving the Lexical Integrity Hypothesis from one or more independently required grammatical principles could be argued to be a potential advantage of accepting a theory of syntactic word formation, as indicated above. However, if some version of the Lexical Integrity Hypothesis had to be assumed on a theory of syntactic word formation to account for phenomena such as those in question, this theory could not be claimed to be superior to a lexicalist theory of word formation in the relevant respect. Second, if a theory of syntactic word formation were to include some version of the Lexical Integrity Hypothesis, a central claim of this theory, viz. that word structure is merely a part of phrase structure, could not

be upheld. Acceptance of a version of the Lexical Integrity Hypothesis would entail the claim that words are different from phrases in some theoretically significant sense. This claim could be argued to be incompatible with a theory of syntactic word formation which, in essence, denies that the notion 'word' has any theoretical significance.

It is clear therefore that the assumptions in terms of which the difference in syntactic behaviour between compound nouns and adjectives on the one hand and compound verbs on the other hand are accounted for in Afrikaans would be of crucial importance in any assessment of the adequacy of a theory of syntactic word formation. Failure to provide independent motivation for the assumption (85) above, or to show that the facts in question can be accounted for in terms of some other well-motivated assumption(s), would bear negatively on the syntactic compound analysis of verb-particle combinations proposed above and on the theory of syntactic word formation which it presupposes.

It must be concluded that the adequacy of a theory of syntactic word formation has not been established on the basis of the analysis of verb-particle combinations in Afrikaans presented above. What has been established is that the adequacy of a theory of syntactic word formation would depend crucially on the possibility of providing independent justification for the all but trivial modifications to currently accepted and well-motivated syntactic notions and principles that are required on such a theory.



Chapter 7

**CONCLUSION**

This study, ultimately, attempts to contribute to the current debate concerning the way in which the relationship between syntax and morphology should be construed on a Chomskyan theory of grammar. Two alternative construals of this relationship were considered. On the first, viz. that assumed on lexicalist theories of morphology, a theory of word structure and a theory of phrase structure are viewed as fully independent subsystems of the grammar, each having its own categories, rules, and constraints, and each being subject to its own principles of organization. The lexicalist construal of the relationship between morphology and syntax is thus essentially a modular one.

On the alternative construal, viz. that of theories of syntactic word formation, a theory of word structure and a theory of phrase structure are viewed as a single theory. On this construal a single system of categories, rules and constraints, subject to a single set of organizational principles, is assumed to account for the (morpho)syntactic properties of both words and phrases. The construal of the relationship between morphology and syntax assumed on a theory of syntactic word formation is thus essentially a nonmodular one.

Various analyses of verb-particle combinations in Dutch and English which explicitly or implicitly assume a lexicalist construal of the relationship between morphology and syntax were considered critically. It was argued that some of the major shortcomings of these analyses could be attributed to their being couched within the modular mould of a lexicalist framework. A major shortcoming of all the analyses considered

was shown to be loss of generalization due to the fact that they required redundant descriptive devices to account for properties of verb-particle combinations in the languages concerned. The same kind of redundancy and resulting loss of generalization has been argued by Botha (1984:141-144) to be a major shortcoming of lexicalist analyses of synthetic compounding in English. In both cases the redundancy could be argued to be part of the cost of maintaining a formalistically modular view of the relationship between syntax and morphology assumed.

The potential adequacy of a theory of syntactic word formation as a framework for the description of word structure was assessed on the basis of a syntactic compound analysis of verb-particle combinations in Afrikaans. Both the general theoretical devices that have been proposed by Lieber (to appear) to account for the morphosyntactic form of compound words and the additional language-specific and general linguistic assumptions that would have to be made in order to account for the properties of verb-particle combinations in Afrikaans were argued to be problematic. Specifically, the modified general structural (i.e. syntactic) principles proposed by Lieber were claimed to either express false generalizations about supposed similarities between word and phrase structure or to lack independent motivation. Also, the modifications of accepted syntactic notions required on a syntactic compound analysis of verb-particle combinations in Afrikaans were shown to be all but trivial. Hence, providing independent justification for these modifications would appear to be a daunting task. In the absence of independent justification, of course, the modifications concerned would have to be concluded to be ad hoc. The fact that it expressed false generalizations and required ad hoc descriptive devices could be argued to be an indication that a theory of syntactic word formation, as presently construed, is both empirically and conceptually inadequate.

Thus, the choice at present seems clear. On the one hand, the cost of modularity, i.e. componential heterogeneity, is conceptual redundancy and the inability to express linguistically significant generalizations. On the other hand, the cost of nonmodularity, i.e. componential homogeneity, is predictive failure and ad hoc modification. And then it should also be borne in mind that the constructions considered in this study, viz. verb-particle combinations, were shown to have phrase-like properties which render them particularly amenable to analysis within the framework of a theory of syntactic word formation. It may be expected that many properties of less phrase-like complex words --- especially those that cannot be formed productively --- could prove to either defy such treatment or to require a general theory of syntax that would be so stipulatory as to be virtually devoid of explanatory power.

In view of the foregoing, it must be concluded that neither of the two "pure", i.e. prototypical, models of the relationship between morphology and syntax that were contrasted in this study can be considered unproblematic. It would appear, therefore, that a solution to the problem of finding an adequate way of construing the relationship between morphology and syntax should be sought in a "mixed" model, i.e. a model lying somewhere in between the formalistically modular approach of lexicalist theories of word formation and the completely nonmodular approach of theories of syntactic word formation. It is hoped that this study will have contributed towards identifying the requirements that such a mixed model would have to satisfy and the problems that it would have to address.

In searching for an alternative solution, an approach such as that adopted by Fabb (1984) or Baker (1985) would appear to be well worth considering. The construal of the relationship between morphology and syntax assumed on this alternative approach was abstractly represented as (2) in par. 6.2 above. On this approach a greater degree of interdependence between

morphology and syntax is assumed. However, it is still essentially a modular approach. Thus, both Fabb and Baker maintain that some syntactically complex words are formed in the lexicon and others in the syntax. The structural properties of the two sets of complex words are therefore claimed to be determined by different and independent systems of categories, rules, constraints, etc.

One of the problems that arose on the syntactic compound analysis presented above would appear to be exactly the kind of problem that could find a solution within the framework of an alternative approach such as that adopted by Fabb and Baker. This is the problem of accounting for the difference in syntactic behaviour (and other properties) between separable and inseparable compound verbs, and between (separable) compound verbs and (inseparable) compound nouns and adjectives in Afrikaans. On the syntactic compound analysis presented above it was assumed that the difference in syntactic cohesiveness between different classes of compounds would have to be accounted for in terms of a revised notion 'barrier'. It was argued that such an account would be problematic, however. If these differences could be accounted for on the assumption that separable compound verbs are syntactic constructs whereas all other compounds are lexical constructs, then there would be no need for a redefinition of the notion 'barrier'. Thus, one of the major problematic consequences of the analysis outlined above would no longer arise.

Such an alternative account can be expected to encounter problems of its own, however. One such problem would be that of finding a way to express the linguistically significant similarities between separable and inseparable compounds. This and similar problems would have to be solved by further research. Also, it may be expected that most of the problems that were shown to arise on the syntactic compound analysis outlined above would arise on such an alternative analysis as well. These problems should be addressed in further research.

first, there is the problem of accounting for the formation of syntactic compounds. Lieber's base-generation account has been shown to be highly problematic. An alternative that could be considered is an incorporation account along the lines proposed by Baker (1985). On this account complex words formed in the syntax are claimed not to be base-generated but to be formed by application of the rule  $\text{Move } \alpha$ . The rule  $\text{Move } \alpha$  is claimed to be able to adjoin the head constituent of a subcategorized complement to a lexical head that governs it, thus forming a compound word. Given that the nonhead constituents of separable NV and AV compounds in Afrikaans were shown to bear the same relation as subcategorized complements to the verbal head of the compound, an incorporation analysis of at least this subset of compounds would appear to be possible. Whether such an analysis could also be extended to verb-particle combinations would remain to be seen. Recall that a major objection to the incorporation analysis proposed by Van Riemsdijk and Stowell, and discussed in chapter 4, was that these analyses failed to account for the separability of the verb and the particle by V-second. However, it has been shown to be one of the merits of the syntactic compound analysis outlined above that it could serve as a basis for explaining the behaviour of compound verbs with regard to rules such as V-second.

A second problem requiring further investigation would be that of redefining the notions 'projection of category  $X^n$ ', and 'minimal projection of category  $X^n$ ', in such a way as to ensure that the head  $X^0$  of a syntactic compound would be correctly identified as the minimal projection of a category  $X^n$  by rules such as V-second and V-raising, the principles of Case-assignment and theta role assignment, etc. The proposals made by Fabb (1984) in this connection would provide a good starting point.

Thirdly, the desirability of deriving rather than stipulating the claims expressed by the Lexical Integrity Hypothesis and the No Phrase Constraint respectively was indicated in par. 6.4

above. If these claims should have to be maintained with respect to words formed in the syntax, they would have to be shown to follow from other well-motivated syntactic principles. In the case of the Lexical Integrity Hypothesis it was hypothesized that a redefined notion 'barrier' could serve as a basis on which to account for the characteristic syntactic cohesiveness of the majority of compound words. Any attempt to redefine the notion 'barrier' is bound to encounter numerous problems, however. Given an alternative theory of the relationship between morphology and syntax such as that assumed by Fabb and Baker, however, it would be well worth investigating the possibility that the Lexical Integrity Hypothesis could be dispensed with as a constraint on words formed in the syntax and maintained only as a constraint on words formed in the lexicon. This would entail that all compounds, with the exception of separable compound verbs such as those found in Afrikaans, would have to be assumed to be formed in the lexicon and, hence, to be subject to the Lexical Integrity Hypothesis. The syntactic cohesiveness of derived words formed in the syntax would have to be accounted for on other grounds. The inability of an affix to occur without a sister constituent of the appropriate type has been suggested as a possible basis for the constraint on the movement of constituents of derived words by syntactic rules --- see n. 43 to chapter 6. As far as the No Phrase Constraint is concerned, proposals for deriving this constraint from, e.g., principles of theta theory as proposed by Sprcat --- see n. 11 to chapter 6 --- could prove to be a fruitful starting point for further investigation.

Fourthly, and finally, there is the question of the content and theoretical significance of the notion 'word'. On a theory of syntactic word formation such as that accepted by Sproat (1985), the notion 'word' is assumed to be theoretically insignificant. That is, the morphosyntactic properties of words, i.e.  $X^0$  categories, are taken to follow entirely from a theory of phrase structure. On lexicalist theories of mor-

phology, by contrast, words are assumed to have properties which differ from those of phrases in theoretically significant respects. The description of these properties thus requires the postulation of an independent theory of morphology. Now, a theory of word formation on which some words are taken to be syntactic constructs while others are taken to be lexical constructs, would express the claim that there are two different notions 'word': viz. a syntactic notion 'word' and a lexical notion 'word'. Questions such as the following would then arise: What is the content of these two notions? Do these notions differ in content? If so, are these differences predicted on a theory of morphology which provides for both lexical and syntactic word formation? Are these notions similar in content? If so, how are these similarities to be expressed on a theory of morphology which provides for both lexical and syntactic word formation? These are nontrivial questions indeed. It is the fact that it gives rise to questions such as these that makes the problem of the relationship between morphology and syntax one well worth studying.

NOTES TO CHAPTER 1

1. cf. e.g. Halle 1973; Siegel 1974; Jackendoff 1975; Aronoff 1976; Wasow 1977; Anderson 1977; Roeper and Siegel 1978; Allen 1978; Lieber 1981 and 1983; Selkirk 1982; Kiparsky 1982; Thomas-Flinders 1983; and Di Sciullo and Williams 1987 to mention but a few notable attempts to account for the properties and/or formation of morphosyntactically complex words within a lexicalist framework. Cf. also the references in par. 1.2 below.
2. The various ways in which the relationship between morphology and syntax has been construed by different lexicalist morphologists will be discussed in par. 1.2 below.

Detailed proposals concerning the nature of the relationship between the morphological and phonological components of the grammar are made by, e.g. Siegel (1974); Allen (1978); Carrier (1979); Strauss (1982); and Pranka (1983); and by proponents of a variant of lexicalist morphology known as Lexicalist Phonology and Morphology, such as e.g. Pesetsky (1979); Mohanan (1982); and Kiparsky (1982).

For proposals concerning the way in which rules and principles of morphology interact with semantic rules and principles, cf. e.g. Jackendoff 1975; Lieber 1981; Bresnan 1982; Pesetsky 1985; Zwanenburg 1984; and Botha 1988a.

3. The expression the lexicalist construal of the relationship between morphology and syntax must be interpreted as shorthand for "the various ways in which the relationship between morphology and syntax is construed on lexicalist theories of morphology". There is no single, invariant "lexicalist construal" of this relationship, as will be



made clear in par. 1.2 below.

Cf. also Botha 1984:135-144, where a similar characterization of the lexicalist construal of the relationship between morphology and syntax is given. Botha argues that this construal is problematic on the basis of the shortcomings of lexicalist theories of synthetic compounding.

4. Consider, for example, the following contrasts:

| (a) Synthetic compounds not containing verb-particle combinations: | (b) Synthetic compounds containing verb-particle combinations:    |
|--|---|
| * <i>(in die) rug + steek + lik</i><br>in the back stab -ous       | <i>aan + steek + lik</i><br>on/to pin/put -ous<br>'contagious'    |
| * <i>potte + bak + sel</i><br>pots bake -ment                      | <i>af + sak + sel</i><br>down sink -ment<br>'sediment'            |
| * <i>wan + geld + bestuur</i><br>mis- money manage                 | <i>wan + voor + stel</i><br>mis- before present<br>'misrepresent' |
| * <i>her + boek + lees</i><br>re- book read                        | <i>her + op + tel</i><br>re- up count<br>'re-add'                 |

5. The discussion in par. 1.2 is a fleshed-out version of Botha's (1984:par. 6.3.2) discussion of the basic tenets of lexicalist morphology or, to use Botha's term, the Extended Lexicalist Position.

6. A brief outline of the development of the constraint that I am calling the Lexical Integrity Hypothesis in generative grammar is given in Botha 1984:136. For more detailed discussion cf. e.g. Hoekstra et al. 1980:1-15; Scalise 1984; and Sugioka 1986:ch. 1.

7. This elaborated version of the Lexicalist Hypothesis has been assumed for purposes of the analysis of classes of compound and/or derived words by, amongst others, Halle (1973), Siegel (1974), Aronoff (1976), Allen (1978), Strauss (1979), Botha (1980), and Anderson (1982).
8. Cf. e.g. Jackendoff 1975; Booij 1977; Brame 1978; Lapointe 1978, 1980; Pesetsky 1979; McCarthy 1979; Carrier 1979; Lieber 1981, 1983; Selkirk 1982; Strauss 1982; Bresnan 1982; Mohanan 1982; Kiparsky 1982; Thomas-Flinders 1983; Pranka 1983; and Simpson 1983a, b.
9. Simpson (1983b:3-4) provides the following examples to illustrate the prohibition against the gapping of parts of words:
  - i. a. John paid the electricity bills, and Mary \_\_\_\_\_ the gas bills.  
b. \*John liked the play, and Mary dis-\_\_\_\_\_ it.
  - ii. a. \*John was hopeless, but Mary was \_\_\_\_\_-ful.  
b. \*Lucy admired his open-\_\_\_\_\_ and faithfulness.
10. Cf. e.g. the proposals by Marantz (1981) and Pranka (1983) on which features associated with parts of what constitute complex words at syntactic S-structure are merged in the course of the syntactic derivation of the sentence.
11. Thus, according to Simpson (1983b:5), it is impossible to refer to part of a word by a pronoun, as illustrated in i., or to modify appositively a nominal which is part of a word, as shown in ii.
  - i. a. John has no father now, and he misses him.  
b. ?? John is fatherless now, and he misses him.

- ii. a. *John's eyes were full of tears, the self-indulgent tears of a guilty conscience.*
- b. *\*John's eyes were tearful, the self-indulgent tears of a guilty conscience.*

12. Unless explicitly otherwise indicated, the term word will be used in this study in its syntactic sense, i.e. to denote a constituent dominated by one of the (terminal) lexical categories N, V, A, or P in a syntactic structure. In  $\bar{X}$  terms a word is a zero level category or  $X^0$ . Cf. e.g. Selkirk 1982:6ff; Jensen and Stong-Jensen 1984:477; Fabb 1984:33; and Baker 1985:89 for this definition of the notion 'word'. The syntactic notion 'word' must be distinguished from the phonological and the semantic notions 'word', for discussion of which cf. e.g. Seuren 1966 and Beard 1981:40ff. Cf. also Booij 1983:7 for a distinction between the phonological and syntactic notions 'word'.

Di Sciullo and Williams (1987) draw a distinction between words as morphological objects, i.e. objects whose form is determined by rules of morphology, and words as syntactic atoms, i.e. objects which are insertable in  $X^0$  slots in syntactic structures. Given that it is the aim of the present study to determine whether this distinction is well-founded, the term word as used in this study must be taken to denote any constituent of the category  $X^0$ , irrespective of whether its (morpho)syntactic form is determined by rules of morphology or by rules of syntax.

13. Note that morphologists such as Anderson, who draw a distinction between morphological rules that apply in the lexicon and morphological rules that apply in the syntax, accept the No Phrase Constraint as a constraint on the former type of morphological rule only.
14. In  $\bar{X}$  notation, a category is represented as a pair consisting of a symbol X, where X represents the category

name --- i.e. N, V, A (= Adj and Adv), or P --- and a superscript integer  $n$  indicating the category level in the  $\bar{X}$  hierarchy. A lexical category is represented as  $X^0$ . Any bar level higher than 0 indicates a syntactic phrase. Thus all categories of level  $X^{1<}$  (read: level 1 and higher) are phrases.  $X^{\max}$  represents the maximal projection of a category, that is the one with the highest possible level specification. Cf. e.g. Selkirk 1982:6-8 for discussion.

15. Complex words such as the following are provided as examples of phrasal embedding in word structure (the supposed phrasal constituents are underlined):

- i. tweekamerstelsel  
two-chamber-system (Booij 1977:44)
- ii. New York-to-Detroit flight (Carroll 1979:876  
n. 1)
- iii. skewemond - laggie  
crooked-mouth smile  
'crooked smile'  
  
oor - die-heining - stories  
over the fence stories  
'gossip between neighbours'  
  
rek - en - strek - oefening  
stretch and extend exercise  
'stretch-and-bend exercise' (Botha 1980:141ff)
- iv. old house lover  
used book seller (Fabb 1984:194)

16. Cf. e.g. Chomsky 1970; Jackendoff 1975:668ff; Wasow 1977:330-331; Bresnan 1978; Hoekstra et al. 1980:4; and Fabb 1984:38-39. For a recent challenge to these arguments, cf. Sproat 1985:491-499.

17. But see Di Sciullo and Williams 1987:ch. 1 for arguments to the effect that the putative lesser productivity of the rules responsible for creating words and the greater unpredictability of the properties of syntactically complex words are of no theoretical significance.
  
18. Cf. e.g. Mohanan 1982:71 for an explicit statement of this conception of the lexical component of the grammar. Cf. also the contributions in Hoekstra et al. 1980 for further elaboration of this view.
  
19. Cf. Katz 1981:117ff and Bowers 1984:23 for this particular interpretation of the autonomous systems hypothesis. Cf. also Wiese 1982 for a clarification of the role of modularity in linguistic and psycholinguistic theories.

NOTES TO CHAPTER . 2

1. Equivalent terms in languages other than English are "trennbare/unfeste Zusammensetzungen" (cf. e.g. Henzen 1957:89-90) and "trennbare partikelverben" (cf. e.g. Eroms 1982:33) in German; and "scheidbaar samengestelde verba" (cf. e.g. De Vries 1975:43) and "samenkoppelingen" (cf. e.g. De Rooij-Bronkhorst 1980:163) in Dutch.
  
2. Verb-particle combinations, i.e. complex verbal expressions with properties similar to those of the English, Dutch and Afrikaans expressions exemplified in (1), also occur in languages such as German (see i. below), Norwegian (see ii. below) and Swedish (see iii. below).
  - i. a. *Du musst deinen Spinat auf + essen. Johann.*  
you must your spinach up eat John  
'You must finish your spinach, John.'
  
b. *Johann esst immer seinen Spinat auf.*  
John eats always his spinach up  
'John always finishes his spinach.'
  
ii. a. *Jon sparka ut hunden.*  
John kicked out the-dog  
'John kicked out the dog.'  
b. *Jon sparka hunden ut.*  
John kicked the-dog out  
iii. a. *Pojkarna ät upp sin mat.*  
the-boys ate up their food  
'The boys finished their food.'  
b. *Pojkarna ät tacksamma upp sin mat.*  
the-boys ate grateful up their food  
'The boys gratefully finished their food.'

Cf. e.g. a number of contributions in Eichinger (ed.) 1982 and Höhle 1985:351ff for some discussion of verb-particle combinations in German; Afarli 1985 for a discussion of Norwegian verb-particle combinations; and Platzack 1983:19f for some comments on the equivalent expressions in Swedish.

3. The nonverbal constituent may also be noun-like or adjective-like in character. For discussion and examples, see chapter 6 below.
4. A rule of V-second is postulated by those grammarians who assume that Dutch, and Afrikaans, exhibit SOV word order at the level of D-structure. V-second obligatorily moves the tensed verb to the second position in root sentences, thereby accounting for the asymmetry between root and embedded sentences as regards the position of the verb. Cf. e.g. Koster 1975; Van Riemsdijk 1978:35; Waher 1982 (and the references cited there); Koopman 1984; Van Riemsdijk and Williams 1986:52, 57; the contributions in Haider and Prinzhorn (ed.) 1986; and Den Besten 1986:par. 2.2 and the references cited there for discussion of the rule of V-second. Olsen 1985:135ff, Platzack 1985 and Toman 1985:10ff provide helpful overviews of the literature on the so-called V-second phenomenon.

For discussion and/or illustration of the rule of V-raising, cf. e.g. Koster 1975:129ff (he calls it the rule of Predicate Raising), Van Riemsdijk 1978:35, 54, De Haan 1979:48ff, Evers 1982, Haegeman and Van Riemsdijk 1986, and Den Besten 1986:par. 2.3 and the references cited there. According to Haegeman and Van Riemsdijk (1986:417)

"Verb Raising is a type of clause union that affects the verb of a nonfinite complement clause to the left of certain matrix verbs ... . In essence, the verbs form a cluster; furthermore, the embedded verb usually ends up to the right of the matrix verb ... ."

They (1986:419) illustrate the operation of V-raising in Dutch with reference to the following data:

i. D-structure:

*dat Jan [PRO [een huis kopen]<sub>VP</sub>] <sub>S</sub> wil*  
that Jan a house buy wants  
'that Jan wants to buy a house'

ii. V-raising:

a. *dat Jan [PRO [een huis e]<sub>VP</sub>] <sub>S</sub> wil kopen*  
that John a house wants buy

b. \**dat Jan [PRO [e]<sub>VP</sub>] <sub>S</sub> wil een huis kopen*  
that John wants a house buy

5. Both sentences (3b) and (5b) are from Koster 1975:116, 126. I have added some structural information in accordance with analyses of similar sentences provided by Van Riemsdijk (1978:54) and Baayen (1986:34).
6. Cf. Koster 1975:124 and the references cited there for some discussion of the *aan het* + infinitive construction. The example is from (Baayen 1986:35).
7. Cf. e.g. Jespersen 1928:15; Henzen 1957:89; Fraser 1965:37-38; Live 1965:441ff; Palmer 1965:180; Hundsnurscher 1968:1-7; Weinreich 1969:69; Marchand 1969: 1, 125; Kunsmann 1971:85ff; Bolinger 1971:xii, 110ff; Quirk et al. 1972:812; Du Plessis 1972:47ff; Emonds 1972:546; Lipka 1972:19, 29; Adams 1973:9; Meyer 1975:4; De Vries 1975:44ff; Fraser 1976:v, 5ff; Oehrle 1976:206; Von Schon 1977:2-3; Booij 1977:160 n. 7; Makkai 1978:421; Carlson and Roeper 1980:158; De Rooij-Bronkhorst 1980:189; Stowell 1981:302; Lieber 1983:69; Simpson 1983a:7; Zwicky 1984b:155; Kilby 1984:par. 6.3; Höhle 1985:356; Paulissen 1985:15ff; and Baayen 1986: 47, 49.



For extensive discussion and illustration of the ranges of meanings of verb-particle combinations, cf., in particular, Fraser 1965:ch. 3 and Bolinger 1971:ch. 7 for English; De Vries 1975:ch. 3 for Dutch; Henzen 1969, Lipka 1972:ch. 3 and various contributions in Eichinger (ed.) 1982 for German; and Du Plessis 1972:60ff and Van der Merwe 1980 for Afrikaans.

8. The meanings attributed to the expressions in (14)-(16) are all provided by the various dictionaries which I have consulted --- see Bibliography.
9. Cf. Aronoff 1976:11 for the notion 'underdetermined meaning'. Cf. also Marchand 1969:125, Makkai 1978:421, Beard 1981:259, 272, Jackendoff 1983:par. 9.5, Hoeksema 1984:34ff, and Allerton 1984:32ff for some discussion of the underdetermined or context-dependent nature of the meaning of certain classes of lexical items.
10. Cf. Botha 1968:214-6 for a discussion of the distinction between metaphorical and idiomatic meaning. Metaphorical meaning is discussed in (Botha 1968:par. 5.4.1) and idiomatic meaning in (Botha 1968:par. 5.5.1). Cf. also Makkai 1978:445; Norrick 1979:672f; Clark and Clark 1979:804ff; Halvorsen 1983:610f; Jackendoff 1983:ch. 10; Allerton 1984:35f; and Kilby 1984:104f for some discussion of the problems involved in drawing a distinction between idiom and metaphor. A survey of relevant literature is given by Wood (1986:6-7).
11. Cf. Aronoff 1976:10 for a discussion of cranberry morphs.
12. The morpheme *skeep* in *opt+skeep* and *af+skeep* does not appear to be related to the *skeep* in *int+skeep* 'to take on board', *ont+skeep* 'to unload', and *ver+skeep* 'to ship'. The latter morpheme *skeep* is obviously phonologically related to the independently occurring noun *skip* 'ship' in Afrikaans.

13. The Dutch examples are from De Vries 1975:166-168 and De Rooij-Bronkhorst 1980:163. Cf. also Kunsmann 1971:82ff for similar examples from German. Cf. Du Plessis 1972:15ff for more examples from Afrikaans.
14. The English examples are from Simpson 1983a:7, the Dutch ones from Baayen 1986:38 and the Afrikaans ones are from Du Plessis 1972:54ff and Ponelis 1979:235 respectively. For more examples from English, Dutch, and German, cf. e.g. Live 1965:433ff; Marchand 1969:125; Lipka 1972:176; Oehrle 1976:215f; Fraser 1976:6ff; Carlson and Roeper 1979:133; Simpson 1983b:9; and Van Voorst 1983:389. For more examples from Afrikaans, cf. Van der Merwe 1980:115ff.
15. The English examples are from Simpson 1983b:10-11. The sources of the Dutch examples are indicated in the text. Examples of Afrikaans nominalisations that take verb-particle combinations as bases are provided by Ponelis (1979:236) and Van der Merwe (1980:171ff). For more examples from English, Dutch, German, and Norwegian, cf. e.g. Jespersen 1946:160-1; Marchand 1969:19, 110; Henzen 1969; Bolinger 1971:7-9; Adams 1973:9; Meyer 1975:11-12; Fraser 1976:27f; Schultink 1977:159; Carlson and Roeper 1980:132; Selkirk 1982:27; Simpson 1983a:7f; Kilby 1984:100; and Afarli 1985:89.
16. Booij (1977:160 n. 7) argues that a verb such as *omkoopbaar* has the structure  $[[om] [koopbaar]]$  rather than  $[[omkoop] baar]$ , i.e. the structure of a compound of which the second constituent is a derived word. Cf. Baayen 1986:44f for an argument against Booij's analysis. Cf. also Botha 1984 for extensive arguments against a compound analysis of similar expressions in English and Botha 1980:par. 4 for arguments that the equivalent expressions in Afrikaans should be analyzed as shown in (30).

17. Apart from the references cited in the text, cf. also Bolinger 1971:6-13, Quirk et al. 1972:81, Oehrle 1976:202ff, Kroch 1979:222-223, Randall 1982:17, Kilby 1984:100, and Eilfort 1986:20ff for a discussion of the syntactic cohesiveness of verb-particle combinations in English. Cf. e.g. De Vries 1975:50-51, Van Riemsdijk 1978:54-55, De Rooij-Bronkhorst 1980:188f, and Paulissen 1985:17 for Dutch; Höhle 1985:352-353 for German; and Áfarli 1985:93-95 for Norwegian.
18. Cf. chapter 3 n. 23 for a formulation of the rule of Gapping in English. Note the requirement that the gapped constituent be directly dominated by a V node.
19. The sentences in (39a) and (40a) are from Baayen 1986:34-35; those of (39b) are from Haegeman and Van Riemsdijk 1986:419; and those of (40b) are from Koster 1975:124-125. In the case of (40b), I have added some structure in accordance with the structural indications provided by Baayen for the (a)-sentences. See also the references in n. 17 above for further discussion and examples.
20. The sentences in (41) are from Van Riemsdijk 1978:55, while the sentences in (42) are from Baayen 1986:35. Apart from these works, cf. Koster 1975:113 and the references cited there for discussion and/or illustration of the Dutch rule of PP-over-V.
21. For discussion of the stress pattern of verb-particle combinations, cf. e.g. Taha 1964, Fraser 1965:19, Bolinger 1971:13ff, Keppens 1975, Meyer 1975:9ff, and Oehrle 1976:201f for English; Kunsmann 1971:2, 61 and Kintzel 1984:148ff for German; Áfarli 1985:94 for Norwegian; Schultink 1973, Booij 1977:160 n. 7, De Rooij-Bronkhorst 1980:163, and Baayen 1986:43-44 for Dutch.

22. Cf. e.g. Booij 1977:par. 2.1.5 for a discussion of the stress patterns of Dutch compounds and Baayen 1986:43-44 for a comparison of the stress pattern of verb-particle combinations with that of compounds. Cf. e.g. De Villiers 1965:147-148 and Kempen 1969:92 for some discussion of the stress pattern of Afrikaans compounds.

NOTES TO CHAPTER 3

1. According to Selkirk (1982:8) it is generally assumed in  $\bar{X}$  syntax "that any nonhead category introduced on the right side of the arrow in a phrase structure rule is necessarily the maximal projection of the category".
2. The visibility of the internal structure of lexically generated  $\bar{X}$  categories, has to be stipulated given Simpson's acceptance of a principle known as the Bracket Erasure Convention. The Bracket Erasure Convention represents a general linguistic constraint on the interaction of word formation rules and (lexical) phonological rules applying at various levels within the lexicon, in terms of a level-ordered theory of word formation known as Lexical Phonology and Morphology (hence: LPM) --- cf. e.g. Pesetsky 1979, Mohanan 1982 and Kiparsky 1982.

In terms of this convention the internal categorial brackets of the words created at each level within the word formation component are erased once the word has "passed through" the relevant level. Thus the Bracket Erasure Convention ensures that the phonological (and morphological) rules applying at a given level do not have access to the internal structure (i.e. brackets) of a word formed on a lower level, but rather treat such words as indivisible units. For example, the *-ed* affix, as the regular past tense affix in English, is introduced at level 3. It cannot, therefore, be attached to a constituent of a compound, because the internal brackets of the compound will have been erased at the end of level 2, the level at which compounds are formed.

3. Cf. Botha 1981:288-9 and 307-309 for a discussion of this evidential requirement.

4. Cf. Botha 1981:289-290 and 309-313 for a discussion of this evidential requirement.
5. Cf. e.g. Jackendoff 1975:662ff; Fraser 1976:104ff; Chomsky 1980:149ff; 1981:101, 146 n. 94, 224 n. 20; Zubizaretta 1982:221; Ruwet 1983.
6. Cf. e.g. Podor 1977:88, 180 and Newmeyer 1980: par. 5.4.3, 5.6.2 for a discussion of the properties of global constraints, the kind of evidence that has been adduced for them, the arguments against their use, and an overview of the relevant literature.
7. Cf. e.g. Pranka 1983:8 for a recent explicit exposition of the GB view of lexical insertion. Cf. e.g. Lapointe 1980:442f for an exposition of the principles of lexical insertion from a lexicalist point of view.
8. Possible alternative proposals for the analysis of idioms, for instance, include those by Bresnan (1982: 45ff) and Chomsky (1980:149ff and 1981:101, 146 n. 94, 150 n. 124, 224 n. 20). On Bresnan's proposal, which is couched within the framework of LFG, the requirement that, in order to express a given idiomatic meaning, a verb must occur with (a) certain fixed complement(s), is expressed in the lexical entry of the verb. Thus, the fact that the verb *keep* in *keep tabs on* is related to the independent verb *keep*, but differs from it in meaning and subcategorization, is expressed in the lexical entry (i.e. the "lexical form" in LFG terminology) of *keep* by including in this entry the following statement:
  - i. *keep* : V, 'KEEP-TABS-ON ((SUBJ), (ON OBJ))'  
(OBJ FORM) =<sub>c</sub> TABS

Roughly, i. must be taken to mean that the verb *keep*

can select a specific object, viz. *tabs*, in combination with which it has a specific meaning, i.e. the meaning represented by KEEP-TABS-ON, and a particular subcategorization, i.e. the subcategorization represented by ((SUBJ), (ON OBJ)). For an explanation of the formalisms used, cf. Bresnan 1982. Lexical insertion proceeds in the normal way and the Projection Principle --- see n. 14 below --- ensures that structures in which *keep* occurs with the NP *tabs* are judged well- or ill-formed according to whether they satisfy the requirements stated in i.

On Chomsky's proposal, an expression such as *keep tabs on* is freely generated by the base rules and assigned the same structure as a corresponding nonidiomatic expression. An "idiom rule" reanalyzes *keep tabs on* as a verb ( $V^0$ ) and assigns it its idiomatic meaning. According to Chomsky (1981:107, 146 n. 94), such a reanalysis entails adding a "string  $\alpha V \gamma$  to the phrase marker of each terminal string  $\alpha \beta \gamma$ , where  $\beta$  is the idiom". The effect of reanalysis is that an expression such as *keep tabs on* is associated with two structural descriptions at the level of D-structure, viz. iia. which is the structure generated by the base rules and iib. which is the re-analyzed structure --- cf. Van Riemsdijk and Williams 1986:148.

- ii. a. [<sub>V</sub> keep]<sub>V</sub> [<sub>NP</sub> tabs]<sub>NP</sub> [<sub>PP</sub> [<sub>P</sub> on]<sub>P</sub> [<sub>NP</sub>]]<sub>PP</sub>
- b. [<sub>V</sub> [<sub>V</sub> keep]<sub>V</sub> [<sub>NP</sub> tabs]<sub>NP</sub> [<sub>PP</sub> [<sub>P</sub> on]<sub>P</sub>]<sub>V</sub> [<sub>NP</sub>]]<sub>PP</sub>

Chomsky (1980:150) claims that the idiom rules responsible for the analysis are "analogous to rules of the lexicon", while Van Riemsdijk and Williams (1986:148), in their discussion of Chomsky's proposal, claim that reanalysis is "part of the lexical insertion rule for idiomatic expressions".

It is clear from this rough outline of Bresnan's and

Chomsky's alternative proposals that both proposals require an enrichment of the general linguistic theory. Bresnan's proposal makes provision for an enrichment of the lexicon, whereas Chomsky's proposal makes provision for an enrichment of the base component.

9. Cf. De Rooij-Bronkhorst 1980 for an earlier proposal entailing the postulation of an intermediate category level (i.e. a category level between  $V^0$  and  $V^1$ ) for verb-particle combinations in Dutch. Apart from noting the similarity between Baayen's proposal of a  $V^1$  category level and De Rooij-Bronkhorst's earlier proposal, I shall have nothing more to say about De Rooij-Bronkhorst's analysis. She provides no evidence, apart from verb-particle combinations, for the postulation of such an intermediate category level. Neither does she have anything to say about the status of such a category level in the grammar, the nature of the rule(s) by which it is generated, etc.

Höhle (1985:352ff) arrives at a similar conclusion on the basis of evidence from German. He (1985:356) argues that verb-particle combinations in German can be analyzed neither as words (V) nor as phrases (VP) on the basis of the same kind of evidence as that on which Baayen bases his argument for Dutch. According to Höhle, verb-particle combinations form what he calls a verbal complex within VP. The category level of this verbal complex is a matter for future research according to him.

10. Cf. e.g. De Rooij-Bronkhorst 1980:188 where a similar proposal is made.
11. Cf. e.g. Van Riemsdijk 1978:4f, par. 7, Lightfoot 1979: par. 1.5, Botha 1981:par. 10.4.3.2, and Chomsky 1981: 7ff for some discussion of the status and evidential basis of markedness claims.



12. Cf. e.g. Van Riemsdijk and Williams 1986:19ff for discussion and illustration of the A-over-A Principle which they formulate as follows:

A-over-A Principle

In a structure ...  $\{_{A} \dots \{_{A} \dots \}_{A} \dots \}_{A} \dots$ , if a structural description refers to A ambiguously, then that structural description can only analyze the higher, more inclusive, node A.

13. See the discussion in connection with (21) in par. 3.3.2.3 below for Baayen's proposals regarding the analysis of idioms such as (14b) within a grammar incorporating an overlap area.

14. The Projection Principle is formulated as follows by Chomsky (1981:29):

Projection Principle

Representations at each syntactic level (i.e. LF, and D- and S-structure) are projected from the lexicon, in that they observe the subcategorization properties of lexical items.

Cf. e.g. Chomsky (1981:29ff) for a discussion of the way in which structures at various levels of representation are determined by lexical requirements given the Projection Principle.

15. Note that the phrase (24b) *een wilde bok schieten* is not unacceptable in its literal sense "to shoot a wild goat/buck". However, it is unacceptable with the meaning "to blunder".
16. See the references in n. 7 above. Cf. also Newmeyer 1980:88f and the references cited there for some discussion of lexical insertion in the older *Aspects* model of generative grammar. The discussion is relevant as it opposes two views of how lexical insertion takes place,

viz. the "matching" view and the "substitution" view. According to Newmeyer, the question of which view is to be preferred, "has received very little attention, with some linguists ... adopting the matching format, but most ... adopting the substitution format". Let us assume, for the sake of argument that the view that lexical insertion may take the form of a matching of nodes, (as opposed to substitution), as proposed by Baayen, is nonobjectionable. Note that Baayen himself is not clear about the nature of lexical insertion. In a note he (1986:67 n. 16) says that "lexical insertion can be considered to be a substitution transformation", yet he consistently calls it "matching".

17. Cf. also Allen 1978:111ff.

18. Cf. also e.g. Lipka 1972:76; De Vries 1975:46; Aronoff 1976:par. 3; Makkai 1978:421; Roeper and Siegel 1978:216; Taylor 1980:141; and Van Santen 1984:21 for the view that words are more readily assigned noncompositional meanings than phrases.

The assumption (34) is also implicitly accepted by lexicalist morphologists who regard the semantic noncompositionality of (classes of) derived and compound words as evidence for generating these (classes of) words by means of word formation rules in the lexicon. Cf. e.g. Halle 1973:4, 6; Siegel 1974:24f; Jackendoff 1975:667f; Roeper and Siegel 1978:216f; Bresnan 1982:57 and Fabb 1984:39.

19. Cf. e.g. Strauss 1982:16-23 for an overview of much of the relevant literature. Cf. also the discussion in Wood 1986:ch. 3 and Di Sciullo and Williams 1987:ch. 1.

20. Cf. e.g. Aronoff 1976:43-45; Adams 1973:12; Taylor 1980:24f; Bauer 1983:par. 4.5.5 and 4.5.8; and Wood

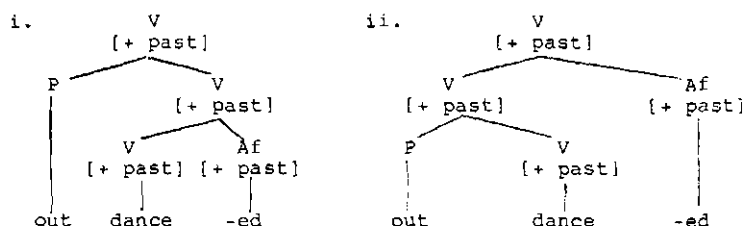
1986: 21, as well as the references cited in the latter two works, for a discussion of the relationship between productivity and semantic compositionality.

21. Cf. e.g. Adams 1973:12; Aronoff 1976:par. 3; Booij 1977:par. 1.1.3; Bauer 1983:par. 4.2.3; and Kastovsky 1986 for various uses of the notion 'productive' in generative morphology. For a critical discussion of various uses of the concept of productivity within transformational generative grammar, cf. Botha 1968:par. 4.3. Rainer (1985) reviews the various uses of the notion 'productivity' in the literature on word formation, and provides an extensive bibliography.
22. Cf. e.g. Siegel 1974; Allen 1978; Pesetsky 1979; Kiparsky 1982; Strauss 1982; Mohanan 1982; Pranka 1983; and Archangeli 1983 for proposals or discussions of proposals to this effect.
23. Selkirk (1982:28) refers to the Gapping Rule which is formulated as follows by Stillings (1975:262):

|    |    |   |           |    |             |   |
|----|----|---|-----------|----|-------------|---|
| NP | V* | C | AND<br>OR | NP | V*          | C |
| 1  | 2  | 3 | 4         | 5  | 6           | 7 |
|    |    |   |           |    | ↓<br>↓<br>∅ |   |

where C is a variable which ranges over single constituents, i.e. it represents the label of any single non-terminal node such as NP, PP, ADV, VP, S, etc. According to Stillings, V\* is a variable representing any string of (not necessarily connected) contiguous lexical items, each of which is "in the range of V", i.e. directly dominated by a V node. Thus, V\* could represent a string of verbs,  $V_1, V_2, V_3, \dots$ , etc., or a  $V \sim NP$  string forming a complex V.

24. In order to account for the occurrence of passive sentences such as *The bed looks slept in* in English, Anderson (1977:374) proposes that the lexicon contain a redundancy rule relating simple verbs and complex verbs consisting of a verb and a preposition. Notice, however, that the redundancy rule in question relates two lexical categories and not a lexical and a phrasal category. Selkirk's proposed lexical rule would therefore differ in an essential respect from a redundancy rule such as that proposed by Anderson.
25. Selkirk is not the only morphologist who holds that rules of inflection should be able to intermingle with other word formation rules. Cf. also e.g. Strauss 1982:76, Thomas-Flinders 1983:149, and Sproat 1985:414ff. For an argument that rules of inflection should be ordered after rules of compounding, cf. Kiparsky 1982: 9ff.
26. The structures in (53b i, ii) are exactly parallel to the structures i. and ii. below which are presented by Selkirk (1982:55) to illustrate the "systematic ambiguity" which her analysis allows for.



According to her (1982:56), "There is no obvious evidence that the grammar chooses one analysis over the other. Semantically, both alternatives are interpretable, giving the same result. Structurally, i.e. syntactically, both of these possibilities are available, given our independently motivated system". The ill-formedness of (53a iii)

\*clean *outed* would constitute evidence for choosing the analysis i. and rejecting ii.

27. The acceptability judgments that are required in order to decide whether or not sentences such as those exemplified in (54) are grammatical are extremely subtle, as pointed out by Kroch (1979:222). He cites the following grammatical equivalents of the (ii)-sentences in (54b) and (54c) respectively:

- i. The attendant *filled* the tank *PART WAY up*.  
[cf. (54b ii)]
- ii. Sally *put* the dessert *out* and her husband  
the dinner dishes *away*. [cf. (54c ii)]

However, the grammaticality of sentences such as these cannot be adduced as evidence in favour of Selkirk's phrasal analysis of discontinuous verb-particle combinations, unless an alternative explanation can be given for the ungrammaticality of the corresponding sentences in (54). Rather, as Kroch (1979:223) puts it,

"The great diversity of behavior which these combinations exhibit is more likely to be caused by semantics (perhaps also by residual historical factors) than by structural differences for which the motivation is weak."

Note, too, that the existence of grammatical correlates of sentence (54cii) --- e.g. ii. above --- constitutes counterevidence to a potential alternative explanation for the ill-formedness of (54c ii). According to Stillings's (1975:262) rule of Gapping, only one constituent is allowed to the right of the deletion site. If this was correct, the fact that in (54c ii) two constituents, viz. the NP *the figures* and the PP *over*, appear to the right of the deletion site, would explain the ill-formedness of this sentence. On this alternative account, the ill-formedness of (54c ii) would no longer constitute counterevidence to Selkirk's phrasal analysis

of discontinuous verb-particle combinations. But on such an account, *ii.* above should be ungrammatical as well, which it isn't according to Kroch.

28. In a discussion of the effect of the heaviness of the direct object NP on the positioning of particles, Hoffman (1978:342) defines the notion 'heaviness' as follows:

"Heaviness is a relation between sisters. The heaviness of a particular constituent is determined by its length (syllable count), its internal complexity (node count), its stress marking, and perhaps even its pragmatic value. However, the absolute heaviness of a constituent is not the significant variable. The relevant factor is the heaviness of the NP sister relative to that of the PP sister."

Cf. also Oehrle 1976:204 for a discussion of the notion 'heaviness' in connection with the rule of Heavy-NP Shift and Bolinger 1971:51ff for a discussion of the interaction between stress, length and rhythm on the one hand and "news value" on the other hand as factors determining particle position.

29. The assumption (63) is a subcase of the principle of direct syntactic encoding --- cf. Bresnan and Kaplan 1982:xxviii. An outline of the basic assumptions of the variant of generative grammar known as Lexical Functional Grammar is given in the cited Introduction to (Bresnan 1982 (ed.)) written by Bresnan and Kaplan.

NOTES TO CHAPTER 4

1. Emonds (1972:548) first proposed that particles in English be analyzed as (intransitive) prepositions. Particles had previously been assumed either to belong to an independent category, viz. the category Particle, or to be represented by a feature complex in the substructure of the verb. For the former position, cf. e.g. Legum 1968:50 and Kunsmann 1971:170ff. For the latter position, cf. e.g. Fraser 1966:48-49 and Jacobs and Rosenbaum 1968:100ff. Other linguists, apart from Emonds, who have claimed that particles are nondistinct from intransitive prepositions in English are, notably, Jackendoff (1977:32, 68-69) and Fiengo (1980:60).
  
2. For many particles, also known as separable prefixes, in Dutch there exists a corresponding, phonetically identical morpheme which, although it resembles a free morpheme, behaves exactly like a bound morpheme and for this reason is often considered to be an (inseparable) prefix. Baayen (1986:33) cites the following example:
  - i. *Over* as an inseparable prefix:
    - a. *Jan over+weegt het voorstel.*  
John over weighs the proposal  
'John considers the proposal.'
  
    - b. *dat Jan het voorstel over+weegt*  
that John the proposal over weighs  
'that John considers the proposal'
  
  - ii. *Over* as a particle/separable prefix:
    - a. *Jan weegt die brief óver.*  
John weighs the letter over  
'John weighs the letter again.'

- b. *dat Jan de brief óver+weegt*  
that John the letter over weighs  
'that John weighs the letter again.'

As indicated by the "´" in the examples above, verb-particle combinations differ from the phonetically identical prefix + verb constructions as regards the placing of the primary stress. Whereas in verb-particle combinations the primary stress is on the particle, it is the verb which carries the primary stress in the corresponding prefix + verb constructions.

3. The principles concerned interact to determine the distribution of NP types and NP positions in syntactic structures. In terms of the principles of Case assignment some properties of an NP are determined by the presence or absence of a governing Case assigner --- cf. e.g. Van Riemsdijk and Williams 1986:ch. 14. By the principles of  $\theta$ -role assignment an NP is, or is not, assigned argument status with respect to some predicate --- cf. e.g. Van Riemsdijk van Williams 1986:ch. 15. By the principles of the binding theory the possibility or not of the occurrence of a given type of NP in a given structural position is determined by whether or not an NP in that position is free or bound in its governing category --- cf. e.g. Van Riemsdijk and Williams 1986:ch. 17. The Empty Category Principle states the licensing condition for the occurrence of an empty category in terms of a notion of proper government --- cf. e.g. Van Riemsdijk and Williams 1986:ch. 18.

For a definition of the notion 'binding', cf. e.g. Van Riemsdijk and Williams 1986:266. For a definition of the structural relations of government and proper government, and of what counts as a governor, cf. e.g. Van Riemsdijk and Williams 1986:291-292.



4. The Projection Principle is formulated as follows by Van Riemsdijk and Williams (1986:252):

i. Projection Principle

The  $\theta$ -Criterion holds at D-structure, S-structure and LF.

The  $\theta$ -Criterion is informally formulated as follows by them (1986:243):

ii.  $\theta$ -Criterion

Every NP must be taken as the argument of some predicate; furthermore, it must be taken so at most once.

See also Chomsky's formulation of the Projection Principle in n. 14 to chapter 3.

5. Although correctly observing the problematic facts, Baayen wrongly concludes that these facts have a bearing on the adequacy of the word formation rule proposed by Van Riemsdijk to generate the complex verb structure into which the particle is moved by the P-shift rule (2). According to Baayen (1986:39), the word formation rule generating the complex verb structure [<sub>v</sub>[<sub>p</sub> \_\_\_][<sub>v</sub>lopen]] "underdetermines the syntactic configurations which its output projects around itself", such a verb having "no clear status with respect to its argument structure". But this, of course, is a problem with all word formation rules: their output is often characterized by semantic noncompositionality and idiosyncratic subcategorization properties. Such idiosyncracies must merely be listed in the lexicon as idiosyncratic properties of particular complex words. Information about the semantic and subcategorizational idiosyncracies of the products of word formation rules need not be specified by the rules themselves. Word formation rules are considered by many generative morphologists to be merely generalizations about the possible structures of the complex words of a

language. Cf. e.g. Carlson and Roeper 1980 and Lieber 1981:65ff for some discussion of this issue.

6. Cf. Neijt 1979 for a discussion of Gapping in Dutch. In broad terms, a rule of V-Gapping in Dutch deletes a V and, optionally, one or more (not necessarily contiguous) constituents in coordinations of S', S or VP, subject to various conditions such as Recoverability.
7. Booij (1983:1) proposes a nonsyntactic, prosodic rule of Coordination Reduction "whereby parts of complex words are deleted under identity with parts of complex words in the same phrase". According to Booij (1983:2) the latter rule "does not violate the Lexical Integrity principle, because it is a prosodic rule, not a syntactic one". It could be argued that, whereas the syntactic Gapping rule has applied in (15a), it is the prosodic Coordination Reduction rule which has applied in (15b). This would make it possible to maintain an analysis on which *uit + lopen* is a syntactic string in (15a) and a complex word in (15b).

However, given Booij's (1983:9) formulation of the rule of Coordination Reduction, the latter rule cannot have applied in the case of (15b). Booij's rule includes a condition which states that the deleted constituent must be adjacent to the conjunction. This is not the case in (15b). The fact that (15b) is nevertheless well-formed indicates, therefore, that the deletion of *lopen* in (15b) is not the result of the application of Booij's rule of Coordination Reduction in complex words.

8. *in* in (24b) is a motional postposition taking the NP *het bos* as complement. Like particles, motional postpositions can apparently be incorporated in the verb and be moved along with the verb by the rule of V-raising. Cf. Van Riemsdijk 1978:par. 3.7, Stowell 1981:455ff, and Baayen 1986:37, 42f for discussion.

9. cf. Stowell 1981:87 and the discussion in par. 4.3.2.1 below.
10. If the NP *a telegram* could not be assigned Case in (34), the structure would be ruled ill-formed by a Case Filter which rejects any structure containing a noun which is not Case-marked. Cf. Stowell 1981:111 for discussion.
11. Invariant order, such as that displayed by particles and unstressed object pronouns, is a characteristic property of clitics, according to Stowell (1981:120, 306). Cliticization, according to him (1981:284ff), is also a word formation process. Other grammarians have accounted for the facts of (35a) in different ways. Fraser (1965: 137) and Emonds (1972:548), who account for the different structural positions of the particle in terms of a rule of Particle Movement, express the restriction on the particle position in sentences containing a pronominal object as a rule-specific restriction on the application of the rule in question. Bolinger (1971:ch. 4) and Oehrle (1976:221) consider an interplay of phonological and discourse factors to be responsible for the well- or ill-formedness of sentences such as those of (35). for a detailed proposal to this effect, cf. Hoffman 1978:342. See also par. 3.4.2.3 above for particulars of Hoffman's proposal.
12. Cf. Aronoff 1976:51f for some discussion.
13. The situation is actually somewhat more complicated. Stowell (1981:455ff) assumes that Dutch also has a syntactic rule of Reanalysis which reanalyzes an adjacent preposition or postposition and a verb so as to form a complex verb --- see n. 16 below. Thus, assuming that PP and S are bounding nodes for Subjacency in Dutch, as proposed by Van Riemsdijk (1978) and accepted by Stowell (1981:457), the well-formedness of (i), in

which a WH-phrase has apparently been moved across both a PP and an S boundary, can be explained by assuming that (i) has the reanalyzed structure shown in (ii) rather than the structure shown in (iii). The latter structure is the structure prior to the application of Reanalysis according to Stowell (1981:457).

- i. *Waar heeft zij vaak over gesproken?*  
where has she often about spoken  
'What has she often spoken about?'
- ii.  $waar_i$  heeft zij vaak  $[e]_i$   $[v[p$  over]] $[v$ gesproken]]
- iii.  $waar_i$  heeft zij vaak  $[pp[e]_i[p$  over]]  $[v$ gesproken]

In order to account for the fact that intransitive prepositions and surface postpositions such as *over* in (i) above cannot be moved along with the verb by V-raising, despite the fact that they may be reanalyzed as part of the verb, Stowell (1981:463) proposes that V-raising too should be assumed to be a word formation rule. If V-raising is a word formation rule, rather than a rule of syntax, it follows that it cannot apply to complex verbs created in the syntax by application of Reanalysis. Thus it is predicted that only particles and motional postpositions, which can be incorporated into the verb by an incorporation rule applying in the (extended) word formation component, will be able to appear adjacent to the verb in V-raising constructions.

14. The rules of stress assignment, being phonological rules, are sensitive to phonological boundaries by definition. For discussion of the phonological conditioning of morphological word formation rules, cf. e.g. Siegel 1974, Allen 1978 and Kiparsky 1982. See also the discussion of Simpson's proposal in par. 3.2 above.
15. According to Stowell (1981:304ff) the NP constituent of

a complex verb created by the extended word formation rule of NP Incorporation absorbs the Case feature which would normally be assigned by the verb to a lexical NP appearing in a particular subcategorized position in  $\bar{V}$ . As a result, the incorporated NP is linked with the relevant empty subcategorized position by virtue of governing it and having absorbed the Case feature which would normally have been assigned to it. Thus, according to Stowell (1981:305) the sentences (31b) and (33) above actually have the structures (i) and (ii) respectively.

- i. Kevin [ $\bar{V}$  [<sub>V</sub> turned - [the light]<sub>i</sub> - on] - [e]<sub>i</sub>]
- ii. Wayne [ $\bar{V}$  [<sub>V</sub> sent - [Robert]<sub>i</sub>] - [a telegram] - [e]<sub>i</sub>]

The phonetically empty position in  $\bar{V}$  in (i) above is the subcategorized direct object-NP position, whereas the empty position in  $\bar{V}$  in (ii) is the subcategorized indirect object-NP position. These subcategorized positions must appear at D-structure, S-structure and LF in order to satisfy the Projection Principle. Cf. also Stowell 1981:364f n. 7 for technical detail.

16. According to Stowell (1981:438ff), a rule of Reanalysis is responsible for reanalyzing strings of adjacent constituents within a VP so as to form a complex verb. Thus, according to Stowell (1981:444), reanalysis can explain why extraction of the WH-phrase *which boys* from the complex NP in (ii) below is possible, in apparent violation of Subjacency. He argues that the extraction is possible, as evidenced by the well-formedness of (i), because the string V-NP-P has been reanalyzed as a complex V, as shown in (iii).

- i. [which boys]<sub>i</sub> did you take pictures of [e]<sub>i</sub>
- ii. [ $\bar{V}$  [<sub>V</sub> take][<sub>NP</sub> [<sub>NP</sub> pictures][<sub>PP</sub> [<sub>P</sub> of][<sub>NP</sub> which boy]]]]

theta role, the details of which do not concern us here. Of these, only one, viz. theta identification, is available given the structure assigned to synthetic compounds within Sproat's framework. Theta identification, however, requires that the thematic grid of both the verbal head and the nonhead constituent contain an "open position", i.e. a theta role that has not yet been discharged. If the thematic grid of the nonhead constituent must contain an open position, it follows that this constituent cannot be a maximal projection since all theta roles are discharged within a maximal projection on Sproat's theory.

12. Lieber (1984:196) stipulates that  $X^0$  be assumed to count as a bounding node for Subjacency. This would rule out the movement of constituents into or out of words, i.e.  $X^0$  categories.

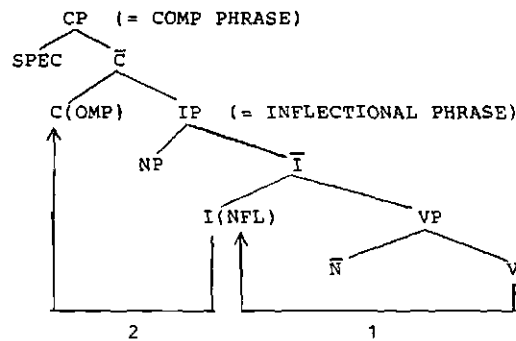
Sproat (1985b:194) argues that there is independent reason to believe that the grammar contains a requirement to the effect that a nonmaximal projection cannot serve as the antecedent of an anaphor or pronoun. Given this requirement, the anaphoric islandhood of words follows, at least for English, since words ( $X^0$  categories) cannot contain maximal projections --- see n. 11. Thus, there is no need to appeal to a separate principle such as the Lexical Integrity Hypothesis to account for the anaphoric islandhood of words. See n. 11 to chapter 1 for an illustration of the phenomenon of anaphoric islandhood.

13. It should be noted at this point that the combinations in (7) above are all listed as verbs in dictionaries of Afrikaans. They are also assumed to be "(complex) verbs" by grammarians of Afrikaans such as, e.g., Kempen (1969:298ff), Du Plessis (1972:69), and Ponelis (1979:232ff). However, any resemblance between the (pretheoretical) notion 'complex verb' with which these grammarians operate and the theoretical notion 'complex verb' employed in this study is no more than a superficial, terminological resemblance.

14. See also the examples in (45)-(46) in par. 2.7 above.
15. See also the examples in (47) in par. 2.7 above.
16. See also the examples in (52b, c) in par. 2.7 above.
17. See also the examples in (49b) and (51b) in par. 2.7 above.
18. See also the example (53a) in par. 2.7 above.
19. Cf. e.g. Fraser 1965, Ross 1967, Legum 1968, Jacobs and Rosenbaum 1968, and Oehrle 1976 for the kinds of arguments that have been presented in support of a similar claim about verb-particle combinations in English.
20. Baker (1985) proposes an alternative way of deriving the well-formedness of structures such as (19). On his proposal, a complex  $X^0$  category may be created by application of the rule Move  $\alpha$ . In essence, Move  $\alpha$  may move an  $X^0$  category from its D-structure position and adjoin it to a governing  $X^0$  constituent to create a complex  $X^0$  constituent. The well-formedness of the resulting structure is determined by principles such as the Empty Category Principle, principles of theta assignment, etc. This alternative will not be explored here, given that similar "incorporation" analyses, viz. those proposed by Van Riemsdijk and Stowell, have been shown to give rise to incorrect predictions about the properties of verb-particle combinations in chapter 4 above.
21. The claim being made here is not that a maximal projection cannot appear in the nonhead position of a compound. Phrasal compounds, i.e. compounds with a phrasal nonhead constituent, are indeed possible as Lieber (to appear) herself is at pains to show --- see discussion below. The claim being made here is that the nonhead constituent of (nonphrasal) compounds such as (19) is typically not a

maximal projection.

22. A detailed discussion of the predictions made by Lieber's set of principles and parameters, as well as of possible counterexamples to the claims made about word structure in English, falls outside the scope of this study. The reader is referred to the discussion in (Lieber to appear).
23. The facts concerning VP and PP are actually more complicated. Thus, as far as PP is concerned, it should be noted that Afrikaans has more prepositions than postpositions, and that postpositions very often co-occur with a preposition, as in (27c) above. As far as VP is concerned, it is misleading to claim that it can be either head-initial or head-final. When V is preceded by its complements in Afrikaans, it can indeed be assumed to occupy the final position in VP. However, on most analyses of the V-second phenomenon, V is assumed to have moved out of VP in sentences in which it precedes its complements. Thus, Travis (unpubl.:8-10) proposes that V can only be moved to the positions shown in the structure below in languages such as German:



If no movement takes place, sentences such as i. are derived in German (the Afrikaans equivalent is given immediately below the German sentence):



- i. *Ich weiss dass die Kinder* [<sub>VP</sub> *das Brot gegessen haben*].  
*Ek weet dat die kinders* [<sub>VP</sub> *die brood geëet het*].  
I know that the children the bread eaten have  
'I know that the children have eaten the bread.'

Movement of V to INFL yields sentences such as ii.

- ii. [<sub>IP</sub> *Die kinder haben* [<sub>VP</sub> *das Brot gegessen* ]].  
[<sub>IP</sub> *Die kinders het* [<sub>VP</sub> *die brood geëet* ]].  
the children have the bread eaten  
'The children have eaten the bread.'

And movement to COMP is claimed to have taken place in sentences such as the following:

- iii. [<sub>CP</sub> *Heute haben* [<sub>IP</sub> *die Kinder* [<sub>VP</sub> *das Brot gegessen* ]]].  
[<sub>CP</sub> *Vandag het* [<sub>IP</sub> *die kinders* [<sub>VP</sub> *die brood geëet* ]]].  
today have the children the bread eaten  
'Today the children ate the bread.'

If analyses such as those proposed by Travis are correct, it cannot be claimed that VP in German (and in Afrikaans) can be either head-initial or head-final, because V never in fact occurs in the initial position in VP. It would be correct, however, to claim that V can be either preceded or followed by its complements.

24. Cf. Stowell 1981:ch. 4 for a discussion of the specifier system in English.
25. The prediction is probably correct. Indications are that complex words in Afrikaans are predominantly right-headed. Possible exceptions are prefixed words such as those shown in i. in which the prefix is category-changing and hence could be argued to be syntactically the head of the derived word.

- i. [<sub>ge</sub> + <sub>juig</sub><sub>V</sub>]<sub>N</sub>      [<sub>ver</sub> + <sub>soet</sub><sub>A</sub>]<sub>V</sub>  
PREFIX cheer      PREFIX sweet  
'cheering'      'to sweeten'

Merely stipulating that the nonhead constituent in a compound structure is its own maximal projection would not solve the problem noted in connection with Lieber's principle (21), however. This principle would still fail to express the generalization that maximal projections in phrase structure are  $\bar{X}$  categories, whereas maximal projections in word structure are  $X^0$  categories.

27. To my knowledge the question of bounding nodes in Afrikaans has not been systematically investigated. The assumption that S is a bounding node in Afrikaans is not unreasonable, however. A first indication that this is not an unreasonable assumption is the fact that S is assumed to be a bounding node in Dutch, with which Afrikaans shares many syntactic properties --- cf. e.g. Van Riemsdijk and Williams 1986:76. A second indication that it is reasonable to assume, pending evidence of the required kind, that S is a bounding node for Afrikaans is provided by facts such as the following:

- i. Movement of a constituent out of a complex NP to the COMP position is impossible in Afrikaans, e.g.

a. \*Hy vra [ $\bar{S}$   $\overbrace{wie_i}^{\uparrow}$  [ $S$  [ $NP$  stories [ $PP$  oor  $e_i$ ]]]]  
 he asks whom stories about  
 kinders bang maak  
 children afraid make  
 'He asks whom stories about e scare children.'

b. \*Hy vra [ $\bar{S}$   $\overbrace{wie_i}^{\uparrow}$  [ $S$  Piet [ $NP$  n vermoede [ $\bar{S}$   $\overbrace{e_i}^{\uparrow}$  [ $S$   $\overbrace{e_i}^{\uparrow}$  sy  
 he asks who Peter a suspicion his  
 beursie gesteel het]]] het]]  
 purse stolen has has  
 'He asks who Peter has a suspicion e stole his  
 purse.'

'scraping by pushing', in which case changing the order of the constituents would result in a change of meaning. Cf. Kempen 1969:344 for some discussion. In the latter case the righthand constituent of the compound could be argued to be the head semantically. For some discussion of the distinction between the syntactic and the semantic notions 'head of a word' and the relationship between these notions, cf. Zwicky 1984a.

Appositive compounds such as those shown in iv. may be argued to be semantically left-headed because of the fact that the relationship between the constituents is, roughly, one of modifiee-modifier. The compound shown in iv.b. could be argued to be syntactically left-headed as well.

iv. a.  $[goewerneur_N + generaal_N]_N$   
governor general  
'governor-general'

$[Piet_N + lekkerbek_N]_N$   
Peter gourmet  
'Peter (who is a) gourmet'

b.  $[Jan_N + [groot + praat]_{Vn}]_N$   
John big talk  
'John (who) boasts'

Cf. Botha 1964:264ff and Kempen 1969 for examples.

26. Fabb (1984:35) assumes that the "non-heads in compounds are like phrasal maximal projections in that they may be freely associated with a Case feature ... and may be assigned a theta-role". This assumption, according to him, follows from the requirement that a dominating node can be in a projection relationship with only one of its daughter nodes. Given this requirement, only one of the daughter nodes in a compound structure (viz. the righthand node, by the Righthand Head Rule) must be assumed to be nonmaximal, hence in a projection relationship with the mother node.

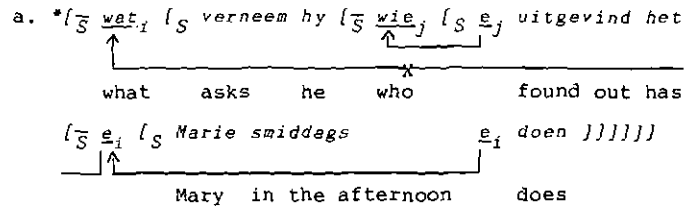
|                   |                     |
|-------------------|---------------------|
| $[ont + bos_N]_V$ | $[be + vriend_N]_A$ |
| de forest         | be friend           |
| 'to deforest'     | 'befriended'        |

Other possible exceptions are compounds with an additive meaning, such as those shown in ii. and iii.

|                                      |                                |
|--------------------------------------|--------------------------------|
| ii. $[doof_A + stom_A]_A$            | $[dom_A + astrant_A]_A$        |
| deaf mute                            | stupid cheeky                  |
| 'deaf-mute'                          | 'impudent'                     |
| $[wuif_V + groet_V]_V$               | $[stoot_V + skraap_V]_V$       |
| wave greet                           | push scrape                    |
| 'to greet with a wave'               | 'to bulldoze'                  |
| iii. $[sit_V + lê_V]_V$              | $[kok_N + huishoudster_N]_N$   |
| sit lie                              | cook housekeeper               |
| 'to lounge'                          | 'cook-cum-housekeeper'         |
| $[huil_V + kreun_V]_V$               | $[nukkerig_A + geprikkel_A]_A$ |
| cry groan                            | moody irritable                |
| 'to cry and groan<br>simultaneously' | 'moody and irritable'          |

In the case of compounds such as those exemplified in ii. and iii., both constituents are of the same category as the compound as a whole. Syntactically neither can therefore be identified as the head. Semantically, too, neither constituent appears to be more prominent than the other. This is most obvious in the case of the coordinative compounds shown in iii. The order of the constituents in these compounds can be switched without affecting the meaning in any way. The compounds in ii., by contrast, may be argued to have two meanings, only one of which is truly coordinative, the other being noncoordinative. For example, *stootskraap* could have the meaning 'pushing and scraping simultaneously', in which case the meaning would not change if the order of the constituents were to change. But it could also have the meaning

- ii. Movement of a constituent out of a clause containing a WH-phrase in COMP is impossible in Afrikaans, e.g.



'\*What<sub>i</sub> does he ask who found out e<sub>i</sub> Mary does in the afternoons?'

In i.a. the impermissible movement crosses an S, NP and PP. In i.b. the impermissible movement crosses an  $\bar{S}$ , NP and S. And in ii.a. the impermissible movement crosses two  $\bar{S}$  nodes and two S nodes. If S and  $\bar{S}$ , or  $\bar{S}$  and NP, were taken to be bounding nodes, the impossibility of movement in i.a. could not be accounted for. If only PP and NP were taken to be bounding nodes, the impossibility of movement in i.b. and ii.a. could not be accounted for. Hence, the only way to account for the impossibility of movement in all three the cases shown above would be to assume, minimally, that S and NP are bounding nodes in Afrikaans.

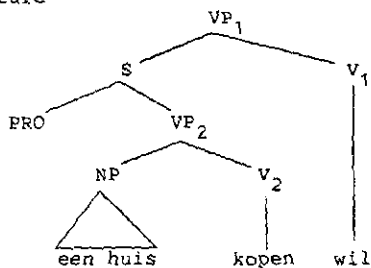
8. Baker's definition of 'government' reflects the notion of government accepted in (Chomsky 1986:8ff).
19. Baker's formulation of the Empty Category Principle and his definition of 'proper government' reflect standard assumptions about the content of these notion. Cf. e.g. Van Riemsdijk and Williams 1986:ch. 18 for discussion.
30. Cf. the discussion in (Baker 1985:70ff) for an indication of the differences between the definition of 'barrier' presented here and that presented in (Chomsky 1986:par. 4). These difference are subtle and do not appear to have

consequences for the argument developed here.

31. The status of the A-over-A Principle within current versions of the GB theory of syntax is not clear. Part, but not all, of the content of this principle has been subsumed by Subjacency --- cf. e.g. the discussion in Van Riemsdijk and Williams 1986:ch. 4. However, the A-over-A Principle is apparently still required to account for phenomena that fall outside the scope of the Subjacency condition --- cf. e.g. Chomsky 1981:222 fn. 2. The direction taken in recent work by, e.g., Chomsky (1986) has been to develop a notion 'barrier' to replace the notion 'bounding node' relevant to Subjacency. It may be assumed that the effects of the A-over-A Principle too will eventually be derivable from a theory of barriers.
32. Chomsky (1986:71) calls the assumption that I is theta-indexed with its complement VP a "questionable assumption". Yet, given the pervasiveness of the V-second phenomenon in, particularly, Germanic languages, VP would have to be assumed not to be a barrier to movement. It would then be a question of finding the correct mechanism to account for this putative fact.
33. Recall, too, that both Van Riemsdijk and Stowell have been shown to argue that verb-particle combinations in Dutch must be analyzed as complex verbs at some level of representation. See the discussion in chapter 4 above.
34. Baker (1988:45ff) proposes the following derivation for the Dutch sentence:

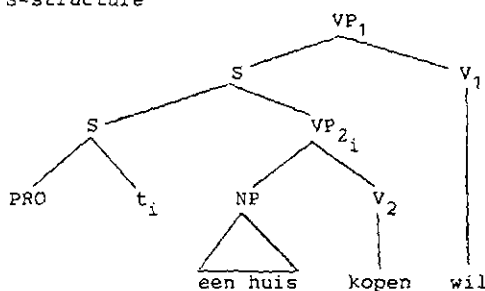
*dat Jan wil een huis kopen*  
that John wants a house buy  
'that John wants to buy a house'

i. D-structure



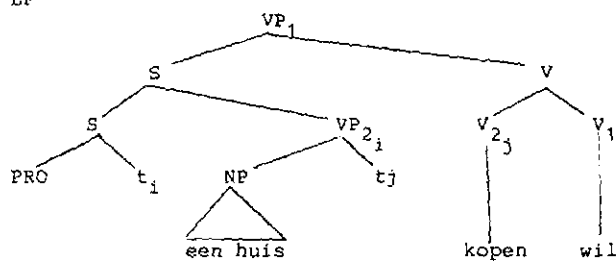
$VP_2$  is adjoined to S by application of Move  $\alpha$ , yielding

ii. S-structure



$V_2$  is incorporated into  $V_1$  by application of Move  $\alpha$  at LF, yielding

iii. LF



Cliticization of the auxiliary verb  $V_1$  takes place at PF. The cliticization rule places the clitic (i.e.  $V_1$ ) before the last phrase of the preceding

clause, where "the last phrase" is defined as 'any phrase which properly contains the last word of the relevant clause (and which is less than the entire clause)'. Cliticization of  $V_1$  yields

iv. PF

*dat Jan* [<sub>VP<sub>1</sub></sub> [<sub>S</sub> PRO [<sub>V<sub>1</sub></sub> *wil*] [<sub>VP<sub>2</sub></sub> *een huis kopen*]]]

If "the last phrase" is taken to be  $V_2$  instead of  $VP_2$  the following variant of the above structure, which corresponds with a well-formed sentence in Dutch, is derived:

*dat Jan* [<sub>VP<sub>1</sub></sub> [<sub>S</sub> PRO [<sub>VP<sub>2</sub></sub> *een huis* [<sub>V<sub>1</sub></sub> *wil*] *kopen*]]]

Thus the fact that the NP *een huis* can be either adjacent to or separated from the verb *kopen* after "V-raising" is accounted for by assuming variation with regard to the placement of the clitic at PF. In order to account for the fact that in Afrikaans the clitic cannot be placed between a particle and a verb, the only possible position of the clitic would have to be assumed to be before the last nonminimal constituent of the preceding clause.

The adjunction of  $VP_2$  to S (see ii. above) is required in order that the S-structure may be a proper input structure for incorporation at LF. (Incorporation is required to account for scope facts --- see Baker 1988:52ff for discussion.) Notice that  $V_2$  cannot be incorporated into  $V_1$  in the D-structure shown above. Given that an S intervenes between  $V_1$  and  $V_2$ , the structure resulting from such incorporation would violate the ECP: the incorporated  $V_2$  would not govern its trace within  $VP_2$ . After adjunction, S no longer counts as a barrier to govern-

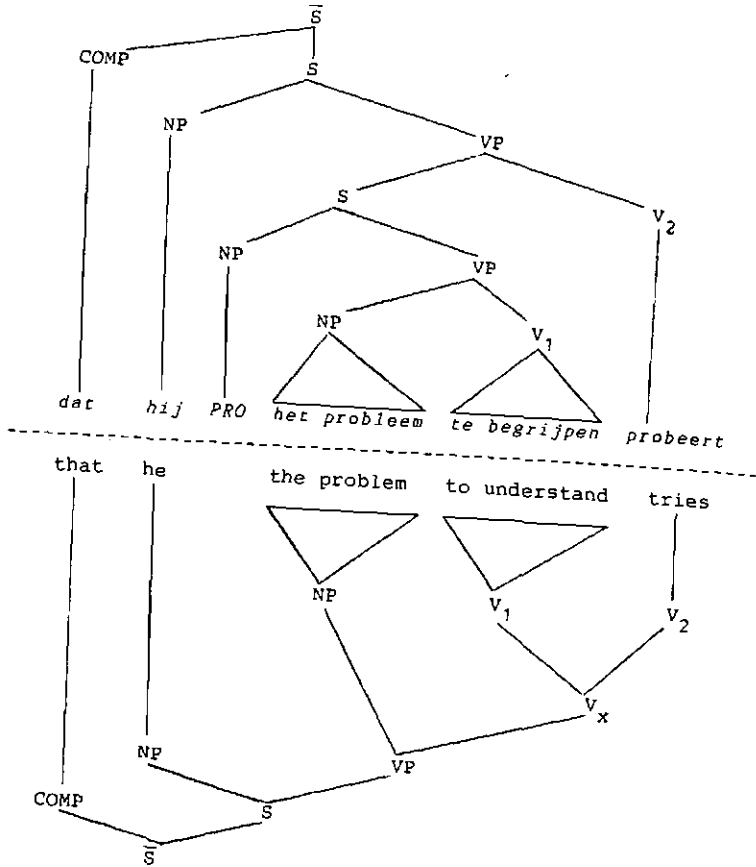


ment as it is now a complex category  $S + VP_2$ . In such an adjunction structure the dominating category  $S$  assumes the indices of the adjoined category. Hence  $S$  would assume the theta index of  $VP$  by virtue of which  $VP_2$ , hence  $S + VP_2$ , does not count as a barrier to government --- see Baker 1985:69 for discussion of the properties of adjunction structures.

35. For example, Haegeman and Van Riemsdijk (1986) argue that so-called V-raising phenomena are the result, not of movement, but of reanalysis and inversion. Thus, they (1986:422f) propose that the sentence *dat hij het probleem te begrijpen probeert* ('that he tries to understand the problem') in Dutch be derived in the following way. First Reanalysis has the effect of reanalyzing linearly adjacent  $V$  nodes in a structure as a complex  $V$  node. The structure before reanalysis is shown above the line in i. and the structure after reanalysis below the line. The multidimensional representation is intended to express the claim that Reanalysis adds an additional set of brackets to a structural description.

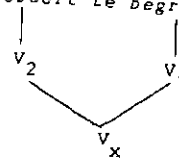
i. ...

i. Reanalysis:



Inversion applies to the reanalyzed node  $V_x$ , inverting the order of its constituents, as shown in ii.

ii. Inversion: *dat hij het probleem probeert te begrijpen*



36. Cf. Baker 1985 for an extensive discussion of the so-called incorporation phenomena for which an adjunction analysis is postulated.
37. Cf. e.g. Booij 1983; Thomas-Flinders 1983:190:fn. 1; Höhle 1985:335ff; Sproat 1985:403f; and Toman 1985:429 for examples from English, Dutch, and German, and for discussion of possible constraints on the deletion of constituents of complex words.
38. Cf. e.g. Botha 1981:200 for this formulation of (part of) the Recoverability Condition. It is clear from Botha's discussion of this condition that the identity required of the deleted element and another element in the P-marker includes at least identity in meaning/interpretation.
39. Cf. e.g. Selkirk 1982:60ff and Lieber 1980:35ff; to appear:6-7 for the assumption that affixes have subcategorization properties.
40. Note that neither Sproat nor Lieber indicates how the regular (i.e. nonidiosyncratic) syntactic, phonological and/or semantic properties of items listed in the lexicon are to be accounted for. For instance, it may be asked how the regular syntactic and phonological properties of a verb-particle combination listed in the lexicon by virtue of its idiosyncratic semantic properties are to be specified.

Selkirk (1982:11-12) has suggested a possible solution to this problem. She proposes that the structural properties of all words in the lexicon must be specifiable by the word structure rules of the language. That is, the word structure rules function as well-formedness conditions or redundancy rules in the case of words listed in the lexicon. The phonological and semantic rules of the language could presumably be claimed to perform the same function

with regard to the regular phonological and semantic properties of listed items.

Thus, the syntactic and phonological regularity of a listed verb-particle combination would be indicated by the fact that its phonological and syntactic properties, as specified in its lexical entry, are exactly as predicted by the relevant phonological and syntactic rules. Its meaning, by contrast, would be marked as idiosyncratic by virtue of the fact that it deviates from the meaning specified by the semantic rules.

41. Parallel predictions are of course made for compound nouns, adjectives, and prepositions. Examples of compound nouns and adjectives with structures parallel to those shown for compound verbs in (62) were provided in par. 6.3.2 above. Compound prepositions do not occur in Afrikaans, but Afrikaans could be claimed not to be unique in this respect. The same principle that is responsible for ruling out compound prepositions in other languages could be argued to rule out compound prepositions in Afrikaans as well. Lieber (to appear:9) suggests that the fact that P is a closed category could be responsible for the absence of compound prepositions in English.

Another, more serious, problem with the predictions made by Lieber's structural principles is that not all of the possible compound types can be productively formed in Afrikaans. Thus, whereas the rules forming NN and VN compounds are fully productive in Afrikaans, those forming VA and VV compounds are only of limited productivity according to Kempen (1969). However, accounting for differences in productivity is a problem for any theory of compounding on which compounds are assumed to be formed by rule.

The prediction that left-headed compound nouns, adjectives and prepositions with structures parallel to those shown in (63) are impossible in Afrikaans is possibly correct.

Compound structure is predominantly right-headed in Afrikaans, although some left-headed compounds do occur, as well as compounds of which neither constituent appears to be the head --- see n. 25 above for examples.

42. Forms such as the underlined ones below appear to have a nonhead constituent which contains a modifier of some sort:

- i. *Hulle is aan 't soet + koekies bak.*  
they are PROGRESSIVE sweet cookies bake  
'They are baking sugar-cookies.'
- ii. *Die kind is aan 't drie + wiel ry.*  
the child is PROGRESSIVE three wheel ride  
'The child is riding on a tricycle.'
- iii. *Sy is haar aan 't pop + mooi maak.*  
she is her PROGRESSIVE doll pretty make  
'She is making herself as pretty as a doll.'

However, it could be argued that the nonhead constituents *soetkoekies*, *driewiel*, and *popmooi* must themselves be analyzed as compounds. Thus note that *soet*, *drie*, and *pop* do not allow specifiers or modifiers, as shown below.

- iv. *\*Hulle is aan 't [nog soeter] + koekies bak.*  
they are PROGRESSIVE even sweeter cookies bake
- v. *\*Die kind is aan 't [net drie] + wiel ry.*  
the child is PROGRESSIVE only three wheel ride
- vi. *\*Sy is haar aan 't [n pop] + mooi maak.*  
she is her PROGRESSIVE a doll pretty make

Also, *soetkoekies*, *driewiel*, and *popmooi* have the generic, nonspecific interpretation characteristic of nonhead constituents of compounds, despite the fact that they contain the specifiers/modifiers in question. Thus *soetkoekies* in *soetkoekies bak* refers to a kind of cookie, *driewiel*

in *driewiel ry* refers to a kind of cycle, and *popmooi* in *popmooi maak*, must be interpreted as 'pretty as a(ny) doll', rather than 'pretty as a specific doll'.

It could be concluded, therefore, that the nonhead constituents of the forms in i.-iii. above must themselves be analyzed as compounds rather than phrases. The form *soet-koekies bak* illustrates another point as well, viz. that the presence of a diminutive or plural suffix on the nonhead constituent of a compound does not force a specific, i.e. nongeneric, interpretation. Thus, the nonhead constituents of the underlined forms below can be interpreted generically, despite their plural morphology. Hence, these underlined forms can be argued to be compounds.

vii. *Ek gaan gou hande + was.*  
I go quickly hands wash  
'I am going to wash (my) hands quickly.'

viii. *Sy probeer vir hom ogies + maak.*  
she tries for him small eyes make  
'She tries to make eyes at him.'

43. Cf. e.g. Baker 1985:par. 2.2 and Sproat 1985:488 for suggestions as to how the syntactic cohesiveness of words containing affixes and other bound morphemes could be accounted for within the framework of a theory of syntactic word formation.
44. In a discussion of the phenomenon of *ge-* deletion in Dutch, De Rooij-Bronkhorst (1980:167f) specifically argues that *ge-* deletion is conditioned by morphological structure and not by stress in Dutch. The same appears to be true of Afrikaans. Thus, note that *ge-* may appear with underived verbs in Afrikaans, even if the first syllable of the base verb is unstressed, as it is in prefixed verbs:

|                |   |                  |
|----------------|---|------------------|
| <i>probéer</i> | - | <i>geprobeer</i> |
| try            |   | tried            |
| <br>           |   |                  |
| <i>studéer</i> | - | <i>gestudeer</i> |
| study          |   | studied          |
| <br>           |   |                  |
| <i>rinkink</i> | - | <i>gerinkink</i> |
| gambol         |   | gambolled        |

45. Cf. e.g. De Vries 1975:137ff; Declerck 1976:63; Booij 1977:98ff; Strauss 1979:72ff; De Rooij-Bronkhorst 1980:161; Hoeksema 1984:68; Trommelen and Zonneveld 1986; and Wunderlich 1987:307ff. The generally fuzzy nature of the boundary between prepositions and prefixes has been discussed by, e.g., Williams (1981:255); Vögeding (1981:69ff, 96ff); Sproat (1985:114); and Baker (1985:344 and 509 fn. 2). For a diachronic account of this phenomenon, cf. Wunderlich 1987. As far as Afrikaans is concerned, Kempen (1969:299) states that the prepositions in question behave more like prefixes, but hesitates to call them prefixes because of their similarity in meaning to the homophonous prepositions/adverbs.

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#### THE SPIL LOGO

The logo on the front cover depicts Simon van der Stel Dutch governor of the Cape of Good Hope from 1679 to 1699, and the founder of Stellenbosch. We have chosen to portray Van der Stel in our logo for reasons of symbolism that relate to his historical significance, his intellectual qualities, and his creole descent. Simon van der Stel was the man who, in founding the town of Stellenbosch, took a deliberate initiative towards establishing the permanency of the young Dutch settlement at the Cape of Good Hope. He has been portrayed as a man endowed with special intellectual qualities, who set great store by clear, factual thinking -- a quality which we value. His creoleness, to us, is symbolic both of the melting-pot from which emerged the South Africa of the 18th century and of the kind of future that we envisage for our country: a future unmarred by the racist divide that infects our society today. Our linking of Van der Stel's image to SPIL is intended to reflect our commitment to such a future. We are happy to note that this commitment is reflected, too, in the policy of our university, quoted below:

**We reject outright all discrimination on the grounds of race, colour or creed and see ourselves as committed, unequivocally, to the dismantling of apartheid and to achieving inclusive democracy and equal opportunity for all in this fair country.**